

Natural Resource Management and Policy  
*Ariel Dinar and David Zilberman, Series Editors*

# Policy Reforms and Agriculture Development in Central Asia

Edited by  
Suresh Chandra Babu  
Sandjar Djalalov

---

# POLICY REFORMS AND AGRICULTURE DEVELOPMENT IN CENTRAL ASIA

## NATURAL RESOURCE MANAGEMENT AND POLICY

### Editors:

**Ariel Dinar**

Rural Development Department  
The World Bank  
1818 H Street, NW  
Washington, DC 20433

**David Zilberman**

Dept. of Agricultural and  
Resource Economics  
Univ. of California, Berkeley  
Berkeley, CA 94720

### EDITORIAL STATEMENT

There is a growing awareness to the role that natural resources such as water, land, forests and environmental amenities play in our lives. There are many competing uses for natural resources, and society is challenged to manage them for improving social well being. Furthermore, there may be dire consequences to natural resources mismanagement. Renewable resources such as water, land and the environment are linked, and decisions made with regard to one may affect the others. Policy and management of natural resources now require interdisciplinary approach including natural and social sciences to correctly address our society preferences.

This series provides a collection of works containing most recent findings on economics, management and policy of renewable biological resources such as water, land, crop protection, sustainable agriculture, technology, and environmental health. It incorporates modern thinking and techniques of economics and management. Books in this series will incorporate knowledge and models of natural phenomena with economics and managerial decision frameworks to assess alternative options for managing natural resources and environment.

*The Series Editors*

### Recently Published Books in the Series

Haddadin, Munther J.

*Diplomacy on the Jordan: International Conflict and Negotiated Resolution*

Renzetti, Steven

*The Economics of Water Demands*

Just, Richard E. and Pope, Rulon D.

*A Comprehensive Assessment of the Role of Risk in U.S. Agriculture*

Dinar, Ariel and Zilberman, David

*Economics of Water Resources: The Contributions of Dan Yaron*

Ünver, I.H. Olcay, Gupta, Rajiv K. IAS, and Kibaroglu, Aysegül

*Water Development and Poverty Reduction*

d'Estrée, Tamra Pearson and Colby, Bonnie G.

*Braving the Currents: Evaluating Environmental Conflict Resolution in the River Basins of the American West*

Cooper, Joseph, Lipper, Leslie Marie and Zilberman, David

*Agricultural Biodiversity and Biotechnology in Economic Development*

---

# POLICY REFORMS AND AGRICULTURE DEVELOPMENT IN CENTRAL ASIA

Edited by

SURESH CHANDRA BABU  
International Food Policy Research Institute  
Washington, DC

and

SANDJAR DJALALOV  
Center for Efficient Economic Policy  
Tashkent, Uzbekistan



Springer



Library of Congress Control Number: 2005935083

ISBN:10: 0-387-29777-4

e-ISBN-10: 0-387-29779-0

ISBN-13: 978-0387-29777-4

e-ISBN-13: 978-0387-29779-8

Printed on acid-free paper.

© 2006 Springer Science+Business Media, Inc.

All rights reserved. This work may not be translated or copied in whole or in part without the written permission of the publisher (Springer Science+Business Media, Inc., 233 Spring Street, New York, NY 10013, USA), except for brief excerpts in connection with reviews or scholarly analysis. Use in connection with any form of information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed is forbidden.

The use in this publication of trade names, trademarks, service marks and similar terms, even if they are not identified as such, is not to be taken as an expression of opinion as to whether or not they are subject to proprietary rights.

Printed in the United States of America.

9 8 7 6 5 4 3 2 1

[springeronline.com](http://springeronline.com)

## CONTENTS

**Foreword** xi

**Acknowledgements** xiii

### *Part I: Introduction*

#### **Chapter 1**

Policy Reforms and Agriculture Development in Central Asia: An

Overview of Issues and Challenges 3

*Suresh Chandra Babu and Debdatta Sengupta*

#### **Chapter 2**

Economic Reform and Performance in Central Asia 25

*Richard Pomfret*

### *Part II: Agriculture Development in Central Asia – Trends and Analysis of Policy Reforms*

#### **Chapter 3**

Political Economy of Agrarian Reforms in Central Asia: Lessons

from Policy Failures 61

*Hooman Peimani*

#### **Chapter 4**

- Policy Reforms in Central Asia: Problems and Perspectives 71  
*Sandjar Djalalov and Masahiko Gemma*

#### **Chapter 5**

- A Comparative Analysis of Trends in Agricultural Productivity in  
Central Asian Transition Economies 109  
*Sandjar Djalalov*

#### **Chapter 6**

- Land Reform and Farm Restructuring in Central Asia: Progress and  
Challenges Ahead 131  
*Ramesh Deshpande*

#### **Chapter 7**

- Globalization, Water and Changing Policies in the Aral Sea  
Basin 171  
*Bakhtiyor Mukhamadiev and Ulugbek Akhmedov*

#### **Chapter 8**

- Agriculture Reform Policies in Uzbekistan 181  
*Max Spoor*

#### **Chapter 9**

- Policy Reforms and Agriculture Development Challenges  
in Tajikistan 205  
*T.V. Sampath*

**Chapter 10**

Agrarian Reforms in Turkmenistan 221

*Zvi Lerman and Ivan Stanchin*

***Part III: Establishing the Sectoral Linkages in Policy Reforms***

**Chapter 11**

Impact of Policy Reforms on Farm Production in Uzbekistan 239

*Sandjar Djalalov and Masahiko Gemma*

**Chapter 12**

Farmers' Response to Land Privatization in Tajikistan 257

*T.V. Sampath*

**Chapter 13**

Market Reform and Producer Responses in Central Asia 267

*Sandjar Djalalov and Masahiko Gemma*

**Chapter 14**

Policy Reforms and Livestock Development in Central Asia 277

*Mekhlis Suleimenov, Luis Iniguez, and Madina Musayeva*

**Chapter 15**

Private Sector Development in Uzbekistan Agriculture: Challenges  
and Opportunities 311

*Sandjar Djalalov and Masahiko Gemma*

## **Chapter 16**

Institutional Reforms and National Agricultural Research Systems  
in Central Asia 347

*Suresh Chandra Babu and Alisher Tashmatov*

## **Chapter 17**

Irrigation Systems and Sustainable Natural Resource Use under  
Economic Reforms in Uzbekistan 357

*Alisher Tashmatov and Dilobar Tashmatova*

## **Chapter 18**

The Sustainable Development of Water User's Associations in  
Uzbekistan 371

*Sandjar Djalalov*

## ***Part IV: Policy Reforms, Poverty and Food Security***

## **Chapter 19**

Food Security and Poverty in Central Asia 397

*Suresh Chandra Babu and Valerie Rhoe*

## **Chapter 20**

Policy Reforms and Poverty in Central Asia with Special Focus  
on Kyrgystan 419

*Suresh Chandra Babu, William Reidhead and Debdatta Sengupta*

**Chapter 21**

Food Security and Determinants of Poverty in Central Asia: Case Study from Kazakhstan 441

*Valerie Rhoe, Suresh Chandra Babu and William Reidhead*

***Part V: Future Challenges and Conclusions*****Chapter 22**

Information and Communication Technology in Reforming National Agricultural Systems in Central Asian Countries: The Case of Georgia 457

*Tugrul Temel and Ajit Maru*

**Chapter 23**

Strengthening Institutional Capacity for Policy Reforms in Central Asia 475

*Suresh Chandra Babu, Debdatta Sengupta and Alisher Tashmatov*

**Chapter 24**

Policy Reforms in Central Asian Agriculture: A Synthesis and Conclusions 485

*Debdatta Sengupta and Suresh Chandra Babu*

## Foreword

Achieving sustainable agricultural development is at the forefront of the poverty reduction objective of the Central Asian republics – Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan. Since independence, the countries of the Central Asian region have undergone a series of transition from centrally planned economies to a more market oriented system. Wide-ranging policy reforms have been implemented, although in varying degrees, in the five Central Asian countries. Despite great efforts by the countries and the external advice and efforts of international agencies to help them to follow a dynamic growth path, the progress in policy reforms has been frustratingly slow.

Generating momentum to reorient the approach and the sequencing of policy reform packages will require rethinking of the policy reform process. This is particularly so in the food, agriculture, and natural resource sectors. This further requires improved understanding among the policymakers, donors, and international agencies of the impact of policy alternatives so that policy reforms and the speed with which they have been implemented are consistent with the objectives and the social and political realities of individual countries in the region. Involving the local policy research community in identifying critical issues and challenges, setting priorities among them for food and agricultural and natural resource policy research and analysis, and implementing joint research studies is the best way to generate knowledge on the impact of policy reforms and to increase ownership of policy design and implementation.

This volume brings together a set of papers prepared by researchers from the International Food Policy Research Institute and their collaborators in the Central Asia region. The papers of this volume address several issues facing the process and approach to policy reforms and their impact on agricultural development in Central Asian countries, offer expert policy research and analysis, and provide research-based information for generating policy recommendations that is relevant for the countries of the region.

It is my hope that the papers of this volume and the analysis contained there-in will provide new insights and inform those involved in the policy reform process of Central Asia region.

**Joachim von Braun**

*Director General*

*International Food Policy Research Institute*

## Acknowledgements

This volume contains papers that are prepared by a team of collaborators who have been involved in studying, analyzing, and writing about policy reforms processes and outcomes in the Central Asia region. They include independent researchers, and researchers and collaborators of the International Food Policy Research Institute (IFPRI). IFPRI has been active in the Central Asia region for the past eight years and continue to conduct policy research, capacity strengthening, and communications in collaboration with its partner institutions.

The genesis for this volume has been the Sub-regional Workshop on “Food Security and Agricultural Diversification in Countries of Central Asia” which IFPRI helped UNCTAD to organize in Almaty, Kazakhstan, in November 2001. The workshop brought together key local researchers and policy makers to interact with external researchers and advisers. A major outcome of the workshop was the recognition of the lack of information on the impact of policy reforms and identification of information gaps. We thank Mehmet Arda and Alexei Mojarov for organizing the workshop.

IFPRI’s work in the started with the a major training workshop it helped to implement on “Policy Reforms in Central Asia” organized by the World Bank Institute, in Turkey in April of 1998. Thanks to Kevin Cleaver, Chandra Ranade, Karen Brook, Mohinder Mudahar, Jit Srivastava, Ramesh Deshpande and T.V. Sampath and John Nash, all of the World Bank who encouraged IFPRI’s work in the region at various points in time.

We are grateful to the CGIAR’s Central Asia and Caucasus regional office in Tashkent for their continued support for IFPRI’s work in the region. Drs. Per Pinstrup-Andersen, former Director General of IFPRI, Adel El-Beltagy, Director General of ICARDA, Suren Beniwal, Mekhlis Suleimenov, Zakir Khalikulov, Alex Morganov, and Raj Paroda for their committed help and constant advice for our research and outreach activities in the region. Our special thanks to Dr. Joachim von Braun, Director General of IFPRI for encouraging this project and writing a foreword for this volume.

Thanks are also due to Drs. Alisher Tashmatov, Abduvokhid Jurave, Farruk Aknazarov, Erika Meng, Roman Ospanov, Shukhrat Egamberdiev, Rasulmat Khusanov, Eleonora Gaziyants, Nazarbek Ibragimov, Kachinbay Kadyrkulov, Lado Mkrytichyan, Anadjemal Halnepesova, Adilya Baydildina, Aynur Alishinbay, Manshuk Bayetova, Bakhriddin Amirov and Hasan Buriev for their collaboration over the years and support to our work in the region.

This volume would not have been possible without the hard work of Debdatta Sengupta, Valerie Rhoe, and Brenda Clark and Rowena Valmonte-Santos who have spent several hours in preparing the



xiv Acknowledgements

manuscripts for publication. Our sincere thanks go to them for their contribution to the success of this volume.

Finally, we are grateful to the authors of the papers of this volume for their hard work and their contributions and sticking to tight deadline. It is the commitment of these individuals to the development of Central Asia made this volume possible.

## **PART 1: *INTRODUCTION***

## CHAPTER 1

# **POLICY REFORMS AND AGRICULTURE DEVELOPMENT IN CENTRAL ASIA: AN OVERVIEW OF ISSUES AND CHALLENGES**

Suresh Chandra Babu

*International Food Policy Research Institute, USA*

Debdatta Sengupta

*International Food Policy Research Institute, USA*

## **INTRODUCTION**

Since their independence in 1990, the Central Asian countries- Kyrgyzstan, Kazakhstan, Turkmenistan, Uzbekistan, and Tajikistan - have implemented several measures of policy reforms to ensure a smooth transition from being centrally planned economies to liberalized market-oriented economies. During this changeover they have also adopted policies that have not been fully supportive of the process of transition. The challenges and constraints they faced during the past 15 years provide lessons for transitional economies, not only in the region but also in Eastern Europe, East Asia, and China. Likewise, lessons learned from China, Vietnam, Mongolia, and other transitional economies would be highly useful for their implication in reforming the economies and agricultural sectors of the Central Asian countries.

The agricultural sector in Central Asia suffered a major slowdown during the decade from 1990 to 2000. Reorganization of farm production as well as other agricultural production systems from the communist pattern is still in progress. During the last 15 years Central Asia has been the only region in which poverty has been increasing and food security and malnutrition is likely to increase over the next 10-15 years (Babu and

Pinstrup Anderson, 2000). In addition, the favorable trends that these countries enjoyed during the Soviet era in terms of agriculture production and food supply are stalling. Natural resources are also being degraded at an enormous rate due to their poor allocation that does not correlate with the terms of the trade of the commodities grown in this country. Policy reforms implemented in the agricultural sector have barely turned this decelerating trend around. The productivity of agricultural land is declining due to lack of investment in agricultural technology development and partly due to the slow pace of implementing land and irrigation reforms. But several lessons could be learned from the process of reforms in Central Asia.

Policy reforms initiated after independence show mixed results for the region. For example, Kyrgyzstan has successfully implemented their land reforms. By 2002, the transfer of land to peasant farmers from state farms and cooperatives was largely completed (World Bank, 2004). Only 25% of the arable land is with the Land Redistribution Fund (LRF) waiting to be allocated to the farmers. In sharp contrast, land reforms never took off in Tajikistan because immediately after independence the country was ravaged by civil wars which pushed the reform process back by several years. It was only in the post 1997 period that we see some positive effects of the reforms (Figure1).

Given the mixed results of policy reforms, it is useful to understand which reforms worked, why and what factors facilitated their speedy implementation. Another important issue which needs to be understood is whether the reforms affected the intended sections of the population in the right way.

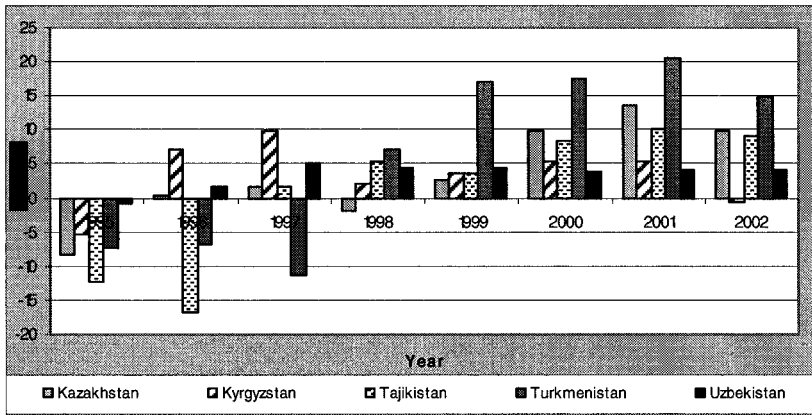


Figure 1: Growth of GDP in the Later Years of Reform

Source: World Bank, 2004

Successful design and implementation of policy reforms in the future requires an in-depth analysis of the various sub-sectors of the economy. Central Asian countries as a fertile ground for the on-going policy reform experiments in the past 15 years provide valuable experience for each other and for other countries undergoing transition. This volume pulls together a collection of papers addressing several issues regarding the process and approach to policy reforms and their impact on agricultural development in Central Asian countries. It offers expert policy research and analysis and provides research-based information for generating policy recommendations that is relevant for the countries of the region. The analysis and policy lessons derived are useful for other transitional economies in the Eastern Europe and Caucasus region.

The broad purpose of the book is to illustrate the impacts of various policy reform processes affecting the food and agriculture system on the production, market, and welfare outcomes in Central Asia. The authors use empirical and illustrative examples from the countries of Central Asia to describe and demonstrate the role of economic and policy reforms on the agricultural development of the countries in the region. There are also comparison between similar evidences from other transitional economies such as China, Vietnam, and Eastern European countries.

This chapter provides an overview of the various policy reforms that have been initiated in agriculture among the Central Asian countries. Exploring the dynamic agricultural systems in a region that has experienced varying degrees of economic growth over the past fifteen years, the chapter introduces the other chapters of the book. This chapter is organized as

follows. Issues related to agricultural sector, its production, productivity and terms of trade, and selected institutional reforms are highlighted in the next three sections. A set of policy challenges facing the Central Asian agriculture is presented next. The chapter ends with an overview of the organization of the chapters of this volume.

## **AGRICULTURE, FOOD SECURITY AND NATURAL RESOURCE MANAGEMENT**

Before the break up of the Soviet Union a significant portion of the population in Central Asia was rural, working on the state farms or agriculture cooperatives operated by the government. Little has changed of that situation in many countries. In most countries this sector has a significant contribution to the GDP (Figure 2) and also accounts for almost half of the total employment (Figure 3). This is despite the fact that not all of these countries have favorable conditions for agriculture. Tajikistan's terrain is mainly mountainous and arable land is scarce. Kazakhstan, on the other hand, has one of the largest permanent pastures per livestock unit in the world (World Bank, 2004). However, in Tajikistan agriculture accounted for around 60% of employment and 20% of GDP in 2002 while in Kazakhstan the share of employment in agriculture was only 20% of the entire employment in the country. In Kyrgyzstan agriculture contributed 36% of GDP for the same year. Moreover, during transition, unemployment increased and as agriculture was the only sector that could absorb the excess labor, there was an increase in the number of people who were employed in agriculture. In Kyrgyzstan agricultural employment jumped 64% between 1990 and 2000. This increased pressure on land is reducing productivity of labor (Rozelle and Swinnen, 2004).

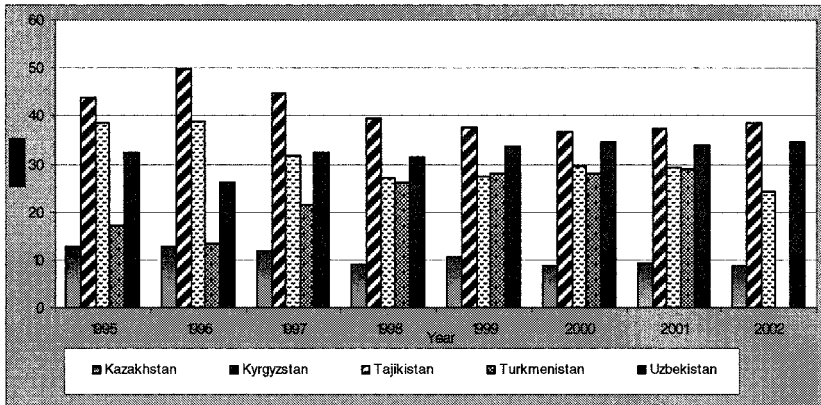


Figure 2: Agriculture's Contribution to GDP in Central Asia

Source: World Bank, 2004

Table 1 gives the pre reform data for some select indicators of the Central Asian countries. Comparing the employment in agriculture between pre and post reform shows an increase over the years. This increased the number of people supported by an inelastic supply of land and was the main cause of low labor productivity in that sector.

The reform process has hurt the agricultural sector in most of these countries. Changes in production pattern, loss of a huge internal market and state protection to agriculture are reasons for concern apart from the decline in production. Faulty irrigation patterns along with leaching of fertilizers into the soil have degraded the soil fertility in the area and disturbed the ecosystem balance in the region. Increasing output of food crops without degrading the natural resource base has thus become a crucial challenge. Production increases have mostly come from increases in the area under cultivation. This has resulted in the loss of pasture-land or, where arable land is scarce, bringing marginal land into agriculture. While this process is successful in the short-term it is difficult to ensure a growing supply of food if the trend does not change. Policies that encourage modern agricultural practices should be implemented. Use of other supplements to increasing production, like mechanization of agriculture and use of fertilizers should also be enhanced.

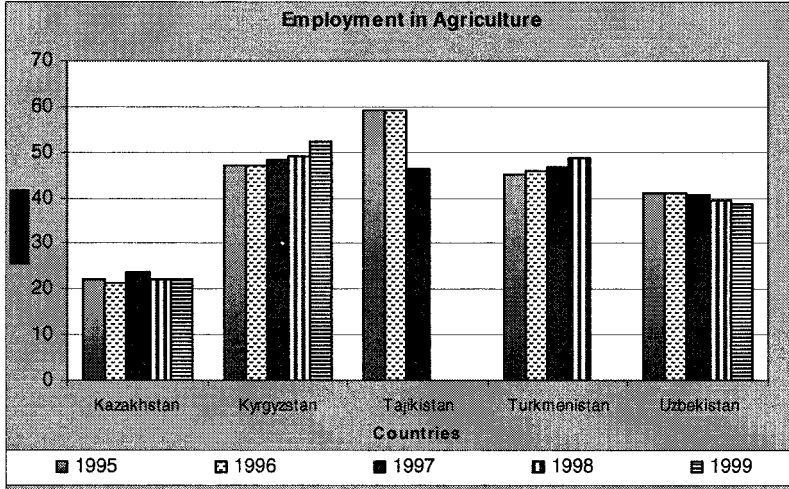


Figure 3: Employment in Agriculture as a Percentage of Total Employment

Source: World Bank, 2004

Table 1: Select Indicators before the Policy Reform Period in Central Asia

Country	Percent share of agr in employment	GNP/Capita PPP \$ 1989	Labor/land people/ha	Percent agr land as individual farms
Kazakhstan	22.6	5130	0.008	0
Kyrgyzstan	32.6	3180	0.054	4
Tajikistan	43.0	3010	0.185	4
Turkmenistan	41.8	4230	0.015	2
Uzbekistan	39.2	2740	0.109	5

Source: Rozelle and Swinnen, 2004. The data is for 1990

The overall use of agricultural inputs in Central Asia has not been too impressive. The use of agricultural inputs like fertilizers, tractors, and animal stock does not show any significant change over the last ten years of the reform period. The use of tractors in Tajikistan, Turkmenistan and Uzbekistan show absolutely no change between the first five years and the first ten years of reform (Table 2). However, the index fell marginally for animal stock in the same countries for the same period. Figure 3 gives fertilizer use per hectare in Central Asia. We see from the graph that the use of fertilizer in Kazakhstan is almost negligible. While it is low in the other countries as well, all of them show a decline in use. The only exception is Turkmenistan which shows an increase in consumption during the last three years. Uzbekistan has had the highest consumption of fertilizer among the CIS countries. However, the disturbing trend as seen from the graph is that



the use of fertilizer in Uzbekistan is declining post 1997. Apart from increasing production, increasing input use would also establish the essential linkages between the agricultural sector and the rest of the economy.

Table 2: Growth of Input Use Indexes for Agriculture in Central Asia

Country	Fertilizers		Tractors		Animal Stock	
	After 5 years	After 10 years	After 5 years	After 10 years	After 5 years	After 10 years
Kazakhstan	16	5	78	29	77	38
Kyrgyzstan	NA	NA	99	104	61	61
Tajikistan	30	17	84	84	86	75
Turkmenistan	40	21	80	80	124	89
Uzbekistan	34	60	94	94	116	112

Source: Rozelle and Swinnen, 2004

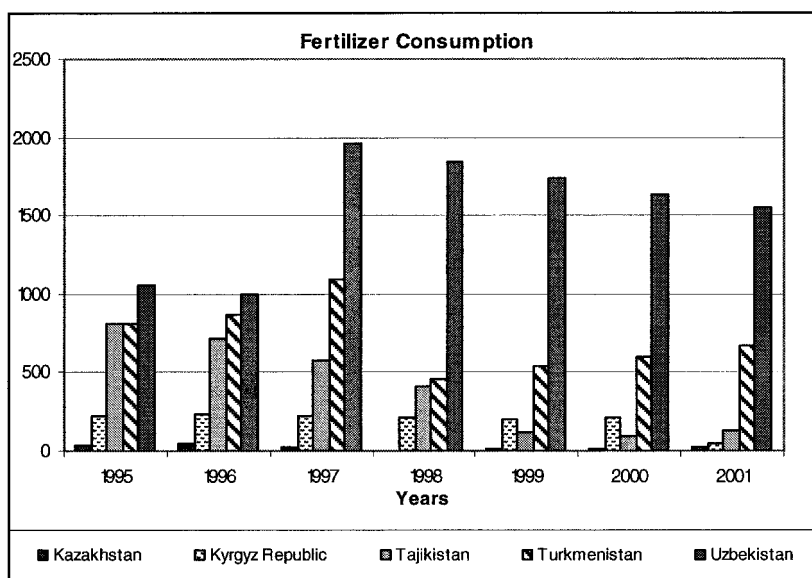


Figure 4: Post-Reform Fertilizer Consumption in Central Asian Countries

Source: World Bank, 2004.

In a bid to increase agricultural and food production, natural resource degradation has continued unabated in these countries. During the transition period most of the natural resources have been neglected or badly managed which have led to degradation and depletion of these assets. For

example, the drying up of the Aral Sea is a cause of great concern for the entire area. Poor drainage systems of the cotton farms and heavy use of fertilizers have led to contamination of the surrounding land in Uzbekistan. This has a negative impact on economic development as well as the health of the population in the region. There is a need to introduce environment friendly farming practices if this region is to avoid the pitfalls of the agricultural developments in the West. Increasing research needs to be done on techniques which would enhance productivity while preserving the environmental balance.

## **PRODUCTION, PRODUCTIVITY AND TERMS OF TRADE**

Introducing food crops in areas where commercial crops had been grown is seen as a strategy towards food security. Multiple cropping with legumes, instead of mono cropping is also important to maintain the fertility of the soil. However, for a better understanding of the suitability of a particular variety in a particular area, there is a need for more intensive research in agriculture. For example, cotton has been the most important crop in Uzbekistan during the Soviet era and the fertilizer use was high to increase its yield. Given the food self-sufficiency objective, wheat as an alternative to cotton has received a lot of importance in recent years. Yet, not much research has been done to determine which areas in the country have soil and climate condition suitable for wheat cultivation. Setting priorities for crop production would help the countries in this region to allocate resources efficiently according to their comparative advantage.

Agricultural labor productivity (ALP), measured as output per farm worker in the Central Asian countries had fallen drastically during the transition years. It is only towards the end of the 1990s does labor productivity show any signs of increase. A comparison between the transition years and the later years of reform show an improvement in ALP in Kazakhstan and Kyrgyzstan where it increased from 60 to 71 and 59 to 67 between five and eight years of reform. Tajikistan and Turkmenistan show significant fall in their ALP with increasing years of reform. Considering annual average change, Kyrgyzstan is the only country which registered an improvement after eight years of reform. While time lags are to be expected for a system to function efficiently after a change-over, reforms must be continued to finally have a positive and significant effects on productivity levels.

Liberalization is the key agenda of reform processes across most developing countries. Market liberalization was thus one of the main

agendas in the reform process in Central Asia. The major component of price liberalization was the elimination of subsidies. Since the producer price was higher than the consumer price for agricultural commodities in the former Soviet Union, the government provided budget subsidies to cover the gap between the two set of prices. Liberalization resulted in the elimination of producer subsidies throughout Central Asian countries. It also led to an economy-wide inflation in most transition economies (Liefert and Swinnen, 2002). This decreased real income for the populations. In addition to the demand side effect, the supply-side effect increased prices for agricultural inputs much greater than the increase in the price of output (Liefert and Swinnen, 2002). This negatively affected the terms of trade of farmers in this region. However, even though the rise in input prices during the reform period hurt the agricultural sector negatively, this was more a necessary adjustment than a flaw in the reform process. To correct the negative balance in terms of trade, policy reform should focus on reduction in production costs through better production techniques rather than increase in the acreage under production. Productivity growth along with lower production costs will make the agricultural sector more competitive in the world market (Liefert and Swinnen, 2002).

*Table 3: Growth in Output per Farm Worker in Central Asian Countries*

Country	Year with lowest Average Labor Productivity	ALP index after 5 years of reform	ALP index after 8 years of reform	Annual average change Year 0-5	Annual average change Year 5-8
Kazakhstan	6	60	71	- 8.0	NA
Kyrgyzstan	5	59	67	- 8.2	2.9
Tajikistan	9	46	38	- 10.8	- 2.9
Turkmenistan	6	87	64	- 2.6	- 7.9
Uzbekistan	6	88	86	-2.4	- 0.5

*Source: Rozelle and Swinnen, 2004*

## **INSTITUTIONAL REFORMS IN AGRICULTURE**

### **Land Reforms**

Reorganization of the agricultural sector is one of the most important steps towards achieving the goals of poverty reduction and improvement in the welfare of the population. Redistribution of land from collective farms to private individual farms was an essential part of land

reforms undertaken in the CIS countries after independence. This was supposed to increase the efficiency of land use by giving peasants the opportunity to own their lands (Uzun, 2004).

Theoretically, land reforms increase the output and productivity as the land can then be used as a marketable input. Moreover, the farmer can decide on the crop as well as the input mixes which would enhance productivity of his land. Though fragmentation of land is a possible fallout, the problem is often overcome through incentives given to the farmers to put the land to its most efficient use.

Due to its highly sensitive nature, the land reform process in Central Asia has been rigged with many controversies. While it has been partially successful in some countries, it has been a major hurdle towards social justice in others. For example, in Uzbekistan and Kazakhstan land redistribution was done mainly among the elites and has not reached the entire section of the rural poor. Local authorities still have a significant control over the farm and output to be produced is also largely decided at the local governmental level. In Uzbekistan land as collateral use for receiving loan from the bank is prohibited so is selling land plots. Type of crops to be produced and the quantity is still decided by the government. In Tajikistan the land reform process was stopped during the civil war and never took off after that.

Land reform, however, seems to have been successful in Kyrgyzstan. By 2002 transfer of land from state farms and agricultural cooperatives to peasants was largely completed (World Bank, 2004). Even in countries where it was done partially, it was seen that productivity of private farms was much higher than state-owned farms.

## **Irrigation Reforms**

Central Asia has some of the largest and most extensive irrigation systems in the world. However, regular maintenance is essential for such an extensive system to function properly. During the years of transition, the water management institutions weakened. The canals and dams silted, damages in the structures were not repaired and the repairs that were performed were also temporary. This led to problems of salinization, and irregular water supply for agriculture as well as for urban uses.

The irrigation system saw massive government investments during the Soviet era. During the uncertain years of transition, the individual countries could not afford to maintain the systems which caused fluctuations in the water supply to agriculture. This led to a fall in production and precipitated poverty. Farmers often use greater quantities of water to cleanse

the soil to reduce salinization. This increases the wasteful use of the already scarce water resource.

Apart from the direct impacts improper irrigation has negative indirect impacts on ecosystem as well as human health. The drinking water in the area is often contaminated with salt. Salt deposits are increasing in the downstream areas of the rivers. Salinization also hampers the growth of plants by inhibiting their ability to absorb water. The Central Asia Scientific Research Institute for Irrigation estimates that the loss in cotton yields is 20-30% on slightly salinized land and up to 80% on highly salinized lands (World Bank, 2004).

The strict governance structure required for managing the irrigation system is often absent among the transition economies. Corruption in the system enables local elites to get favorable connection for irrigation leaving the peasants with lower quality and lesser volume of water available for irrigation. Inequitable distribution of water has led to serious confrontations in Kazakhstan, Kyrgyzstan and Uzbekistan (World Bank, 2004).

According to a household survey conducted by the World Bank in the Central Asian countries, poverty in CIS countries are typically rural and farm-based. However, their survey indicated little relationship between farm size and poverty. This could be due to the haphazard nature of land reforms among the CIS countries. In countries where land reforms progressed well, the report indicates that better off households have more fertile lands, which are typically located closer to the sources of water (World Bank, 2005).

## **Market Reforms**

In addition to land and irrigation reforms, creating an efficient system of markets is essential to both producers and consumers. In the erstwhile Soviet Union, the agro-food industry had efficient linkages between farmers on the one hand and the market system including machinery, input suppliers and the food processing industry on the other. However, with the breakup of the Soviet Union, individual countries have sought to liberalize their market systems. Controls have been brought down and subsidies reduced. Reduction of state control without the development of alternative institutions to ensure efficient functioning of the markets caused serious disruptions in the food system. State support to agriculture was taken off while the access of farmers to credit for investment and working capital was unavailable. This reduced the competitiveness of agriculture in the region. Small farmers were affected the most in this process. For example, in Kazakhstan small farmers still depend on local authorities to supply them with inputs. Thus they are unaware of the positive

aspects of the reform process and unable to reap the benefits available through it.

In the later part of the 1990s especially after 1997 situations began to improve for most of the CIS countries. Privatization of the markets has led to several successful private initiatives to overcome market imperfections (Rozelle and Swinnen, 2004). Mechanisms to ensure enforcement of private contracts and also vertical integration of the food industry have helped raise profits in this sector. In Kazakhstan downstream investments and contracting of grain traders with the farmers have helped alleviate cash-flow problems and relaxed constraints at the farm level (Rozelle and Swinen, 2004).

## **CHALLENGES FOR POLICY REFORM**

There are five interlinked challenges that confront Central Asia in its effort to reform its agricultural economy (Babu and Pinstrup-Andersen, 2000):

- Stagnation in public investment in agriculture;
- Market-driven growth as they relate to agroprocessing and trade liberalization;
- Institutional and capacity challenges in agriculture;
- Agriculture-environment interaction; and
- Role of rural non-farm sector

## **PUBLIC SPENDING IN AGRICULTURE**

In Central Asia, public spending in agriculture has stagnated over the past 15 years. During the centrally planned economy and as part of the Soviet Union, the countries received their regular and assured share of investment for their agricultural sector in line with the contributions they made to the agricultural economy. For example, Kazakhstan received public funds for its research in development of wheat technology while Uzbekistan received its share of funds for maintaining and promoting cotton production and productivity. Since the collapse of the Soviet Union, the countries have had to fend for themselves in order to fund their agricultural research systems. Furthermore, the erosion of dynamic agricultural research systems due to the poor incentives and salaries of the research personnel reduced both the quality and quantity of research done at these centers. New

institutional innovations have not been developed to replace the role of public national agricultural research institutions.

Increasingly, policy changes are forcing these countries to become food self sufficient. The research priorities have changed to foodgrains yet the funding for such priorities have not been identified and allocated. Due to the stagnation in funding for agricultural research the national agricultural research systems (NARS) in these countries have been deteriorating. A revival of NARS will require not only adequate funding but also new institutional and policy reforms for developing new technologies and disseminating them for the benefit of farmers.

## **CHALLENGES FOR THE DEVELOPMENT OF A PRIVATE SECTOR**

The role of the private sector in agricultural research and development has been at its minimal in Central Asia. This is partly due to the lack of development in the private sector as a whole and the poor incentives that particularly exist in investing for agriculture research by the private sector due to several impediments for both locally organized private sector as well as multinational firms to invest in agricultural research in these countries. Thus, the private sector has not been effective in addressing the problems of the farming community. Even though private sector is gradually being allowed to develop in these countries, it would not be able to fully address the challenges faced by the farming community, particularly in areas where the profits are low, such as in foodgrain production.

Studies have shown strong links between government spending, agricultural growth and poverty reduction (Fan et al, 1999). Yet, such policy messages have not been taken seriously by the countries in Central Asia. This is partly because the investment priorities have not been in line with the development of the rural sector. The rural sector has been given inadequate budget reallocation among these countries. But their resources are invested in order to subsidize a specific segment of the farming community without long run investment plans. There has been inadequate priority setting and planning exercises for resource allocation in rural and agriculture sectors.

## **FROM FOOD SELF SUFFICIENCY TO MARKET DRIVEN GROWTH**

Every country in the region has adopted food self sufficiency policy as their food security goal. Achieving food self sufficiency does not necessarily mean the countries could provide food security for all of its population. For example, a large part of Uzbekistan is naturally endowed with soils that could grow cotton while the plains of Kazakhstan are well suited for growing wheat. In spite of harnessing this natural comparative advantage in crop production the countries have resorted to self sufficiency and the wheat production in Uzbekistan has been increasing in the areas poorly suited for wheat production. On the other hand, Kazakhstan due to lack of demand for its wheat has been reducing the cultivation of land and wheat. Better exploitation of comparative advantage of the natural resources and efficient use of the resources have to happen in order to increase the production and productivity of the agriculture sector given that food security at both the national and individual level is a major development challenge in the countries of the region.

Overall foodgrain balance is a source of concern as, with the breakdown of regional and international trade, the countries have come to depend totally on locally produced food for meeting the food security goal. Attaining food security in the region also continues to be a problem of distribution. Growing more foodgrains may not be the only solution to food security. In order to attain food security for all there is a need for a more focused and targeted effort on reaching the poor segments of the society and the vulnerable. One of the major challenges for the countries in the region is to organize their food markets in order to reach the poor. For example, countries such as Bangladesh, which has liberalized and developed its food markets, has been able to increase the access of food, even in the events of natural disasters such as plagues (Dorosh et al, 2004). Furthermore, opening of the markets in the region to start with and exporting agriculture commodities at the international level could provide opportunities for increasing the income of the farming communities. For example, Vietnam, which did not export any rice in 1995, stands today as the second largest exporter of rice, next to Thailand. As a result, poverty among smallholders and rice growers in Vietnam has been reduced (Goletti et al, 1997).

The main factor for success in the process of reforming the food economy from its self sufficiency goal towards market driven growth is empowering the key actors in the food system. The farmers who were currently using their lands immediately beside the farmhouses need to be trained to become business oriented farming units. Increased income from the farming community can transform subsistent farmers into rural non-farm



entrepreneur and small scale manufacturers of processed food and agriculture products. Such a transition requires initially improving the income of the farming households and allowing them to become more productive farmers, focusing on their comparative advantages.

The marketing systems should be promoted by helping individual investors to become better promoters and marketers of agriculture produces. This can translate the raw materials into value added products in enriching the towns and urban cities as well as regional and international markets. Financial institutions should be developed and designed towards helping the farming community in investing in improving the productivity of the farms. Government organizations, including the public system of national agriculture research, should become more effective and efficient through new institutional innovations that can help the subsistence farming economy to transform itself into a market oriented economy. Investment in research and development throughout the food supply chain is needed towards such a transformation.

## **INSTITUTIONAL AND CAPACITY CHALLENGES FOR POLICY REFORMS**

Since independence, the Central Asian countries have inherited a system of institutions that were designed for the centrally-planned economic development. This organizational structure remains unchanged even after 15 years of independence. The capacity for institutional change and organizational development remains weak in all of the countries. This is partly due to the human capacity within these organizations which has very limited exposure to other forms of organization and management of their institutions. Their capacity for identifying and analyzing problems and assessing the situation and developing action for change remains weak in the agricultural and rural development institutions. Furthermore, capacity for implementing new programs and policies, even when they are designed and developed, remain low. Due to the governance structure that still rely on the top down system of management there is little transparency and accountability within the institutional structures that do not lend themselves for very effective governance of agricultural and rural development institutions.

Institutional innovations are needed in the organizations that contribute to agricultural and rural development. Such institutional innovations can only come from building the capacity of the individuals as well as institutions to go beyond the status quo and identify opportunities for improving the efficiency and effectiveness of the institutions. But such

innovations require an enabling environment that can only come about through institutional and policy reforms at the macro, meso, and micro levels. The current organizational structures do not adequately provide incentives and opportunities for new innovations in managing the existing capacity and for developing new capacities for addressing the emerging problems in the food and agriculture sector.

## **AGRICULTURE AND THE ENVIRONMENT INTERACTIONS**

Investment in agriculture and policy reforms can bring enormous benefits in terms of improving the food and agriculture production by increasing yields. Improved productivity of agriculture crops can result in reducing the expansion of cultivated land through extensive cultivation. Given the fast reduction in the areas and the forests for cultivating foodgrains to meet food self sufficiency goals it is important to increase the productivity of foodgrains in these countries. Furthermore, the production in the areas not suited for foodgrain have resulted in enormous damage to the environment and natural resource sustainability of the agricultural systems in these countries.

There is a need for identifying environmental problems caused by the agricultural production systems and addressing them through technology, policy, and institutional reforms. Avoiding the rapid expansion of monoculture of foodgrains through the introduction of crop diversification and identifying markets for new crops is essential. Due to the focus on monocropping and poor incentives for crop diversification countries in the region import high value crops such as cut flowers from European countries adding to their foreign exchange burden. The agriculture technologies and policies followed in these countries thus far have resulted in degrading the quality of agricultural lands through salinization, drainage problems, and to some extent, chemical contamination of the production systems. Policy and institutional reforms should give due attention to the agriculture-environmental interaction and in order to make the system of agriculture production in the region environmentally sustainable.

## **PROMOTION OF RURAL NON-FARM SECTOR**

The regions have given high priority to promoting agriculture growth yet they have not been able to translate the limited growth in the agriculture sector into rural non-farm sector growth. This is partly due to poorly developed rural infrastructure for market development and private sector development in rural areas. Promoting legal and regulatory environment for the speedy growth of the private sector and attracting investment for the rural sector is important for developing the non-farm rural sectors in these countries. Providing training and relevant technical and entrepreneurial skills and management skills for investment and development of private sector units that can add value to the agriculture commodities and employ rural youth is important. The need for pursuing prudent rural industrialization policies cannot be overemphasized for the promotion of rural non-farm sector in this country.

External agencies and international agencies have worked over the past 15 years to develop various frameworks and paradigms of policy reforms for the countries in the region. Several attempts have been made to set priorities for agriculture development and policy reform in the region. A formal and informal network of policy analysts and policy researchers has been developed. Several institutional linkages between development agencies and the national organizations that deal with food, agriculture, and natural resource policies have been established. Investments have been made in developing data sets for agricultural economics and policy research and research studies have been undertaken based on the extant data available for the countries in the region. Yet, there is a large gap between addressing the policy research needs and understanding the impact of policy reforms through appropriate analysis. This is partly due to the lack of policy analysis skills and lack of openness in debating and discussing the policy reform needs and their impacts. Meeting the policy reforms challenges in the region will require reprioritization of the investment patterns in food, agriculture, and rural sectors in order to increase the productivity of the agriculture and rural sector.

Liberalization of regional and international trade and enabling the participation of farmers in the region in the international food and agriculture trade is an essential first step for tapping the comparative advantage of the region in agriculture production. This will require institutional reforms and innovations within the public institutions that contribute to agricultural development. In enabling better process for transition from closed economy to a market oriented economy the importance of building basic capacity for designing, implementing, and analyzing policy reforms cannot be overemphasized.

## ORGANIZATION OF THIS VOLUME

This volume is organized into five sections. Section I is the Introduction. Chapter 1 gives a broad overview of the issues and challenges the Central Asian countries have been facing and the various policy reforms which have been initiated during this period. It also provides a brief outline of the direction we want to follow in this book. Chapter 2 (Pomfret) covers the economic reforms undertaken by the countries in Central Asia as part of their economic restructuring after their break up from the centrally planned economy of the former Soviet Union.

Section II discusses the trends in agricultural production in the various CIS countries. It contains eight chapters which progress from discussing the overall picture about policy reforms in Central Asia gradually down to specific policy reforms in agriculture sometimes with a special focus on a particular country. During the Soviet period politics and economics often went hand-in-hand, with the former affecting decision-making in most sectors of the economy. A separation of the two was important to achieve the utmost benefits from market reforms in the transition economies. Chapter 3 (Peimani) discusses the political economy reform process in the transition economies. It analyses the various political factors which have been thwarting the reforms process in these countries. In Chapter 4 Djalalov & Gemma discuss the current condition of the agrarian reforms in the Central Asian transitional economies. The role of the agriculture sector in the overall economy is analyzed with focus on the sector performance in the macroeconomic environment. They review various policy reforms that have been implemented since the independence of the Central Asian republics. The impact of the policies is also examined in terms of changes in the performance of the agriculture sector. In Chapter 5, Djalalov does a comparative analysis of the trends in agricultural productivity in the Central Asian countries. It argues that the lost levels of productivity in crop and livestock sectors can only be regained with some level of coordination of policy linking the priorities of the crop production system with those of the agriculture sector and the economy as a whole.

The remaining five chapters in the section are more focused on specific sectoral reforms. Chapter 6 (Deshpande) deals with the various land reforms undertaken in the transition economies after their independence from the Soviet Union. This is important since in the post-independence era most of these countries are in the process of transforming their economies from the socialist system of state ownership of land to a market based system, where land would be owned and operated by private farmers. The initiation and progress in land reforms have determined the pace of this transformation among these countries. Chapter 7 (Mukhamadiev and

Akhmedov) covers another important issue for this region, water. While every country agrees that this is an important resource which is in short supply, they have not yet been able to come to a consensus regarding management of the resource. This chapter delves into the personal interests of the countries in the region and how that has affected not only water availability for agriculture, but also led to natural resource degradation due to improper management.

Chapters 8, 9 and 10 deal with agriculture reforms on a country-specific basis. Chapter 8 (Spoor) analyses the agriculture reforms in Uzbekistan, while chapter 9 (Sampath) covers Tajikistan while chapter 10 (Lerman) covers Turkmenistan.

The next section, Section III provides analysis the impacts of the various policy reforms. It tries to establish the linkages between specific reforms and the sector of the economy that it affected. Djalalov and Gemma in chapter 11 analyses the impact of the reforms on farm production in Uzbekistan. In chapter 12 Sampath analyses the land privatization policy in the transition economies in the light of how it has affected the farmers and farming community in this region. Chapter 13 on the other hand reviews the market reforms undertaken in these countries through producer responses to the new policies in this sector. It stresses on the need to integrate the input and output sides of the market so that private farmers can respond to the demands from the system. Using Uzbekistan as a case study it tries to focus on the challenges in reforming the market system in Central Asia.

Another important sector which has fallen into neglect is the livestock sector of the transition economies. While not as important as wheat or cotton, livestock has been central to the wellbeing of the population in these countries. However, with the concentration on achieving food self-sufficiency, the production of fodder for the livestock sector had tremendously declined. Chapter 14 (Suleimenov et al.) traces the development of the livestock sector through the transition years and the trends in production thereafter. In Chapter 15 Djalalov and Gemma document the results of the analysis that show that in order for the private sector to fully participate in the market reforms it is essential that the financial stability of the newly created farms be secured and that it may be necessary to write off the debts of the farmer institutions from which the newly organized private farms have been reorganized. The chapter argues that the most effective method of increasing competition and to combat state monopoly pricing is to give private traders and processors access to foreign markets. The authors describe the current condition of the private sector development in Central Asian transition economies with particular reference to Uzbekistan. In chapter 16 Babu and Tashmatov discuss how lack of institutional and human capacity for research has been the primary factor which is preventing these countries from being self-sufficient in developing

country-specific policies for agriculture development. Most of these countries lack the political will and economic resources to invest in developing capacity in research and innovation in agriculture. However, at the same time this lack of capacity has been the primary factor why reforms have not achieved their full impact.

The following two chapters in this section deal with the impact of a failing irrigation system on agriculture development. Chapter 17 (Tashmatov and Tashmatova) deals with the out-dated irrigation system in the region and discusses the importance of updating and ensuring proper maintenance of the irrigation channels. As these channels run across national borders, regional cooperation is extremely essential to maintain them.

In chapter 18 Djalalov provides the example of how formation of water-users associations have helped the farmers to access water for irrigation during the periods of water shortages. Using Uzbekistan as a case study, he has shown the benefits and caveats of this and similar types association in their ability to address the water problem in the country.

Section IV covers the aspects of how policy reforms have addressed the issues of poverty and food security in Central Asian countries. Chapter 19 (Babu and Rhoe) provides an overview of all the countries in the region with regard to their achieving food and nutrition security for their population. Chapter 20 (Babu, Reidhead and Sengupta) focuses specifically on Kyrgyzstan. Their analysis predicts that increasing the speed of policy reforms and investment in productivity enhancing activities such as research and rural infrastructure are fundamental for long-term sustainable poverty reduction in Central Asia. Chapter 21 focuses on Kazakhstan. The chapter finds that the land reforms in Kazakhstan, which have dismantled the state farms, have resulted in reduced productivity of crops and declining food availability and nutrition at the household level. It argues that reversing this trend will require increased investment in rural infrastructure and improving crop yields in the short term and in providing an adequate safety net to protect the poor and vulnerable in the long run.

Section V is the last section and provides a window into the future challenges that the region faces and what policy recommendations are needed for agriculture development in the future. Chapter 22 (Timel and Maru) analyses the importance of communication technology for better agriculture development in the region. Chapter 23 (Babu, Sengupta and Tashmatov) advocates strengthening the national institutional capacity for analyzing the impact of policy alternatives in the Central Asian region. Building local institutional and human capacity is important to increase the ownership of policy reforms and their implementation.

Chapter 24 (Sengupta and Babu) is the concluding chapter. This final chapter pulls together various issues, challenges, and constraints in the policy reform process in Central Asian countries. The challenges facing the

food and agriculture sector in increasing productivity, reducing market inefficiencies, and improving the food security and nutritional status of the population will remain for some time to come. Based on the analysis of various chapters the key recommendations and policy suggestions for making sustainable progress in the food and agriculture sector are summarized in this chapter. This chapter also identifies various issues for future research needs based on the gaps identified in the existing literature. The final chapter in this volume synthesizes the major findings of the chapter and relates them to the overall policy reform process in the region.

## REFERENCES

- Dorosh, P.; Carlo del Ninno and Quazi Shahabuddin. 2004. " Introduction" in *The 1998 Floods and Beyond*. P. Dorosh, C. del Nino and Q. Shahabuddin (eds). The University Press Limited, Bangladesh and International Food Policy Research Institute.
- Fan, Shenggen, Peter Hazell and Sukhadeo Thorat. 1999. Linkages between Government Spending, Growth and Poverty in Rural India. IFPRI Research Report, 110. IFPRI, Washington, DC.
- Goletti, F; Nicholas Minot and Philippe Berry. 1997. Marketing constraints on Rice Exports in Vietnam. Discussion Paper #15. Markets, Trade and Institutions Division, IFPRI. Washington, DC.
- Liefert, W.M. and J. Swinnen, 2002, Changes in Agricultural Markets in Transition Economies, Agricultural Economic Report 806, ERS, USDA, [www.ers.usda.gov/publications/aer806](http://www.ers.usda.gov/publications/aer806).
- Scott Rozelle & Johan Swinnen, 2004. Success and Failure of Reform: Insights from the Transition of Agriculture. *Journal of Economic Literature*, 42, 404-456.
- Suresh Babu & Per Pinstrup-Andersen, 2000. Achieving Food Security in Central Asia - current challenges and policy research needs. *Food Policy*, 25, 629-635.
- Uzun, V. 2004. "Land to the Peasant": How the old slogan is implemented in today's Russia. *Quarterly Journal of International Agriculture*. 43(4) :439-455.
- World Bank, 2004. *Kazakhstan Country Brief* World Bank.
- World Bank, 2005. *Turkmenistan Country Brief* World Bank.
- World Bank, 2004 World Bank Development Indicators, Washington, DC. .



## CHAPTER 2

# ECONOMIC REFORM AND PERFORMANCE IN CENTRAL ASIA

Richard Pomfret

*University of Adelaide, Australia*

## INTRODUCTION

This chapter analyses the economic reforms undertaken by the five Central Asian countries which became independent following the dissolution of the Soviet Union in December 1991. For Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan the completely unexpected challenges of nation-building were superimposed on the transition from a centrally planned economy, which had begun in the late 1980s but had little influence on Central Asia before the Soviet economic system began to unravel in 1991. The indigenous capacity for economic management was limited because during the Soviet era development strategies were determined in Moscow. The region had been planned as a single unit, or perhaps more accurately as parts of the single unit, that had been the Soviet economy, and all five countries suffered serious disruption from the replacement of the USSR by fifteen independent countries. Attempts to maintain economic links by retaining the ruble as a common currency in 1992-3 exacerbated the problem of hyperinflation and had to be abandoned by the end of 1993. The decade of the 1990s was then devoted to nation-building, and establishing post-Communist political and economic systems.

In the decade following independence, political and economic reforms followed different patterns in each of the five countries of Central Asia, but by the early twenty-first century all five countries had essentially completed the process of nation-building and the transition from central

planning.<sup>1</sup> Political change occurred, but the political systems that emerged in the Central Asian countries were among the least-reformed amongst the Soviet successor states. In four of the countries First Secretaries appointed by Mikhail Gorbachev remained in power as Presidents, and in Tajikistan political development since the Civil War has been towards consolidation of the powers of a strong presidential regime. Within the common bounds of resource-based economies and autocratic regimes, the five countries gradually became more differentiated as their governments adopted surprisingly diverse strategies for transition to a market-based economy.

The Kyrgyz Republic was one of the most liberal and rapidly reforming transition economies. One indicator is that, in July 1998, it became the first Soviet successor state to accede to the World Trade Organization.<sup>2</sup> Kazakhstan in the early 1990s appeared to be accompanying the Kyrgyz Republic on a liberal path, but the president became more autocratic as the decade progressed and the economy became dominated by a small group of people who controlled the media and the banks. Kazakhstan is considered a reformist regime, although the country has many similarities to Russia in the way that privatization created powerful private interests that distorted the reform process (Kalyuzhnova, 1998; Olcott, 2002).<sup>3</sup> The other three Central Asian countries were slower to stabilize the economy, and were more suspicious of market forces. Turkmenistan's regime became increasingly personalized and autocratic, pursuing a policy of neutrality and economic independence, with minimal economic reform

---

<sup>1</sup> The situation before independence and the immediate post-independence period (1992-3) are analysed in Pomfret (1995). Islamov (2001) and Gleason (2003) provide alternative accounts of the region's economic development during the 1990s.

<sup>2</sup> The Kyrgyz Republic's image as an "island of democracy" in Central Asia became tarnished in 1994-6 when President Akayev ruled by decree in order to push through what he considered necessary legislation. Opponents were intimidated and opposition media suppressed. The October 2000 election, in which Akayev was returned to power, was viewed by outside observers as flawed. Nevertheless, the media is more open than elsewhere in Central Asia, and the feeling of oppression is less than in some of the Kyrgyz Republic's neighbours. Since autumn 2001, when the government ceded 95,000 hectares of territory to China, and March 2002, when demonstrations in the south were forcibly suppressed with six deaths, opposition to the regime has become more pronounced.

<sup>3</sup> An important difference to Putin's Russia is the personal wealth of the President and his relatives, which is more reminiscent of Soeharto's Indonesia. Since the turn of the century, it is unclear how strong the position of the financial/economic/media groups is, and whether the President is the biggest oligarch or the defender of the public interest against the ten mega-holdings which control over four-fifths of the economy (a claim made, for example, in President Nazarbayev's speech opening Parliament on 3<sup>rd</sup> November 2004).

(Ochs, 1997; Lubin, 1999; Pomfret, 2001). Uzbekistan has remained a tightly controlled political system, but with nothing resembling the personality cult of Turkmenistan, and its economic reforms have been similarly modest and unassuming. During the 1990s Uzbekistan, although a gradual reformer, was the most successful of all Soviet successor states in terms of output performance (Pomfret, 2000; Spechler, 2000). Tajikistan was in a different category, because it was the only country not to evolve peacefully from Soviet republic to independent state under unchanged leadership. The bloody civil war of 1992-3, which reignited in 1996-7, dominated political developments and delayed implementation of a serious and consistent economic strategy for most of the 1990s, but Tajikistan is considered to be a delayed reformer since the 1997 peace agreement.

The five countries' economic performance has differed, to some extent reflecting policy choices, but since 2000 the comparative situation has been complicated by the global boom in oil prices. During the 1990s Kazakhstan's output performance was inferior to Uzbekistan's, but since the turn of the century Kazakhstan, a significant oil producer, has experienced an economic boom. Turkmenistan, despite its abundant natural gas reserves, suffers from its dependence on Soviet-era pipelines that are now controlled by a Russian monopoly. The energy boom appears to have alleviated pressures to change the country's poor economic policies, but the opaque statistical situation in Turkmenistan makes any definite judgment hazardous.<sup>4</sup> Both gradual-reforming Uzbekistan and rapid-reforming Kyrgyz Republic have enjoyed less spectacular growth, and have clearly lower living standards than Kazakhstan. Tajikistan is even worse placed; the economy has recovered slowly from a very deep trough, and Tajikistan now ranks among the world's poorest nations.<sup>5</sup>

---

<sup>4</sup> The reliability of data is an issue throughout this region, but, apart from the war years in Tajikistan, the situation is clearly worst in Turkmenistan. The figures quoted in the Tables are from international institutions, and it is important to stress that, while these organizations adjust data for definitional consistency, the raw data come from national sources and international organizations have no way of correcting undisclosed collection or reporting biases.

<sup>5</sup> By 2000, Tajikistan with a national income per capita of \$180 was poorer than most of sub-Saharan Africa or the poorest countries of Asia. At purchasing power parity the Central Asian countries' incomes are higher. Tajikistan's 2000 GNI per capita at PPP was \$1090. Corresponding figures for the Kyrgyz Republic were \$270 and \$2540 (PPP), for Uzbekistan \$360 and \$2360 (PPP), for Turkmenistan \$750 and \$3820 (PPP), and for Kazakhstan \$1260 and \$5490 (PPP). These figures are from the World Bank's *World Development Indicators 2002*. As emphasized below, care needs to be taken in interpreting the national accounts data, and PPP conversions are even less firmly based. By Maddison's PPP estimates, Tajikistan's 1998 per capita GDP of I\$830 (Table 1b) was about the same as that of

The next section provides a brief review of the historical background and an overview of the five countries' post-independence macroeconomic performance. Despite the similarities in initial conditions, national economic policies and economic performance have differed substantially since independence, and section 2 attempts to evaluate the connection between differences in economic reforms and in macroeconomic outcomes. All five countries specialize in primary products and have open economies, and section 3 traces developments in the countries' international economic relations, focusing on the choice between various regional options and multilateralism. Section 4 examines the situation since September 2001, when Central Asia assumed a higher profile on the world stage. The final section draws conclusions.

## **SOVIET BACKGROUND AND MACROECONOMIC PERFORMANCE DURING THE FIRST DECADE AFTER INDEPENDENCE**

The five countries contain almost 60 million people: 26 million in Uzbekistan, 15 million in Kazakhstan (which has a larger GDP than Uzbekistan), and 5–7 million each in the Kyrgyz Republic, Tajikistan and Turkmenistan. From being part of one of the two superpowers and believing themselves to be living in an economically developed country, their citizens have suffered traumatic declines in living standards, increased economic uncertainty, and growing inequality and poverty.

The Soviet economy was planned as a single unit in which goods and services moved without attention to republic borders. At the same time as being open to intra-USSR trade the republics were closed to external trade. Thus, although their ratio of trade to output was comparable to that of similar-sized Canadian provinces, the share of international trade in the Central Asian republics' total trade was small (10-15%, compared to 34-61% for Canadian provinces).<sup>6</sup> The inward-oriented trade patterns within the centrally planned Soviet economy were reinforced by transport, pipeline, and other communications facilities, which all led to Russia or passed through a Moscow hub. The economic role of the Central Asian republics was primarily as a supplier of raw materials to the more industrialized areas

---

Haiti or Bangladesh, only Afghanistan had lower per capita GDP in Asia, and in Africa only thirteen of the 42 countries for which Maddison provides estimates had lower per capita GDP than Tajikistan.

<sup>6</sup> International Monetary Fund *Common Issues and Interrepublic Relations in the Former USSR* (Washington DC, April 1992), p.37.

of the Soviet Union. The focus on cotton was strengthened, especially after construction began on the Karakum Canal in the 1950s, but it was complemented by the exploitation of energy and mineral resources and by some industrial development. The social sectors were also expanded, leading to universal literacy and increased life expectancy.

The five Central Asian republics were, with Azerbaijan, the poorest Soviet republics (Table 1). After the dissolution of the USSR, the Central Asian countries were among the Soviet successor states most subject to a severe negative economic shock. None had anticipated the dissolution of the Soviet Union before its final months, and all were totally unprepared for the severing of Soviet ties. Demand and supply networks based on uncosted transport inputs quickly collapsed in the early 1990s. The shift to world prices notionally benefited the energy exporters, Kazakhstan and Turkmenistan (Table 1, final column), but in the short-term the two countries were unable to realize these gains due to their dependence on Russian pipelines.

*Table 1: Republics of the USSR: Initial Conditions*

<i>Republic</i>	<i>Population (million mid-1990)</i>	<i>Per cap GNP<sup>d</sup> (1990)</i>	<i>Gini Coeff (1989)</i>	<i>Poverty (% of pop)<sup>b</sup> (1989)</i>	<i>Terms of trade<sup>c</sup></i>
USSR	289.3	2870	0.289	11.1	
Kazakh	16.8	2600	0.289	15.5	+19
Kyrgyz	4.4	1570	0.287	32.9	+1
Tajik	5.3	1130	0.308	51.2	-7
Turkmen	3.7	1690	0.307	35.0	+50
Uzbek	20.5	1340	0.304	43.6	-3
Armenia	3.3	2380	0.259	14.3	-24
Azerbaijan	7.2	1640	0.328	33.6	-7
Georgia	5.5	2120	0.292	14.3	-21
Belarus	10.3	3110	0.238	3.3	-20
Moldova	4.4	2390	0.258	11.8	-38
Russia	148.3	3430	0.278	5.0	+79
Ukraine	51.9	2500	0.235	6.0	-18
Estonia	1.6	4170	0.299	1.9	-32
Latvia	2.7	3590	0.274	2.4	-24
Lithuania	3.7	3110	0.278	2.3	-31

All five countries suffered from disrupted supply chains and higher prices for imports. Imminent economic collapse was signaled in falling output and rising prices in 1991 (Tables 3 and 4), but it would become much

worse after formal dissolution of the USSR removed residual central control over the Soviet economic space.

There is little doubt that the people of Central Asia experienced a huge economic shock in the early 1990s. Measuring the size of the economic decline both across countries and over time is, however, problematic.<sup>7</sup> The issues are especially pressing for the first half of the 1990s, but they affect our assessment of the entire post-independence period because measures of, say, GDP which relate a year to a stable base year, usually 1989 or 1991, are more useful than the volatile annual growth rates (Table 3).

The most used aggregate measures are the real GDP estimates reported by international agencies. Even if these capture output trends, they may fail to capture the decline in living standards in the early 1990s when resource flows from the rest of the USSR were cut off. Later in the 1990s the Kyrgyz Republic benefited from substantial capital inflows from multilateral and bilateral official sources, but the other Central Asian countries received little net capital inflow, apart from military assistance to Tajikistan and some direct foreign investment in Kazakhstan. In sum, gross national expenditure probably fell by far more than GDP in the early 1990s.<sup>8</sup>

The output figures are subject to a number of serious conceptual problems. The output mix was substantially transformed after the end of central planning, as major producers collapsed and new goods and services appeared, raising index number issues including the extreme problem of valuing new or obsolete goods and services.

---

<sup>7</sup> The remainder of this section is based on Pomfret (2003b). Reviewing the measurement issues Bloem et al. (1998) conclude that there is no reason to expect the biases to cancel out and that in most transition economies the under-reporting effect is dominant, so that post-transition output is under-estimated. International comparisons for the years up to 1993 are plagued by the problem of which exchange rate to use to convert ruble amounts into a convertible currency (Pomfret, 1995, 171-2).

<sup>8</sup> The interrepublic flows in the USSR are difficult to measure because the Soviet economy was treated as a single unit and large flows took place within all-Union enterprises. Outsiders have estimated the net flow to the Kyrgyz republic in the late 1980s at around a seventh of the republic's gross product (Pomfret, 1995, 72; Griffin, 1996, 19), but Central Asian economists have argued that the net inflow was much smaller or even that Central Asia subsidized the rest of the USSR through Moscow-manipulated transfer pricing (Islamov, 2001).

Table 2. Republics of the USSR : Maddison's Estimates of per capita GDP at Purchasing Power Parity,

Country	1973			1990			1998		
	Pop	GDP	GDP per capita.	Pop.	GDP	GDP per capita.	Pop.	GDP	GDP per capita.
USSR	249.7	1,513	6,058	289.4	1,988	6,871	290.9	1,132	3,893
Kazakh	13.8	105	7,593	16.7	122	7,305	15.6	75	4,809
Kyrgyz	3.2	12	3,702	4.4	16	3,592	4.7	10	2,042
Tajik	3.2	13	4,105	5.3	16	2,995	6.1	5	830
Turkmen	2.4	11	4,795	3.7	13	3,626	4.8	8	1,723
Uzbek	13.1	67	5,118	20.5	87	4,264	24.1	79	3,296
Armenia	2.7	17	6,189	3.3	20	6,142	3.8	13	3,341
Azerbaijan	5.5	24	4,458	7.1	33	4,681	7.7	16	2,135
Georgia	4.9	29	5,894	5.5	41	7,569	5.4	15	2,737
Belarus	9.2	48	5,234	10.3	73	7,153	10.2	59	5,743
Moldova	3.7	20	5,379	4.4	27	6,211	3.6	9	2,497
Russia	132.7	872	6,577	148.3	1,151	7,762	146.9	664	4,523
Ukraine	48.3	238	4,933	51.9	311	5,995	50.3	127	2,528
Estonia	1.4	12	8,656	1.6	17	10,733	1.5	15	10,118
Latvia	2.4	19	7,780	2.7	26	9,841	2.4	15	6,216
Lithuania	3.2	25	7,589	3.7	32	8,591	3.7	22	5,918

- Notes:
- (a) GNP per capita in US dollars, computed by the World Bank's synthetic Atlas method;
  - (b) poverty is defined as individuals in households with gross per capita income less than 75 rubles;
  - (c) impact on the terms of trade of moving to world prices, calculated at a 105-sector level of aggregation using 1990 weights;
  - (d) the annual increase in the consumer price index, end of year.

Sources: columns 1 and 2, World Bank; columns 3 and 4, Atkinson and Micklewright (1992, Table U13), which is based on Goskomstat household budget survey data; column 5, Tarr (1994).

\*Pop is the short for Population

Table 3: Growth in Real GDP 1989-2004 (per cent)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	1999; 1989=100
Kazakhstan	0	0	-13	-3	-9	-13	-8	1	2	-2	2	63
Kyrgyz Rep	8	3	-5	-19	-16	-20	-5	7	10	2	4	63
Tajikistan	-3	-2	-7	-29	-11	-19	-13	-4	2	5	4	44
Turkmenistan	-7	2	-5	-5	-10	-17	-7	-7	-11	5	16	64
Uzbekistan	4	2	-1	-11	-2	-4	-1	2	3	4	4	94

Source: European Bank for Reconstruction and Development Transition Report Update, April 2001, 15.

	1998	1999	2000	2001	2002	2003	2004	2003; 1989=100
Kazakhstan	-2	3	10	14	10	9	7	101
Kyrgyz Rep	2	4	5	5	0	7	4	78
Tajikistan	5	4	8	10	9	10	6	66
Turkmenistan	7	17	18	12	5	11	9	110
Uzbekistan	4	4	4	4	4	1	3	110

Source: European Bank for Reconstruction and Development Transition Report Update, April 2004, 16.

Notes: 2003 = preliminary actual figures from official government sources. Data for 2004 represent EBRD projections.



Apart from the issue of choosing appropriate relative prices, there is also a practical problem of using aggregate price indices during the years of hyperinflation. Nobody would claim that the numbers for 1991-5 in Table 3 are in any sense precise and whether annual inflation is 1500% or 2000% makes little economic difference, but it affects calculations of real GDP.

On the quantity side, data collection problems reflect the low priority given to statistical offices during the initial period of nation-building,<sup>9</sup> and the changing incentives to reporting. During the Soviet era managers pressed to meet plan targets often over-reported output. They also included in output some items that were of no practical value.<sup>10</sup> In a market economy, the latter, what Balcerowitz has called “pure socialist goods”, should have zero weight in GDP. After the transition to a market-based economy, the incentives shifted towards under-reporting in order to avoid taxes or other unwanted attention from the government.

There was, of course, underreporting in the Soviet era, especially of production on household plots, and services were not included in the net material product. The difficulty is not just that the extent of under-reporting is higher now, but that it is non-random. The more market-oriented economies are likely to have larger service sectors. The shadow economy has expanded throughout the region and by its nature is difficult to measure, but all available estimates suggest a dichotomy between the large shadow economies of the Kyrgyz Republic, Tajikistan and Kazakhstan and the smaller shadow economies in Uzbekistan and Turkmenistan. An extreme published estimate has the shadow economy of the Kyrgyz Republic producing twice as much as the official economy (Eilat and Zinnes, 2002), which if true would imply that the Kyrgyz GDP in 2000 had more than doubled since 1991 rather than being four-fifths of its 1991 level.

---

<sup>9</sup> Filer and Hanousek (2002) emphasize the improved capabilities of national statistical offices, but these have improved at varying speeds and to varying degrees so that cross-country comparisons are distorted by the stage which statistical office upgrading has reached in each country at each point in time.

<sup>10</sup> The Uzbek republic was notorious for over-reporting, and the first target of Mikhail Gorbachev's anti-corruption drive was the Uzbek elite which had channeled into the republic billions of rubles in payment for non-existent cotton. After independence the disgraced First Secretary, Sharof Rashidov, became a national hero. Not all over-reporting was dishonest; between 1958 and 1991 around one billion dollars worth of mechanical cotton harvesters, at 1960 prices, were produced in Central Asia, whose real value to the farms receiving them was close to zero because under Central Asian conditions hand-picking was the most efficient technique (Pomfret, 2002a), but Soviet planners believed in the superiority of mechanical picking.

Table 4: Inflation (change in consumer price index) 1991-2000 (per cent)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Kazakhstan	79	1,381	1,662	1,892	176	39	17	8	7
Kyrgyz Rep	85	855	772	229	41	31	26	36	12
Tajikistan	112	1,157	2,195	350	609	418	88	28	43
Turkmen	103	493	3,102	1,748	1,005	992	84	24	17
Uzbekistan	82	645	534	1,568	305	54	59	29	18

Source: European Bank for Reconstruction and Development Transition Report Update, April 2001, 16.

	1998	1999	2000	2001	2002	2003	2004
Kazakhstan	7	8	13	8	6	6	7
Kyrgyz Rep	1	36	19	7	2	3	6
Tajikistan	43	28	33	39	12	16	11
Turkmenistan	17	24	8	12	11	7	9
Uzbekistan	29	29	25	27	28	10	12

Source: European Bank for Reconstruction and Development Transition Report Update, April 2004, 17.

Notes: 2003 = preliminary actual figures from official government sources. Data for 2004 represent EBRD projections.

On top of these general data problems are country-specific issues. Tajikistan was devastated by a civil war, which lasted for much of the 1990s. Even since the 1997 peace agreement, the central government does not control all of the national territory. In Turkmenistan, and to a lesser extent in Uzbekistan, old attitudes about information being power, and associated practices of data manipulation or secrecy, persist. The Turkmenistan data have often been queried by the multilateral agencies and are the least reliable in the CIS.

Despite this catalogue of problems, the data in Table 2 continue to be used. This is primarily because the general patterns correspond with other evidence, including casual observation.<sup>11</sup> The economic decline in Tajikistan has been traumatic, and living standards have fallen to the levels of the least developed countries. Kazakhstan and the Kyrgyz Republic both suffered substantial setbacks during the first half of the 1990s, although the extent is debatable, and both economies have been growing since then, with the Kazakh economy especially buoyant with the high oil prices of the early 2000s. Uzbekistan is the main economic puzzle. Its relatively good GDP performance during the 1990s may in part be a statistical artifact due to fewer under-reported unofficial activities and some overvaluation of the official economy, but even the regime's critics acknowledge that this is not the whole explanation (Taube and Zettelmeyer, 1998). The Uzbek economy genuinely suffered a smaller transitional recession than other former Soviet republics. Contrary to some predictions, it experienced positive economic growth after the mid-1990s, although its performance is less good since the turn of the century. Turkmenistan's performance is the most controversial, and independent checks on official data are scarce; despite positive GDP figures the country seems to have suffered palpable economic decline. However, energy revenues and political stability have contributed to it being less dramatic than in Tajikistan.

---

<sup>11</sup> The household survey data are analyzed in Anderson and Pomfret (2003). Rapid surveys were used to assess immediate needs in the early 1990s (eg. Howell (1996) on the southern districts of the Kyrgyz Republic) and more recently qualitative methods have been used to conceptualize interactions between social, economic and psychological elements of changes in living standards (see, for example, the chapters by Kuehnast on the Kyrgyz Republic and by Gomart on Tajikistan and Uzbekistan in Dudwick et al., 2003), but both of these approaches rely on small and possibly unrepresentative samples which make generalization of the results difficult. Nevertheless, the patterns of traumatic economic decline during the first half of the 1990s, especially outside the capital cities, are incontrovertible.

## ECONOMIC REFORM AND ECONOMIC PERFORMANCE

The phenomenon of the former USSR countries abandoning central planning within a few years of one another raised the question of what separated the more successful from the less successful transition economies. The initial debate was over the speed and extent of reform. The econometric evidence has been inconclusive over whether performance is related to reform or whether initial conditions are crucial. The eastern European countries as a group outperformed the CIS countries, but whether that reflects superior policies or better initial conditions is difficult to identify.<sup>12</sup>

That is not to say that we have learned nothing from the econometric studies. Conflict has been bad for growth, and much of the econometric debate over the impact of reform has depended upon how conflict enters the estimating equation. Countries with civil or interstate wars have been slow reformers and had a poor growth record. High inflation is bad for growth, although moderate inflation is less clearly harmful.<sup>13</sup> Although there are debates about the threshold, all transition economies quickly recognized the costs of hyperinflation. Whether they were committed to structural reform, they all sooner rather than later attacked hyperinflation with standard monetary policy weapons. This led to the fading away of debates over the need for “shock therapy”, as all new market economies acknowledged the desirability of the macroeconomic policy component of Washington Consensus policies – at least when they had three- or four-digit annual inflation.

A complement to the econometric work is national case studies. The Central Asian countries offer a fascinating natural experiment, with their fairly similar initial conditions and radically different approaches to creating market-based economies. On more detailed investigation, the situation is less clear than this simplified characterization suggests. Initial conditions

---

<sup>12</sup> The econometric literature is reviewed in Pomfret (2002b, 90-3) and in World Bank (2002). Among the studies finding a primary role for reform policies are a series of papers by IMF economists (eg. Fischer, Sahay and Végh, 1998; Fischer and Sahay, 2000). Initial conditions are the strongest determinants in the econometric work of EBRD economists Falcetti, Raiser and Sanfey (2000), although they find that some countries defied the odds by performing better, or worse, than initial conditions suggested and that the effect of initial conditions diminishes over time.

<sup>13</sup> The idea of a threshold value beyond which inflation is harmful to growth was popularized by Bruno and Easterly (1998), although their threshold of forty percent now appears too high. Focusing only on transition economies, Christoffersen and Doyle (1998) estimated a threshold of thirteen percent.

did vary, ranking by degree of reform is not as straightforward as simple transition indices suggest, and policymaking has not always been consistent over time. The following subsections analyze each of the five countries' economic reform record and economic performance since independence.

## **Kazakhstan**

At independence Kazakhstan appeared to be the best placed among the Central Asian countries. Per capita incomes were substantially higher than those of the four southern countries, and this was reflected in higher education and other human capital indicators. Moreover, the resource endowment, with substantial energy and mineral resources which were under-priced in the USSR, held great potential. Indeed, the oil reserves were about to be tapped by the Chevron-Tengiz project which was the largest foreign investment agreement signed in the Soviet Union. In 1992 Kazakhstan took the lead in economic reform, following Russia's price reform with fewer exceptions than other Central Asian countries.

Kazakhstan did, however, face two serious obstacles. It was the only Central Asian country where the titular nationality was not in the majority. In the 1989 census the population was approximately two-fifths Kazakh, two-fifths Russian and one-fifth other ethnic groups. Following the dissolution of the USSR, Kazakhstan experienced a brain drain as the substantial German population sought to take advantage of Germany's blood-related citizenship law. Many of the Russian population, fearing Kazakhization, also chose to emigrate. The emigrants were not randomly drawn, as they tended to come from among the better educated, thus eroding Kazakhstan's human capital advantage. The large remaining Russian population was heavily concentrated in the north and east, close to the Russian border, and posing a potential secessionist threat, which has had a powerful political influence. Kazakhstan's president has been the major advocate of retaining some form of common economic space with Russia and, domestically, the national capital was relocated from Almaty in the southeast to Astana in the centre north at large cost.

The second obstacle to fulfilling Kazakhstan's economic potential was connected to the oil sector. The only outlets for Kazakhstan's oil were pipelines through Russia, and Russia exploited its monopoly position by regulating flows and levying high tariffs. Despite many plans for alternative pipelines, the position remains essentially unchanged even a decade after independence. Small amounts of oil are shipped across the Caspian Sea but the maximum is still being exported by Russia. Only after 2001 has this situation shown signs of changing (Pomfret, forthcoming).

Oil has played a key role in the country's economic and political development. The privatization program of the mid-1990s had similarities to that of Russia, with insiders and politically well-connected people gaining control over the valuable assets. The regime became more autocratic and the system more corrupt. In 1995 Kazakhstan ranked behind both the Kyrgyz Republic and Uzbekistan according to the EBRD transition indices.

Explanation of Kazakhstan's disappointing economic performance over the period 1992-5, when estimated GDP fell by almost half, is overdetermined. The initial conditions in terms of resource abundance proved to be negative, because the resources could not be exported at world prices and because of the associated political economy factors. The limited extent of economic reform and crony capitalism also inhibited healthy economic development in the mid-1990s. In 1996-7 Kazakhstan's economy began to grow, but it was hard-hit by the 1998 Russian crisis. Although the crisis itself was exogenous, the contagion effect reflected a relative failure to diversify Kazakhstan's international economic relations away from Russia.

Since 1999 the economic situation in Kazakhstan has turned around. The recovery from the 1998 crisis was driven by market forces and by good fortune. The sharp real depreciation of the currency stimulated exports and helped to validate policymakers' understanding of market mechanisms. At the same time, buoyant world oil prices in the early 2000s reinforced the positive trade developments. At the same time, new offshore oil discoveries, including the largest new oilfield to be found in the world for over thirty years, and new pipeline routes have created unbounded optimism. The booming economy has been accompanied by harbingers of a civil society, reflecting Kazakhstan's relatively high human capital. Although the regime remains autocratic and dissent is punished, the president is facing growing pressures for accountability of himself and his entourage.<sup>14</sup>

---

<sup>14</sup> The opposition has been led by powerful political figures who have defected from the government, often in response to the centralization of power in the President's family, and by businessmen, who gained from the 1990s privatization and now want to strengthen the rule of law in order to protect their gains. The "New Kazakhs" opposition became more open in late 2001, and the government responded harshly in 2002, but the subsequent stand-off reflected the strength of the opposition. Corruption scandals undermine the government, especially the "Kazakhgate" affair associated with a concealed Swiss bank account into which President Nazarbayev has reportedly deposited over a billion dollars in oil revenues and which is the subject of inquiries by US prosecutors. Again after the Ukraine elections of December 2004, Kazakhstan's government reacted harshly, closing down one of the main opposition parties, but the situation remains fluid.

## The Kyrgyz Republic

The Kyrgyz Republic, like Tajikistan, was a poor mountainous Soviet republic with few natural resources. Its economy was tightly linked to the Union economy and suffered substantially from the dissolution of the USSR<sup>15</sup>. Although the Kyrgyz were in the majority there was a large Slav minority in the north and a large Uzbek population in the south of the country. In the Soviet era the republic was associated with economic backwardness and conservatism, although an idiosyncratic development was the appointment in 1990 of a physics professor as First Secretary.

From 1993 to 1998 the Kyrgyz Republic was by far the most reformist of the Central Asian republics. Whether this was because its president was the most liberal or whether he had fewest options is debated. In May 1993 the Kyrgyz Republic was the first Central Asian country to replace the ruble by a national currency, and unlike the other countries this was explicitly part of an economic reform program. The Kyrgyz Republic received the most support from the international financial institutions, and following their standard policy recommendations brought annual inflation down below 50% in 1995 (compared to 1996 for Kazakhstan, and later elsewhere in Central Asia). Prices were liberalized, the currency made convertible, and tariffs reduced. In July 1998 the Kyrgyz Republic became the first Soviet successor state to accede to the WTO.

Small-scale privatization also progressed rapidly. In other areas, however, reform was less smooth. Land privatization was delayed until 1998 and, even when accepted in principle, a five-year moratorium on transfer of ownership was imposed. Large-scale privatization also proved difficult in practice, partly due to unrealistic pricing of assets. The only large productive enterprise with a positive output record was the Kumtor goldmine operated as a joint venture with a Canadian company. The Kumtor mine was accounting for a sixth of GDP by the early 2000s, but front-loading of returns to the foreign investor meant that few benefits accrued to Kyrgyz residents. Institutional reforms were often impressive on paper, but implementation was poor.

Economic performance was similar to that of Kazakhstan, with a substantial output decline followed by economic growth in 1996 and 1997. Whether this was a better achievement depends on a comparison of the initial conditions, which many saw as less favorable in the Kyrgyz Republic,

---

<sup>15</sup> The largest single enterprise, a sugar refinery which accounted for 3% of GNP in 1991, used cane sugar from Cuba as the raw material and this supply link broke down completely. Other large industrial enterprises were part of the Soviet military-industrial complex and also encountered breakdown of their demand and supply chains after 1990.

and on evaluation of the role of foreign assistance. The Kyrgyz Republic was successful in cutting inflation, and yet it ran large fiscal deficits as tax revenues fell and public expenditures were not reduced in line; the general government budget deficit was reduced from a high of 17% of GDP in 1995 but was still 10-11% of GDP in 1999-2000 (Mogilevsky and Hasanov, 2004, 227). The situation was sustained by substantial IMF and World Bank financial aid, which enabled the central bank to limit inflationary financing of the budget deficit, but which led to a rapid build-up of external debt.

The fragility of the Kyrgyz economy was exposed by the 1998 Russian crisis. Although the Kyrgyz economy was less closely linked to Russia than Kazakhstan's economy was, the contagion effects were strong because the Kyrgyz financial sector was weak. Three of the country's four largest banks were liquidated in 1998/9 and banking sector assets fell from \$160 million to \$90 million at the end of 2000, i.e. from ten percent of GDP to seven percent. The apparently extensive financial reforms of the mid-1990s were revealed to be fragile, and this was symbolic of much of the reform structure (Pomfret, 2003a).

One consequence of the financial crisis was to stimulate a re-thinking of economic policies. Concerns over the country's rising debt burden also contributed to rethinking of the adherence to the policies recommended by the international financial institutions. After 1998, economic reforms were more or less placed on hold, although they appear to be moving forward again in recent years.

Economic performance in the Kyrgyz Republic has been difficult to evaluate. Its role as the reform leader in Central Asia led many to anticipate healthy growth. That this was not realized could be ascribed to poor initial conditions, poor implementation of reforms, or not staying on course after 1998. It may also be the case that the GDP figures understate actual performance. Certainly in the north, there is some economic vibrancy in Bishkek and in the resort areas of Lake Issykul, which cater to rich Kazakhs as well as the better-off domestic population.

## **Tajikistan**

Tajikistan shared many of the Kyrgyz Republic's disadvantages, but these were compounded by a civil war in which tens of thousands were killed and half a million people were displaced in the first year after independence. The war fluctuated over the next five years until the 1997 peace agreement brought opposition parties into the government. During the war period roads, bridges and other infrastructure were destroyed, and



much has still not been repaired. Many men left the country either for economic reasons or to avoid the draft.

Since 1997 government policies appear to be fairly liberal. The government has courted the international financial institutions and has largely followed their policy recommendations. Implementation has, however, been poor, especially in the late 1990s when the central government did not have full control over the national territory. After September 2001 President Rahmonov became more assertive in cleansing the government of opposition figures, with the tacit support of the west which approved of his secular position and mistrusted the Islamic parties, and establishing government control, but local warlords, outside the formal structure of the government or the pre-1997 opposition, continue to operate on their own account. The years of war and the burgeoning narcotics trade have hampered the emergence of civil society in the country.

Economic performance has been disastrous in Tajikistan. Output fell by two thirds in the early and mid 1990s. Lack of economic opportunity led many men to migrate to Russia in search of work and, because their remittances were largely brought back as cash and unreported, it is difficult to estimate how much this contributed to incomes.<sup>16</sup> Foreign assistance, mainly from Russia, was primarily military aid, which contributed little to the economy apart from leaving Tajikistan with the highest debt/GDP ratio of any Soviet successor state. Although some recent years have seen some high annual growth rates, this is indicative of the low base rather than of real economic achievement.

## **Turkmenistan**

The Turkmenistan economy, although historically one of the poorest republics in the USSR, experienced rapid growth during the final decades of the Soviet rule. Construction of the Karakum Canal which begun in the 1950s greatly increased the land area under cotton. In the 1980s natural gas production had been greatly increased. The shift from Soviet to world prices offered larger terms of trade gains to Turkmenistan than to any other Soviet successor state (Table 1).

Turkmenistan has the most personalized and autocratic regime in Central Asia. The president's absolute power is supported by control over the cotton and energy rents. Soon after independence he adopted a populist strategy of providing free water, electricity, gas, heating, salt and other

---

<sup>16</sup> Many of the temporary emigrants have not sent remittances and appear to be establishing permanent residence in Russia, further complicating the impact on per capita income in Tajikistan.

necessities up to certain limits intended to include most household consumption. He pursued a development strategy of import-substituting industrialization, centred on increasing value-added in the energy and cotton sectors.

The economic strategy was, however, undermined by the inherited infrastructure, which directed energy exports exclusively to the CIS. The monopsonistic buyers quickly ran up substantial arrears,<sup>17</sup> which Turkmenistan eventually addressed by the drastic measure of ceasing supply between 1997 and 1999. This is reflected in the pattern of GDP growth, but Turkmenistan's economic problems run deeper than a simple strategic blip in the late 1990s.

The economy is essentially unreformed. The central planning mechanisms were formally ended by Gorbachev and in any case broke down in the early 1990s, but a functioning market economy has not been created. As far as possible the president retains control over resource allocation decisions, which is relatively easy given the simple structure of the economy with its high dependence on energy and cotton exports, but is very inefficient. Repressive agricultural policies (Pastor and van Rooden, 2000) and poor management have led to cotton yields falling by much more than in neighbouring Uzbekistan. The import substitution projects probably have negative value added (Pomfret, 2001). The energy sector is more opaque; despite continuing to attract foreign interest, it is hardly flourishing.

The data for Turkmenistan are the least reliable among all the transition economies and are manipulated for political impact. Nevertheless, it is clear to any observer that economic conditions have deteriorated substantially since independence, especially outside the capital city. Turkmenistan provides the strongest evidence that non-reform, autocracy and poor economic management is a recipe for economic decline.

## **Uzbekistan**

Uzbekistan is, with twenty-six million people, the most populous of the Central Asian countries and its record since independence is the most controversial. Initial conditions were at first seen as neutral and its

---

<sup>17</sup> The arrears complicate Turkmenistan's national accounts because gas sales are recorded as exports valued at the contract price. The arrears appear in the capital account of the balance of payments as capital outflows from Turkmenistan, even though the foreign assets being accumulated were worth far less than their face value. The actual accounts are extremely opaque because revenues received from energy and cotton exports go into off-budget funds under the president's personal control.

economic reforms have been cautious, but during the 1990s its economic performance by the usual measures was the best of all former Soviet republics, including the rapidly reforming and geographically advantaged Baltic countries. The Uzbek government has had frosty relations with the international financial institutions, and this may have clouded judgments of what has become known as the Uzbek puzzle.

Uzbekistan illustrates the difficulty of *ex ante* determination of what are favourable initial conditions. Its major export, cotton, was not under-priced in the USSR, so Uzbekistan did not have the expected terms of trade gains that energy producers like Kazakhstan or Turkmenistan anticipated. On the other hand, cotton was not restricted to fixed transport modes and it could be exported to new markets. Up to 1996 this advantage was enhanced by buoyant world prices for cotton. Uzbekistan's second most valuable export, gold, was even easier to export at world prices.

Another favorable initial condition whose value is clearer *ex post* was Tashkent's position as the regional capital of Soviet Central Asia. At a physical level, the principle that the Soviet successor states inherited assets in their territory meant that Uzbekistan gained the biggest air fleet and most military equipment in Central Asia. After some initial hiccups, Uzbekistan Airways emerged as the only competitive international airline in Central Asia and remains one of the few state enterprises to have been successful in the new economic environment. Less tangibly, but perhaps more important, Uzbekistan inherited the most effective administrators in the region. Whether truly an initial condition or a result of technocratic leadership, good economic management is reflected in several features distinguishing Uzbekistan from its neighbors.

The physical infrastructure has been relatively well kept up, both in the domestic transport network and in the irrigation canals that are crucial to the cotton economy. Corruption is widespread in all of Central Asia, but available evidence suggests lower levels in Uzbekistan than in the other four countries,<sup>18</sup> implying more effective central control and (admittedly by the low standards of the region) a relatively high sense of public service.

The history of regional administration has contributed to a stronger sense of independence in policy making. Uzbekistan has been skeptical of foreign advice, and unwilling to accumulate foreign debt, so its relations with the international financial institutions have been frosty. Uzbekistan

---

<sup>18</sup> See, for example, the results of the Business Environment and Enterprise Performance survey reported in the European Bank for Reconstruction and Development's *Transition Report 1999*. Among the twenty transition economies covered by the BEEPS, Uzbekistan ranked about fourth for lack of corruption, ahead of several East European countries generally considered to be transition leaders.

has, however, not been a non-reformer. Small-scale privatization and housing reform were undertaken quickly. Macroeconomic stabilization was not an initial priority but, after the collapse of the ruble zone at the end of 1993, Uzbekistan moved purposefully to reduce inflation. Macroeconomic policy in the two and a half years after January 1994 followed standard IMF advice, and relations with the international financial institutions improved over this period. In October 1996, however, despite having made commitments to the IMF to adopt current account convertibility, Uzbekistan responded to a balance of payments crisis by introducing forex controls.

The forex controls have been the major economic issue since 1996. Although the government had recognized their cost by the end of the decade and took steps toward liberalization, the controls remained in place until late 2003.<sup>19</sup> The forex controls have been a major, but not the only, stumbling block to improved relations with the international financial institutions. Since 1996 Uzbekistan has been, by the EBRD transition indicators, a slow reformer, but this characterization is determined by its low score on price liberalization (reflecting ongoing state orders for cotton and wheat) and on trade (reflecting the forex controls).

Uzbekistan has been gradually becoming a more market-oriented economy, albeit with substantial government direction. Government intervention, apart from the controls on cotton and wheat, tends to follow a version of the Asian developmental state model rather than the crude controls of Turkmenistan. Uzbekistan's financial sector remains dominated by a state-owned bank and financial repression is severe. Elsewhere, however, the government is bringing market forces to operate, eg, in rail transport and in some utilities (Pomfret, 2003a). A key distinction between Uzbekistan and the Kyrgyz Republic or Tajikistan is that Uzbekistan's legislative record is less reformist but its implementation is more effective.

The Uzbek puzzle is how to explain the good economic performance of a lagging economic reformer. It is partly a matter of over-estimating performance, but it has much more to do with under-estimating reform progress and, especially, failure to recognize the key importance of infrastructure and the institutional setting in which markets function. Uzbekistan is not an open society and this may stifle economic progress, but it has a relatively well-managed economy and this feature helped to

---

<sup>19</sup> Rosenberg and de Zeeuw (2000) analyze the forex regime. The existence of forex controls has been a stumbling block to reform, even as the government professes a desire to abolish them. In 2001 temporary import duties were imposed ostensibly to reduce the black market premium prior to establishing currency convertibility, but the main effects were to put small traders (a dynamic and pro-reform group) out of business and to encourage cross-border shopping and smuggling.

minimize the extent of the transitional recession. Without reform that may have just delayed rather than avoided decline, but gradual reform has been sufficient to provide the basis for modest but reasonably steady growth since the mid 1990s.

This is, of course, not to defend some of Uzbekistan's clearly misguided policies. The forex controls are hindering desirable resource reallocation to actual and potential export sectors. In part the controls are retained because, together with the state order system, they underpin a non-transparent but large taxation of the farm sector. That in turn has allowed Uzbekistan to maintain public revenues, and hence public expenditures without inflationary financing, and has been instrumental in retaining a credible social safety net and the highest ratio of education spending to GDP in the CIS. Nevertheless, these benefits come at substantial long-term resource misallocation costs, which are familiar from other countries that have relied on similar agricultural taxes (Pomfret, 2000). After the turn of the century, Uzbekistan was unable to generate the accelerated growth seen elsewhere in the former USSR, and it began to fall further and further behind its regional rival, Kazakhstan.

Overall, how far have the Central Asian countries moved in creating market-based economies? Institutions have long been recognized as critical determinants of how well a market economy performs (North, 1994), but in the transition context they were initially viewed in a mechanical way: how to replicate the institutional features of established developed market economies? This mechanical approach and simple norm is reflected in the pervasive use of the transition indicators reported by the European Bank for Reconstruction and Development in its annual *Transition Report*.

The EBRD's transition indicators might indicate that countries which have proceeded fastest with structural reforms and liberalization have also created the best quality institutions, or they could reflect a narrow view of institutions. It is important to acknowledge the ethnocentricity of these commonly used indicators of institutional change when analyzing the whole set of transition economies. The European transition economies rank the highest, and they are trying to emulate western European economic institutions in order to facilitate accession to the European Union. If a country sees its post-Communist future in terms of becoming like Sweden or Austria, then the EBRD measures are valuable guideposts to progress, but the Central Asian transition economies have other role models. Many of them would prefer to emulate the institutions and economic performance of South Korea or Malaysia, which do not rank highly by western-inspired measures of institutional quality.<sup>20</sup> The more economically successful Asian

---

<sup>20</sup> Malaysia is an especially attractive role model for the six Islamic Soviet successor states, who seek an alternative to the Iranian (or even worse, the Taliban)

transition economies have different institutions, but ones that in some respects work as substitutes for the western model, e.g. the network of family connections in China and Vietnam is, at least for small businesses, a reasonable substitute for western-style contract enforcement by litigation.

Attempts to transplant western institutions into a Central Asian setting did not have the anticipated success in the Kyrgyz Republic, because too many other conditions for a successful market economy were lacking. On the other hand, attempts to ignore universal laws of economics are likely to bring economic grief to Turkmenistan and Uzbekistan. Good economic management helped Uzbekistan to weather the transitional recession better than other former Soviet republics or most eastern European countries, but a heavily interventionist import-substituting industrialization strategy for economic development has been shown repeatedly to lead to long-term stagnation while creating the vested interests which make policy reversal difficult.

## **INTERNATIONAL ECONOMIC POLICIES: REGIONALISM AND INTEGRATION INTO THE WORLD ECONOMY<sup>21</sup>**

The five Central Asian countries have all remained open economies with high trade/GDP ratios, despite adoption, especially in Turkmenistan and Uzbekistan, of import-substitution policies. Initially their trade was heavily oriented towards CIS markets as a result of inherited links and infrastructure, but by 1996 over half of their foreign trade was outside the old Soviet area. The early expectation was of a struggle for influence among the region's neighbours and outside powers, reminiscent of the Great Game of the nineteenth century, but that expectation has only been realized in the area of oil and gas pipelines, with the consequence of blocking any major new pipelines during the 1990s. Otherwise trade has been on a multilateral basis with non-energy exports being sold on world markets and imports being purchased from least-cost suppliers. Nevertheless, there have been a huge number of regional agreements, both among the Central Asian countries, and between Central Asian countries and their neighbors – Russia to the north, China to the east, and Iran and Turkey to the south.

The leaders of the five Central Asian countries have all recognized the desirability of some degree of regional cooperation, notably on the Aral

---

model of an Islamic economy. Their leadership was also impressed by Mahathir Mohamed's longevity as a national leader.

<sup>21</sup> This section is based on Pomfret (2005).

Sea, and all have formally joined at least one regional organization, but their attitudes towards regional cooperation and towards membership in regional organizations vary considerably. Kazakhstan has been the most positive and most active, and has been the leading proponent of forging deeper economic arrangements among Soviet successor states. The Kyrgyz Republic has had the most global outlook among the five countries, collaborating with the international financial institutions and being the first to accede to the World Trade Organization, although the Kyrgyz Republic has also followed Kazakhstan's lead in joining regional organizations. Tajikistan too has joined the same organizations as Kazakhstan, although its actions have often been determined by the government's security ties with Russia. Uzbekistan has been wary of ceding authority to regional organizations. Turkmenistan has been the most sensitive about sovereignty, and consequently the most reluctant to become seriously involved in regional organizations. The national leaders' attitudes have, however, varied and evolved. The early 2000s saw widening fissures, in particular between Uzbekistan and its neighbors, but after the US-led invasion of Iraq there was a rapprochement between Turkmenistan and Uzbekistan towards a Russia which appeared less sensitive about human rights violations than the USA.

The history of regional organizations involving the five Central Asian countries has been driven by political considerations and has been lacking in economic achievements. In terms of formal trade policies, such as tariffs, this has been a benevolent outcome, because the countries have avoided becoming locked into second-best institutional arrangements, and are moving towards first-best nondiscriminatory low tariffs. The multilateral trading system is often seen as an alternative to the regionalism option. The Kyrgyz Republic is already a member of the World Trade Organization and, especially with the recent accession of China and anticipated accession of Russia, the WTO provides the best framework for trade policy in Central Asia.

## **Accession to the WTO**

Membership in the World Trade Organization (WTO) is a natural institutional counterpart to economic openness. In the 1990s, however, the Central Asian countries were suspicious of international obligations which placed constraints on their policy autonomy. They were happy to join the United Nations as a signal of nationhood, and to join the IMF and World Bank and the regional development banks as potential sources of capital, but apart from the Kyrgyz Republic they held back on WTO accession. For Turkmenistan, this attitude remains even in 2005.

With low average tariffs, the main obstacle to WTO membership has been Central Asian governments' unwillingness to formally abjure the artificial non-tariff barriers described in the previous section. So far, only the Kyrgyz Republic among the Central Asian countries has joined the WTO, which it did in 1998 (Table 4). Kazakhstan's application appears to be fairly far-advanced. Uzbekistan's accession process is at an earlier stage than Kazakhstan's, which has had an active program of Working Party meetings in recent years. Tajikistan applied for WTO membership in May 2001, and the Working Party has only met twice, but it has already made more progress than Uzbekistan's. Turkmenistan has not lodged an application.

WTO membership and good trade policies are no panacea. The Kyrgyz Republic's WTO accession was followed by recession, because non-WTO factors (such as the Russian Crisis, Kazakhstan's fifty per cent devaluation and the collapse of three of the country's four largest banks) dominated any positive WTO effect.<sup>22</sup> The WTO effect was weak because transport and transit conditions stymied Kyrgyz trade. WTO membership has costs but these are often misinterpreted. The restrictions on trade practices are largely what a small open economy should be doing in its own interests, while WTO members retain flexibility over applied tariffs as long as they are below the bound level. The more substantial costs are in building institutions to ensure compliance with the various WTO codes, but bilateral and multilateral donors can assist with this institution-building.

---

<sup>22</sup> Critics of the WTO citing Kyrgyz post-WTO troubles confuse before/after and with/without comparison. A more robust criticism of the Kyrgyz Republic's accession experience is that the negotiators, whether due to inexperience or by intent, failed to make transitional arrangements or gain exemptions that would have protected Kyrgyz interests. Some learning process is reflected in Kazakhstan's lengthier and more detailed WTO negotiations, and harder stance on some of the voluntary codes. The appropriate negotiating balance must reflect a country's preferences and compliance capabilities; immediate compliance may be problematic and a phasing-in period desirable.



Table 5: Status of WTO Accession Negotiations

	Applied	Working Parties	Member
Kazakhstan	January 1996	7 meetings 1997-2004 <sup>a</sup>	
Kyrgyz Rep.	1993		December 1998
Tajikistan	May 2001	1 meeting (March 2004)	
Turkmenistan	Not applied		
Uzbekistan	December 1994	2 meetings 2002-2004 <sup>b</sup>	
China	1986		December 2001
Russian Fed.	June 1993	26 meetings, 1995-2005	

Source: WTO website – accessed 11 March 2005.

Notes: a - Kazakhstan Working Parties met on 19-20 March 1997, 9 October 1997, 9 October 1998, 13 July 2001, 15 July 2003, 4 March 2004 and 3 November 2004.

b - Uzbekistan Working Parties met on 17 July 2002 and 29 June 2004.

The most important benefit of WTO membership is to place trade on a common basis of international trade law, and potentially to separate trade from politics. Accession by more Central Asian countries would provide a common framework for formal trade policies and dispute resolution with respect both to a greater proportion of intra-regional trade and to trade with all of the region's economically important neighbors. Iran, Pakistan and Turkey have long been WTO signatories, and the benefits to Central Asian countries of WTO membership should be accentuated by China's accession in 2001 and by Russia's imminent accession. As WTO members, Central Asian countries would share a common institutional framework for trade policies and their implementation both with one another and with their neighbors.

Overall, the trade performance of the Central Asian countries has been disappointing (Table 5). Apart from Kazakhstan's oil-driven post-1999 boom, the Central Asian countries' export growth since 1994 has been mediocre. The explanation is a mixture of the destruction of intra-CIS trade due to the erection of borders, and the failure to realize the potential for trading in the major non-CIS markets. The lack of a stable institutional environment for international trade is part of the high costs of doing trade with Central Asian countries, and WTO membership could alleviate these costs by providing the framework in which regional and wider trade can flourish.

Table 6: International Trade, 1993-2003 (million US dollars)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Exports</b>											
Kazakhstan	1,107	3,227	5,256	5,926	6,497	5,511	5,598	9,876	9,085	9,670	14,875
Kyrgyz Rep	360	339	483	506	609	509	454	504	476	486	622
Tajikistan	350	492	749	772	803	597	689	770	652	737	719
Turkmen	561	1163	1881	1693	751	594	1187	2505	2555	2710	2949
Uzbekistan	693	1991	2718	2620	2896	2310	1963	2132	2087	1558	1998
<b>Imports</b>											
Kazakhstan	1704	3285	3807	4247	4302	4373	3686	5048	6478	6584	9377
Kyrgyz Rep	447	316	392	795	709	841	611	555	465	587	888
Tajikistan	532	545	810	668	750	711	663	671	680	710	881
Turkmen	586	904	1364	1313	1228	1007	1476	1788	2210	1819	1964
Uzbekistan	918	2455	3030	4854	4538	2931	2481	2067	2293	207	2510

Source: International Monetary Fund, *Direction of Trade Statistic*

WTO accession could bring further benefits by encouraging liberal policies and punishing backsliding on commitments. Such an environment would help to attract foreign direct investment, as well as making domestic investment more attractive. With a positive domestic environment, WTO membership helps to ensure that a country can reap benefits from specialization and trade with diminished fear of protectionist responses in foreign markets.

Finally, WTO membership would grant some leverage to reduce existing illiberal policies. Most immediately, Uzbekistan and Tajikistan would want to join WTO member countries lobbying for reduced subsidies to cotton producers in the USA and EU. Central Asian cotton-producing nations would broaden the coalition and highlight the iniquity of subsidizing

rich country farmers to the detriment of poor farmers in areas with a comparative advantage in growing cotton.

## PROSPECTS FOR THE SECOND DECADE

Within Central Asia the most striking developments since 1991 have been in domestic rather than in international politics. Apart from in Tajikistan, the presidents are all men who were appointed as First Secretary of their Soviet republic by Mikhail Gorbachev and who have remained in power by more or less undemocratic means. Opposition has been fairly ruthlessly crushed and civil society has been slow to emerge. Nevertheless, in all of the countries, apart from the confused situation in Tajikistan, there are signs of a more threatening opposition to the incumbents.<sup>23</sup> Policy statements emphasize coordinated action against terrorism, but since 1999 border closures and international incidents have become more frequent.

The establishment of new border posts was a consequence of the creation of the new independent states in 1991, but their role as a major source of tension was exacerbated by the 1999 explosions in Tashkent and the increased activity of the Islamic Movement of Uzbekistan (IMU). Uzbekistan subsequently introduced visa requirements which were followed by its neighbors, and took steps such as laying mines to deter IMU fighters from entering Uzbekistan through Tajikistan and the Kyrgyz Republic.

---

<sup>23</sup> After a series of assassinations of public officials in 1997, the Uzbekistan government arrested hundreds of people in a 1998 crackdown. In February 1999 five bombs exploded in downtown Tashkent, killing several people and injuring over a hundred; the biggest one outside the Cabinet of Ministers building was apparently targeted at the President. In August 1999 some 650 gunmen from the Islamic Movement of Uzbekistan (IMU) were caught entering Uzbekistan. Attempts to bomb the insurgents' bases hit the wrong targets, killing several Kyrgyz civilians and Tajik cows and undermining Uzbekistan's reputation for military effectiveness. In the Kyrgyz Republic dissension has had a regional dimension as opposition has been centred in the south, objecting to a perceived northern bias of President Akayev's government. In Kazakhstan, opposition has focused on the behaviour of President Nazarbayev's family and close associates, who have been forced to respond to accusations of malfeasance and corrupt self-enrichment. Both Kazakhstan and the Kyrgyz Republic are relatively open societies, where domestic opposition is vociferous even if it is under duress. In Turkmenistan, all domestic opposition has been muzzled, but an opposition in exile has emerged in recent years. In November 2002 an assassination attempt on President Niyazov (Turkmenbashi) was followed by a domestic crackdown on suspects.

What are the prospects for improved international relations in Central Asia during the first decade of the twenty-first century? At the institutional level, existing regional organizations have been strengthened, at least on paper, as the Union of Five became the Eurasian Community, the Shanghai Forum became the Shanghai Cooperation Organization and the Central Asian Economic Community was succeeded by the Central Asian Cooperation Organization. Whether the implementation ability of the new organizations will exceed that of their predecessors is still uncertain. Moreover, recent developments within the region, especially increased territorial disputes, are creating a climate which is inimical to cooperation. Whether justified on security grounds or not, new border control measures are unpopular among the local populations who have no history of such restrictions, and assertions of the new states' territorial rights augur poorly for inter-state cooperation.

Yet, there are benefits from regional cooperation, and if these could be realized that would help to defuse political tensions. The costs to Central Asia of foregoing benefits from international specialization and trade arise from the tragedy of the anti-commons, where people promoting self-interested goals are choking off trade that would be mutually beneficial. This tragedy can be mitigated by government actions to discourage or regulate anti-social behavior by local authorities, customs officials and others under their jurisdiction. The national governments can also benefit by implementing policies to reduce other impediments to trade such as cumbersome visa regulations, poorly developed financial systems, and capricious changes in border crossings, but that requires an appreciation that many of the foregone trade opportunities represent win-win situations.

## CONCLUSIONS

When the five Central Asian countries became unexpectedly independent during the second half of 1991, they faced three large negative shocks: the end of central planning, the dissolution of the Soviet Union, and hyperinflation. All experienced a transitional recession; output fell, inequality widened and poverty increased. Their national experiences, however, diverged during the first decade after independence, both with respect to the type of economic system created and with respect to economic performance.

By the turn of the century, the national economies, with the possible exception of Turkmenistan's, had changed substantially from the centrally planned economy of the Soviet era and all were in one form or another, a market-based economy. Kazakhstan, despite false steps in the 1990s,

remain the most likely to succeed. Its new elite, based on an unfair and distorted privatization process, is now keen to establish a rule of law in order to protect its economic gains, and favorable institutional developments are likely. Meanwhile, the hard infrastructure of oil pipelines is starting to improve and provide Kazakhstan with alternative outlets for its dominant exports.<sup>24</sup> At the other extreme, Turkmenistan faces the grimmest immediate prospects with a regime that is resistant to change; the long-term prospects depend upon the timing and the nature of the political succession. Political factors are also critical in Tajikistan, where establishment of effective public administration is a necessary precondition for progress. Even with that condition met, the economic prospects are not good for Tajikistan or for the Kyrgyz Republic, both poor landlocked countries. Uzbekistan is the most complex situation to forecast. In the 1990s it was economically the most successful of all Soviet successor states and in day-to-day matters the economy remains well-managed, but bedeviled by poor economic policies in key areas. If the inter-related issues of protection for import-substituting industries, low farmgate prices and government revenues can be addressed, the economic prospects may be reasonably good, but if they are not addressed Uzbekistan's economy could easily slip into the state familiar from many import-substituting countries of the 1950s and 1960s. Perhaps more fundamental, in Uzbekistan as elsewhere in Central Asia, is the question of whether an autocratic and repressive political regime is consistent with a flourishing market-based economy; China's example suggests "yes", but that has not been easy to replicate.

How to sum up the prospects for Central Asia as a whole? The main conclusion of this paper is that, despite much shared background and common initial conditions, the five countries, and especially the two larger economies, Kazakhstan and Uzbekistan, have been moving along differing trajectories and that is likely to continue. While the three smaller countries will remain minor players in the global economy, both of the larger countries could become significant middle-sized economies, but in their own right rather than as part of Central Asia.

---

<sup>24</sup> The opening of the private CPC pipeline to the Black Sea in 2001 provided an alternative to the Russian state monopoly, and construction of a pipeline to Ceyhan on Turkey's Mediterranean coast will further increase Kazakhstan's options in 2005. High oil prices in 2003 and 2004 have also reopened the prospect of profitable pipelines to China.

## REFERENCES

- Anderson, Kathryn H., and Richard Pomfret. 2003: *Consequences of Creating a Market Economy: Evidence from Household Surveys in Central Asia*. Cheltenham UK: Edward Elgar.
- Åslund, Anders, Peter Boone and Simon Johnson 1996: How to Stabilize: Lessons from Post-Communist Countries, *Brookings Papers on Economic Activity*, 1, 217-313.
- Atkinson, Anthony, and John Micklewright 1992: *Economic Transformation in Eastern Europe and the Distribution of Income*. Cambridge UK: Cambridge University Press.
- Bloem, Adriaan, Paul Cottrell and Terry Gigantes 1998: National Accounts in the Transition Countries: Balancing the Biases, *Review of Income and Wealth*, 44(1), 1-24.
- Bohr, Annette 1998: *Uzbekistan: Politics and Foreign Policy*. London: Royal Institute of International Affairs, and Washington DC: The Brookings Institution.
- Bruno, Michael, and William Easterly 1998: Inflation Crises and Long-Run Growth, *Journal of Monetary Economics*, 41(1), 3-26.
- Christoffersen, Peter, and Peter Doyle 1998: From Inflation to Growth: Eight Years of Transition, *IMF Working Paper WP/98/100*. Washington DC: International Monetary Fund.
- Dudwick, Nora, Elizabeth Gomart and Alexandre Marc, with Kathleen Kuehnast 2003: *When Things Fall Apart: Qualitative Studies of Poverty in the Former Soviet Union*. Washington DC: World Bank.
- Eilat, Yair, and Clifford Zinnes 2002: The Shadow Economy in Transition Countries: Friend or Foe? A Policy Perspective, *World Development*, 30(7), 1233-54.
- Falcetti, Elisabetta, Martin Raiser and Peter Sanfey 2000: Defying the Odds: Initial Conditions, Reforms and Growth in the First Decade of Transition, *EBRD Working Paper No.55*, London UK: European Bank for Reconstruction and Development.
- Filer, Randall, and Jan Hanousek 2002: Data Watch: Research Data from Transition Economies, *Journal of Economic Perspectives*,
- Fischer, Stanley, and Ratna Sahay 2000: The Transition Economies after Ten Years, *IMF Working Paper WP/00/30*. Washington DC: International Monetary Fund.

- Fischer, Stanley, Ratna Sahay and Carlos Végh 1998: *From Transition to Market: Evidence and Growth Prospects*, *IMF Working Paper WP/98/52*. Washington DC: International Monetary Fund.
- Freitag-Wirminghaus, Rainer 1998: Turkmenistan's Place in Central Asia and the World, in Touraj Atabaki and John O'Kane (eds.) *Post-Soviet Central Asia* (London: Tauris Academic Studies), 157-76.
- Gleason, Gregory 2003: *Markets and Politics in Central Asia*. Routledge: London UK.
- Griffin, Keith, ed. 1996: *Social Policy and Economic Transformation in Uzbekistan*. Geneva: International Labour Organization.
- Howell, Jude 1996: Poverty and Transition in Kyrgyzstan: How some households cope. *Central Asian Survey*, 15(1), 59-73.
- Islamov, Bakhtior 2001: *The Central Asian States Ten Years After: How to Overcome Traps of Development, Transformation and Globalisation?* Tokyo: Maruzen.
- Kalyuzhnova, Yelena 1998: *The Kazakstani Economy: Independence and Transition*. Basingstoke/London: Macmillan.
- Lubin, Nancy 1999: Energy Wealth, Development, and Stability in Turkmenistan, *NBR Analysis* (National Bureau of Asian Research, Seattle WA), 10(3), 61-78.
- Maddison, Angus 2001: *The World Economy: A Millennial Perspective*. Paris: The Development Centre of the Organisation for Economic Co-operation and Development.
- Mogilevsky, Roman and Rafkat Hasanov 2004. "Economic Growth in Kyrgyzstan" in *The Economic Prospects of the CIS: Sources of Long-term Growth*. Eds Gur Ofer and Richard Pomfret. Edward Elgar Publishing Ltd. UK.
- North, Douglass 1994: Economic Performance through Time, *American Economic Review*, 84(3), 359-68.
- Ochs, Michael 1997: Turkmenistan: The Quest for Stability and Control, in Karen Dawisha and Bruce Parrott, eds., *Conflict, Cleavage and Change: Central Asia and the Caucasus*. Cambridge UK: Cambridge University Press, 312-59.
- Olcott, Martha Brill 2002: *Kazakhstan: A Faint-hearted Democracy*. Washington DC: Carnegie Endowment for International Peace.
- Pastor, Gonzalo, and Ron van Rooden 2000: Turkmenistan – The Burden of Current Agricultural Policies, *IMF Working Paper WP/00/98*. Washington DC: International Monetary Fund.
- Pomfret, Richard 1995: *The Economies of Central Asia*. Princeton NJ: Princeton University Press.

- Pomfret, Richard 1999: *Central Asia Turns South? Trade Relations in Transition*, LondonUK: The Royal Institute of International Affairs, and Washington DC: The Brookings Institution.
- Pomfret, Richard 2000: The Uzbek Model of Economic Development 1991-99. *Economics of Transition*, 8(3), 733-48.
- Pomfret, Richard 2001: Turkmenistan: From Communism to Nationalism by Gradual Economic Reform, *MOCT-MOST (Economic Policy in Transitional Economies)*, 11(2), 165-76.
- Pomfret, Richard 2002a: State-Directed Diffusion of Technology: The Mechanization of Cotton-Harvesting in Soviet Central Asia", *Journal of Economic History*, 62(1), 170-88.
- Pomfret, Richard 2002: *Constructing a Market Economy: Diverse Paths from Central Planning in Asia and Europe* (Edward Elgar, Cheltenham UK).
- Pomfret, Richard 2003a: *Structural Reform in the CIS7*, paper presented at the Lucerne Conference of the CIS7 Initiative, 20-22 January - available at [www.Cis7.org](http://www.Cis7.org)
- Pomfret, Richard 2003b: Economic Performance in Central Asia since 1991: Macro and Micro Evidence, *Comparative Economic Studies*, 45 (4), December 2003, p.442-65.
- Pomfret, Richard 2005: Trade Policies in Central Asia after EU Enlargement and before Russian WTO Accession: Regionalism and integration into the world economy", *Economic Systems*, March.
- Pomfret, Richard (forthcoming): Kazakhstan's Economy since Independence: Does the oil boom offer a second chance for sustainable development? *Europe-Asia Studies* (formerly *Soviet Studies*).
- Rosenberg, Christoph, and Martin de Zeeuw 2000: Welfare Effects of Uzbekistan's Foreign Exchange Regime, *IMF Working Paper WP/00/61*. Washington DC: International Monetary Fund.
- Spechler, Martin 1999: Uzbekistan: The Silk Road to Nowhere? *Contemporary Economic Policy*, 18(3), 295-303.
- Spechler, Martin 2000: Hunting the Central Asian Tiger, *Comparative Economic Studies*, 42(3), 101-20.
- Tarr, David 1994: The Terms-of-Trade Effects of Moving to World Prices on Countries of the Former Soviet Union, *Journal. of Comparative Economics*, 18(1), 1-24.
- Taube, Günther, and Jeromin Zettelmeyer 1998: Output Decline and Recovery in Uzbekistan: Past Performance and Future Prospects, *IMF Working Paper WP/98/11*. Washington DC: International Monetary Fund.
- Werner, Markus 2001: Im Reich des grossen Führers: Turkmenistan – eine zentralasiatische Despotie, *Osteuropa*, 51(2), 127-34.



World Bank 2002: *Transition: The First Ten Years*, Washington DC.

**PART 11**

***AGRICULTURE DEVELOPMENT IN CENTRAL  
ASIA: TRENDS AND ANALYSIS OF POLICY  
REFORMS***

## CHAPTER 3

# **POLITICAL ECONOMY OF AGRARIAN REFORMS IN CENTRAL ASIA: LESSONS FROM POLICY FAILURES**

Hooman Peimani

*Centre for International Cooperation and Security, UK*

## **INTRODUCTION**

The sudden fall of the Soviet Union caught off guard all the Central Asians who had long relied on Moscow for addressing their needs in various fields, including their food requirements and agricultural products. Against a background of discredited Soviet political and economic system, the unexpected independence imposed on the five newly-independent Central-Asian states of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, a transitional process from the centrally-controlled economy to a market economy. The creation of such independent economies required the overhaul of all the economic sectors of the pre-independence era, including agriculture. Despite hopes and some efforts of varying intensities between countries, all the Central Asian states have failed to find a sustainable new economic system, including an efficient, adequate and viable agriculture 14 years after their independence. In this chapter we analyze various political economy factors, including incompetence, corruption and a lack of political will that has contributed to this policy failure.

## **POLITICAL ECONOMY OF ECONOMIC REFORMS**

In creating a new political and economic system, the Central Asian countries, like all the 15 ex-Soviet republics excluding the three Baltic States (Latvia, Lithuania and Estonia), lag behind most of the ex-communist states of East and Central Europe. In particular, their political reforms have been dismal. The Central Asian political systems are in essence the inherited Soviet state machinery with a varying degree of changes insignificant enough to

ensure the domination of the Soviet elites who have now turned nationalists. Despite the initial differences in terms of respect for human rights and political openness, all Central Asian governments have opted for authoritarianism. This has taken different forms and degrees of intolerance of dissent ranging from the Kazakh case where a very limited, but eroding, degree of dissent is tolerated to the extreme Stalinist Turkmenistan case based on Turkmen President Safarmurad Niyazov's cult of personality. The latter simply does not tolerate any form of dissent.

The overall political economy situation in Central Asia does not suggest a fundamental change in this trend notwithstanding the fast-paced political development in Kyrgyzstan leading to President Askar Akayev's removal from office. Within about a two-week period in March 2005, the country experienced a "revolution", more or less, along the line of Georgia (Rose Revolution of 2003) and Ukraine (Orange Revolution of 2004). While one should hope a change for the better, the new Kyrgyz government with its declared commitment to democracy does not seem to be heading towards the creation of a sustainable democratic system. Among many other factors, it is formed by those who held influential positions in the Akayev administration, while using the same corrupt state apparatus to run the country. In short, authoritarianism still exists in different forms and is at varying levels of consolidation in the Central Asia.

Perhaps, Central Asia has done slightly better in economic reforms. Without any exceptions, all the five states have taken measures to reform their troubled economies. When the Soviet Union collapsed in December 1991, the Russian government ended the seven-decade long Soviet tradition of providing the 15 ex-Soviet republics with material and financial assistance. Such assistance was necessary for the operation of their centrally-controlled economies. The loss of Moscow's assistance endangered their continuity as independent states as they suddenly became unable to operate even at the dissatisfactory pre-independence level. This situation made economic reform an imperative for their survival.

As part of a plan to increase the production of the most-needed items previously provided by Moscow, the economic reforms' main objective was to end the absolute state monopoly over the economy in the three major sectors, agriculture, industry and service. A major component of such reforms was the creation of a private sector with an ability to survive and grow on its own and to function as an engine of economic growth. This was a necessity as the Central Asian governments lacked adequate resources to provide for those sectors' normal operation, while the crumbling state economy was unable to meet their peoples' needs in agricultural and industrial products, services, employment and funds.

Since the extent of economic reforms varies from country to country, the Central Asian countries demonstrate different degrees of success in

achieving the above mentioned objectives. However, despite differences, their common denominator is a failure to put their countries on the track of progress towards a fully-functional free-enterprise economy. Their economies are practically in limbo as they are neither the pre-independence command economy nor a market economy. Certain external and internal factors have contributed to the economies having almost all the negative aspects of the two systems with only a limited amount of their benefits.

The external factors include lack of interest on the part of major economies (United States, Japan and European Union) in providing the Central Asian countries with adequate amount of assistance and resources, the way they have done for Eastern and Central Europe. Their focus on the Central Asian oil and gas resources as the main area of investment has encouraged the government's policy in Central Asian countries towards limited reform by channeling the economies towards a single-product economy.

The internal factors include the enormous inherited-economic problems of the last decade of the Soviet Union, which facilitated its collapse, the direct impact of the sudden disintegration of the Soviet Union on the ex-Soviet republics' economies, lack of adequate domestic resources (e.g., cash, goods and expertise), limited amount of available foreign assistance and poor management. Even the so-called success story of Kazakhstan's economy, which, in a relative sense, is booming, is not an exception. Its better performance is closely linked to the development of the fossil energy (mainly oil) sector, while other sectors are lagging behind. The Kazakh economy is therefore developing into single-product economy focused on oil exports from which a small part of the population is benefiting.

To the factors contributing to the creation of the "limbo" economies, one should add the half-hearted commitment to comprehensive economic reforms of the Central Asian ruling elite. The rampant corruption had a negative and limiting effect on the implementation of reforms and the availability of resources for the common people. The ruling elites also feared the destabilizing social consequences of a full-scale economic liberalization, including massive unemployment and skyrocketing prices. The political elites were concerned about a massive anti-government movement challenging their respective political systems due to the sudden sharp decline in living standards and growing unemployment and poverty in the post-independence era. Given this situation, the implementation of a radical and comprehensive economic reforms package would have inevitability worsened the fragile social situation.

The reforms dealt a blow to the public sector enterprises in these countries. They included massive unemployment as these countries inherited urban and rural economic enterprises suffering from excessive labor, outdated labor-intensive technologies and equipment and inefficient management. To

make such enterprises economically sensible, decreasing their employees sharply by switching to more efficient and less labor-intensive technologies and machinery would have to be an indispensable part. In the absence of a viable and growing private sector and significant foreign investments to generate adequate number of jobs, the burden of creating new jobs and/or taking care of the unemployed would have been on the shoulders of the Central Asian governments. The latter were unable to keep fully operational the existing enterprises let alone providing jobs or assistance for the labor force displaced as a result of the reforms. In such a situation, “shock therapy” as implemented in Poland or any similar economic reform program with its predictable sudden contribution to unemployment seemed to be a political suicide for its destabilizing effects. It should be mentioned here that while “shock therapy” led to a sudden worsening of living standards for the majority in Poland and a high unemployment rate in the short-term, at least two factors helped the Polish government to cope with those negative consequences. These were the existence of a significant private sector as allowed in its Communist era and the availability of a large amount of foreign assistance. These two major factors make the case of Poland different from that of Central Asia.

Thus, a different solution became the only politically correct option appropriate for Central Asia. Its two major components were: One, limiting economic reforms to the extent inevitable by circumstances, while keeping many aspects of the old economic system such as subsidies for basic foodstuff and housing to help the Central Asian dissatisfied population cope with a sudden decline in their living standards and expanding poverty. Two, deepening and expanding authoritarianism, and not democracy, became the compatible political framework for such eclectic economy.

## **LIMITED PRIVATIZATION AND MARKET REFORMS**

Within the limits of the Central Asian countries’ economic reform with its differing forms and extents, limited privatization of the economy has been allowed to create a small private sector consisting of local and foreign entrepreneurs. By and large, its big beneficiaries have been the ruling elites and their families and friends who have received major profitable state enterprises in the urban and rural areas. To this one should add a small-scale of foreign acquisition of various promising enterprises whose extent and field of activities vary from one Central Asian country to another. Also, large foreign oil corporations have significant shares in the development of oil and gas industries of Kazakhstan and Turkmenistan, the two major regional oil and gas exporters, and in Uzbekistan, a country with much smaller energy

resources. In one form or another, all these domestic and foreign private enterprises have received a privileged treatment from the Central Asian governments.

This privatization plan has left little room for the rise of a genuine and viable indigenous private sector unrelated to the elite. The latter now mainly exists in the form of small-scale operations in the service sector accounting for the bulk of the new entrepreneurial strata and to a limited extent in the form of small-scale workshops and industrial units in the urban areas and a small stratum of private farmers. As a result, the reform has failed to create a significant, viable and growing private sector. Thus, the state is still the dominant economic actor despite its inability to meet the growing needs of its people.

## **THE SLOW PACE OF AGRARIAN REFORMS**

The independence and the sudden cut of agricultural, industrial and financial assistance from Moscow revealed the depth of Central Asia's economic underdevelopment and its high dependency on imports. The latter were not technologically advanced products, but consumer goods, particularly foodstuff. This was a result of an economic reality, that the Central Asian economies were not self-sufficient in basic agricultural and industrial products. They were and still are mainly agrarian societies with a limited industry, although, by comparison, Uzbekistan and Kazakhstan were and still are more industrialized than the rest.

Arising from their mainly agrarian nature, the Central Asian countries have certain characteristics of importance to their economic development, in general, and the development of their agriculture, in particular. The majority of their population live in the countryside, while having the highest rates of population growth in the urban and rural areas among the CIS countries. Agriculture is their largest or most active economic sector, even though there are certain natural barriers to its growth. Such barriers include the Central Asian countries' having the smallest shares of arable land among the countries in transition and the availability of lowest amounts of arable land per rural inhabitant (BASIS, 1998). They also include the inadequacy of sources of irrigation, which limits the expansion of arable land (BASIS, 1998). Finally, Central Asia has mainly a single-product agriculture based on cotton production, which is especially evident in Uzbekistan, Turkmenistan and Tajikistan.

At the time of independence, by and large, the Central Asian countries' agriculture was mainly underdeveloped and based on a single-product, a major handicap for their economies given the dominant role of

agriculture. Heavy emphasis on cotton was part of the Soviet division of labour among its 15 republics assigning cotton production to Central Asia at the expense of food production. Extensive investments of the Soviet era turned Central Asia into the largest producer and exporter of cotton. Large-scale cotton production resulted in the rapid depletion of water resources as the Central Asian countries achieved the highest level of irrigation of arable lands in the ex-Soviet bloc region mainly consisting of Eastern and Central Europe and the Soviet Union (BASIS, 1998). This type of agriculture created the Aral Sea environmental disaster (i.e., its shrinking to about one third of its original size because of extensive use of its sources of water). In a bid to turn Central Asia into the USSR's largest cotton producer, a major source of hard currency for the Soviet government, the disaster caused salinization of arable land and soil exhaustion due to heavy use of chemical fertilizer. Cotton production has remained the dominant activity in Turkmenistan, Uzbekistan and Tajikistan since their independence. It has also continued in a significant way in Kazakhstan and Kyrgyzstan. Thus, at the time of independence, the region was unable to feed its peoples, with partial exception of Kazakhstan with its advanced grain production. Kazakhstan was, and still is, the world's sixth largest grain producer, although it was dependent on imports on other food items (Nurskenova, 2004).

To remedy this situation, all the Central Asian governments have embarked on plans to diversify their agriculture and increase food production (BASIS, 1998). Food production, especially fruit production, has increased in Central Asian countries, but the region, in general, is still requires large food imports. Added to this is the grim reality of a severe shortage of foreign currency and the limiting impact on the Central Asian government's ability to import the basic requirements. Consequently, the necessity of an overhaul of their agriculture was not a matter of disagreement. Given its collectivized nature, land reform became a major prerequisite for the privatization of agriculture and the formation of independent farmers and thus private farming.

In practice, various factors have delayed the full implementation of a comprehensive agrarian reform. Lack of resources, rising prices and fear of the ruling elites of an eruption of dissent caused by a radical reform were among the major factors. Additionally, there are insufficient incentives to decollectivize and divide the remaining collectives caused by a variety of parameters such as the slow development of "input markets," the continued prevalence of the Soviet rural elite known as rural "nomenklatura", the dependence on existing large-scale irrigation systems not suitable for small-scale private farms and ethnic problems (BASIS, 1998). All these factors and parameters have been translated into a lack of strong political will among the ruling elites to embark on a comprehensive land reform.



As a result, the economic reform in the Central Asian countryside has taken the form of a half-hearted process despite the existence of laws on such policy. Needless to say, the degree of reform and its progress varies across countries. In most countries of Central Asia the transition from the pre-independence economy, including its agriculture, has been “slow” or “gradual,” in particular in Tajikistan, Turkmenistan and Uzbekistan. Kyrgyzstan and Kazakhstan, on the other hand, have progressed more rapidly (BASIS, 1998). This is only in comparison to other Central Asian countries, but not to other ex-members of the Soviet bloc’s transitional societies, e.g., those of Eastern Europe.

The core issue of the agricultural reform, land reform, has been blocked in Uzbekistan and Turkmenistan where private farmers account for a fraction of the farming community and has progressed very slowly in Tajikistan (ICG, 2005). This is notwithstanding of various laws and regulations on land reform. In those countries, by and large, farmers or most of them do not have the ownership or permanent ownership of their lands, while lacking many required skills and rights for private farming such as having “no real say in the choice of crops they wish to grow or to whom they sell their produce” (ICG, 2005).

In a relative sense, land reform has been more successful in Kyrgyzstan to cover almost all the major farming land. However, it took over a decade until the policy was fully implemented. Certain laws such a moratorium on the sale and purchase of land prevented a land reform until 2000. In consequence, the land reform process took “a turtle speed” as a result of which at the beginning of 2003 only 6 percent of the country’s farming land was in the hands of private owners (EurasiaNet, 2003). Efforts made in 2003 and 2004 led to the large-scale privatization of land and to its distribution among the rural population. As a result, about 250’000 private farms have emerged in Kyrgyzstan. However, this has not led to the efficient use of these farms because of the Kyrgyz farmers’ lack of required farming skills (KSAP, 2004).

Despite its agrarian advancement reflected in its extensive grain production and having a political leadership committed more to economic liberalization than others at the time of independence, Kazakhstan’s record on agrarian reform and land privatization has not been very impressive. In fact, various bureaucratic obstacles have delayed a comprehensive land reform in Kazakhstan. Since 1991 Kazakhstan has passed several measures on land reforms one after another, which have ended up creating serious problems for farmers, by granting them land, only to limit their rights to sell and buy several times (EurasiaNet, 2005). In June 2003 Kazakhstan’s land reform law came into force to address all the confusion over ownership and rights (IRIN, 2003). Yet this served to create another obstacle as now land owners should lease land from the state (EurasiaNet, 2005). Having the objective of joining

the World Trade Organization in the near future, the Kazakh government started to implement an ambitious rural reform program in 2004. Despite Kazakh President Nursultan Nazarbayev full support of the program, the past record of his government has created grounds for skepticism about its level of success given previous reform efforts “turned out to be based more on rhetoric than on action” (Nurskenova, 2004). A January 2004 statement of Kazakhstan’s Bureau of Land Management Director Bakip Ospanov provides grounds for substantiating this sceptism. Accordingly, after about a decade of agrarian reform, only more than 2,500 acres of Kazakhstan’s 205 million acres of agricultural land were privatized by that time (Nurskenova, 2004). Given all these factors, while Kazakhstan still ranks as the world’s sixth largest grain producer, its competitiveness in other food categories is less noticeable. Imports dominate the home market, particularly for such staples as butter and meat.

## CONCLUSIONS

In comparison to the immediate post-independence era, the agriculture sector has improved in all the Central Asian countries. The Central Asians have all sought to diversify their mainly single-product agriculture by adding food production. Their production of foodstuff such as grains and fruits has increased, although the Central Asians have continued their large-scale cotton production, a main, if not the main (e.g., in Uzbekistan) source of foreign currency and revenue. Nevertheless, reforms in agriculture, like in industry, as part of replacing the pre-independence command economy with a more efficient and growing free-enterprise one, has not been successful, generally speaking. As a whole, Central Asia’s agriculture is yet to undergo a comprehensive reform to put it on the track of sustainable growth. Various external and internal factors have contributed to this outcome. Among them, concern about the impact of a reform on social stability when the Central Asian governments are unprepared to address the expected short-term results of reform (e.g., high unemployment and poverty) has been a major factor. Within this context, efforts to maintain and consolidate the status of the Soviet elites (now turned the nationalist leaders) of the Central Asian states have required maintaining the old state machinery. Being run by the elites uncommitted to a fundamental change in their economies from a fear of its destabilizing effects, the latter is unwilling and unprepared to conduct a comprehensive agrarian reform.

In conclusion, land reform has been partly implemented in Central Asia where there are many obstacles to slow down the growth of the private land owners. The unsuccessful agrarian reform has increased the apathy and

dissatisfaction of the urban population in the Central Asian countries with limited, if any, progress in the rural population's life in the post-independence era. The expanding authoritarianism with its repressive approach towards the latter has paved the way for the rise and growth of extremist ideologies and political groups. This has been partly evident in the Ferghana Valley, the richest fertile land in Central Asia divided among Kyrgyzstan, Tajikistan and Uzbekistan, which now houses perhaps the poorest Central Asians despite its potential to develop into a prosperous region. The Ferghana Valley has been the main arena for the activities of not only international drug-traffickers, but also the armed extremist, the Islamic Movement of Uzbekistan.

The policy failures from the slow pace of economic and agrarian reforms are yet to show their full negative impact on the political, social, economic spheres of Central Asia. Reviving and speeding up of the pace of economic reforms in the next decade could prevent major revolutions in the region.

## REFERENCES

- BASIS. Synthesis of the January 1998 - Central Asia Regional Planning Workshop. (<http://www.ies.wisc.edu/lrc/bapr2an1.html#a2a>; Accessed on 14 March 2005)
- International Crisis Group (ICG).2005 “The Curse of Cotton: Central Asia's Destructive Monoculture.” Asia Report No 93, 28 February 2005. (<http://www.icg.org/home/index.cfm?id=3294&l=5>; Accessed on 15 March 2005)
- IRIN (UN Office for Coordination of Humanitarian Affairs).2005. Central Asia: Weekly News Wrap, 27 June 2003. ([http://www.irinnews.org/report.asp?ReportID=35049&SelectRegion=Central\\_Asia&SelectCountry=CENTRAL\\_ASIA](http://www.irinnews.org/report.asp?ReportID=35049&SelectRegion=Central_Asia&SelectCountry=CENTRAL_ASIA); Acc on 16 March 05)
- “Kazakh Paper Slams Land Reforms.” EurasiaNet, 3 January 2005. (<http://www.eurasianet.org/resource/kazakhstan/hypermail/200501/0000.shtml>; Accessed on 15 march 2005)
- “Kyrgyzstan Losing Arable Land.” EurasiaNet, 16 July 2003. (<http://www.eurasianet.org/resource/kyrgyzstan/hypermail/200307/0031.shtml>; Accessed on 16 March 2006)
- Nurskenova Assel.2004. “Kazakhstan Has High Hopes for Agricultural Reform.” EurasiaNet, 29 January 2004. ([http://www.eurasianet.org/departments/business/articles/eav012904\\_pr.shtml](http://www.eurasianet.org/departments/business/articles/eav012904_pr.shtml); Accessed on 16 March 2005)
- Swiss Agency for Development and Cooperation. Kyrgyz-Swiss Agricultural Programme (KSAP). 2004. (<http://www.swisscoop.kg/index.php?userhash=23639540&navID=3293&IID=1>; Accessed on 14 March 2005)

## CHAPTER 4

# **POLICY REFORMS IN CENTRAL ASIA: PROBLEMS AND PERSPECTIVES**

Sandjar Djalalov

*Center for Efficient Economic Policy, Uzbekistan*

Masahiko Gemma

*Waseda University, Japan*

## **INTRODUCTION**

The independence of the Central Asia republics was a desirable event. Despite the different natural and economic potentials, same ideology and similar institutional infrastructure and bureaucracy amalgamated the countries making starting conditions for future reforms quite similar.

After ten years of independence, however, Central Asian republics are in different positions in terms of the levels of liberalization, land reform, farm restructuring and privatization of agriculture. The level of state intervention in the economy and daily social life would be the main identifiable differences among countries. On the one hand state intervention is increasing intensity of management systems including social stability, security and defense against extremism, but on the other, intervention is breaking down market implementation in agriculture – main branch of the economy.

There are quite opposite countries that chose real liberalization and privatization as the way towards market economy. Moreover, there are similar achievements, such as institutional changes in Central Asia since independence which created conditions for development of new types of private farms, which stimulated the reforms process.

The recent terrorist attack on the USA and war in Afghanistan against terrorism give evidence to the growing role of Central Asia in the geopolitical

stability of the world. One of the main reasons for instability is food insecurity and rural unemployment due to the collapse of the agricultural sector. Unequal interstate water allocation is another factor contributing to instability in the region as irrigated agriculture plays an important role. In the political struggles caused by economic difficulties, the role of government as the provider of a favorable political and economic environment is increasing for the success of reforms.

There are different opinions regarding the estimation of the reform process and future paths of development in the region. The local experts and officials usually criticize the rapid liberalization and privatization of agro-industry enterprises, while international experts recommend more intensive transformation of the market. The objective of this paper is to analyze the agricultural reform process after independence in the period from 1990-2000. From the analysis of main agricultural indicators, various scenarios for future agricultural development will be forecasted. The results are based on statistical information from the Statistical Comity of the Commonwealth of Independent States and data from international organization reports. The policy recommendations and conclusions of this paper may be used to better understand the agricultural situation in Central Asia.

## **ROLE OF AGRICULTURAL SECTOR IN THE CENTRAL ASIA REGION**

### **Macroeconomic Environment**

The objective of all Central Asian macroeconomic policies is the gradual establishment of a socially oriented market economy. As part of the transition, the governments aim to shift the economy towards a more industrialized and diversified structure. Fiscal, monetary and exchange rate policies have the shared objective of achieving macroeconomic and social stability. The emphasis has been on gradual change with an objective to minimizing the negative impact on society. Changes in the components of monetary policy have reflected minor shifts in emphasis during transition rather the fundamental changes in objectives.

According to the World Bank, estimation of the macroeconomic framework for agriculture (World Bank, 1998), it is possible to rank the Central Asia economies in terms of their conditions for transition towards market economies:

1. Kyrgyz Republic - Markets, prices and the trade regime are liberalized, but distortions exist at the local level; market structures are not yet

developed, they are not competitive and not integrated. Agricultural producers and consumers are deregulated, but there are exceptions for irrigation water, electricity and railway tariffs. In Kyrgyzstan agricultural producer and consumer subsidies has been abolished. Notable exceptions are selected remote areas and some agricultural inputs such as irrigation water and electricity (World Bank, 1998).

Agricultural trade regime is generally liberalized but there are still many non-tariff barriers to trade. Substantial progress has been made in privatizing the agro-processing and input supply enterprises but the process is not yet complete and the privatized enterprises are not very efficient.

2. Kazakhstan- significant but incomplete liberalization of agricultural markets. Government price controls ended in 1994-95. Domestic prices largely follow world market prices though they still reflect some distortions due to underdeveloped local markets. Purchase price for agricultural products set for government procurement is still often used as the reference price. Subsidies for agriculture have been significantly reduced. Foreign trade is liberalized, and there are no export tariffs on any agricultural commodities. Formal privatization of state enterprises has been completed. However, technological improvement and financial consolidation of these enterprises is lagging behind.

3. Tajikistan – The government’s commitment to economic stabilization provides favorable environment to develop the private sector’s role in the agricultural sector which is still in its infancy.. Prices for most agricultural products such as fruits, vegetables, livestock and inputs are fully liberalized. Cotton and wheat prices are partially liberalized. Privatization of cotton gunneries is nearly completed. Elimination of the state order system for all agricultural commodities has been achieved. Licensing requirements for the import of agricultural inputs and export of all agricultural exports, except cotton, tobacco and silk have been abolished. However, the government continues to retain partial to majority ownership in most agro –enterprises (World Bank, 2001).

4. Uzbekistan – The government is committed to the transformation to market economy, but it is happening slowly. The original policy was to phase out the state order system by 1998. But this was delayed and production targets for cotton and wheat remain in force at the district levels. Production of other crops and livestock products has been liberalized. Subsidies on inputs are eliminated but it still exists on fuel and water. Government intends to transfer processing enterprises to private control, improve efficiency of utilization and conserve water supply and liberalize the input sub-sector (World Bank, 1999).

5. Turkmenistan - High levels of government intervention exists in agriculture including state orders for two major crops, wheat and cotton. Subsidies continue for agricultural inputs, direct control of trade, and taxation

through the state order system. Main products of the crop sector, cotton and wheat, remain fully subject to state orders at prices which are approximately half of international trading prices. Inputs are subsidized by 50% for production of cotton and wheat. No significant payment exists for irrigation water. Government still controls all cotton exports. State control exists for all agro-processing and services (Lerman and Brooks, 2001).

There are some differences in exchange rate policy among Central Asian republics. Kazakhstan and Kyrgyzstan maintain free exchange rate of national currency to the hard currency. In case of Uzbekistan, the objectives of exchange rate policy are to maintain an artificially high value of the sum in order to restrain the costs of imports and to extract further value from cotton export receipts. These objectives are in direct conflict with the development of export-oriented industries. Because producers and processors do not receive the true value of their exported product, they have less incentive to produce it and more incentive to circumvent official controls. The result has been a continuation of the traditional transfer from agriculture to the rest of the economy.

In the case of exchange rate policy, the transfer also has the appearance of moving resources away from rural areas into the cities, which is likely to cause social tension.

Agriculture is the second largest sector in the Central Asian Republics (CAR). The range of Gross Domestic Product (GDP) in agriculture varies from 11.4% in Kazakhstan to 43.4% in Kyrgystan (Figure 1). However, the tendencies among countries are different. The share of the agricultural sector between 1991 and 1998 fell by an annual average of 2.5% in Kazakhstan, by 3.7% in Turkmenistan, by 2.2% in Tajikistan and by 1.4% in Uzbekistan. Kyrgystan has had the opposite tendency, as the share of agriculture in the GDP has increased by 1.2% for the same period.



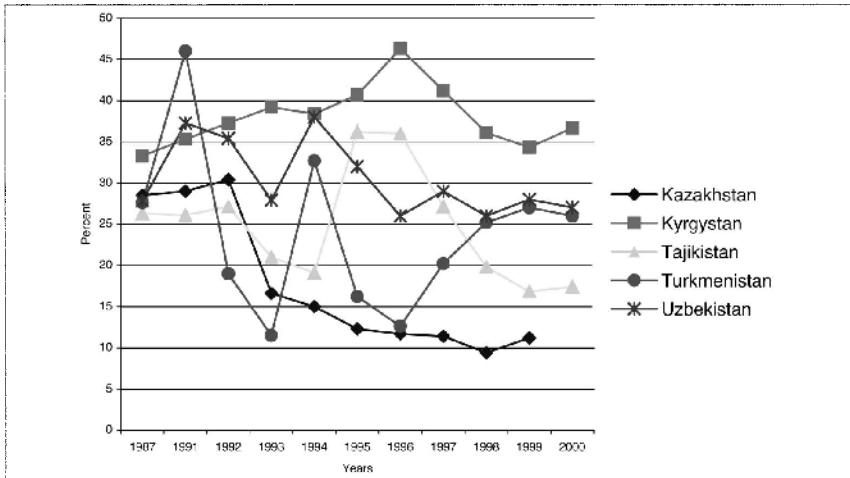


Figure 1. Agricultural Share of GDP in Central Asian Republics. (Percent)

One explanation for the declining share of agriculture in GDP for the first three countries may have been the incredible growth in the service sector due to favorable market conditions and small business development. The service sector in Kazakhstan has grown larger because of increasing trading and financial activity, insurance and property operations. Other republics like Kyrgyzstan has seen significant decline in industry and Tajikistan has a declining market for services.

In Central Asian Republics, agriculture has employed from 23% to 60% of the labor force. During the years of independence (1991-1999), the area has observed some decline in labor in the agricultural sector in Kazakhstan and Uzbekistan, and significant growth in Kyrgyzstan and Tajikistan, at approximately 1.9-2.5% annually (Figure 2). This implies that there is a direct relationship between agricultural employment and the share of gross value added (GVA) in the agrarian sector. It has to be mentioned that the first two republics did play a major role in the industrial economy of the former Soviet Union and possess significant natural resources amongst the Central Asian Republics. The fact that the contribution of agriculture to GVA is less than its share of the work force indicates that labor is less productive in agriculture than in other sectors.

One of the main development challenge for the CAR is rural unemployment. The reduction of unemployment in rural areas is an important policy objective for the transition period in all of CAR. It is, however, important to recognize that this is an aspect of overall economic adjustment,

and not solely an agricultural sector issue. It is evident that with farm restructuring, the number of people who depend on agriculture would go down. New labor-saving technology is being introduced to agriculture and processing enterprises are being privatized. Hence we can expect that the transition to a market-based agriculture will also present new opportunities for employment. As private agricultural services develop, there would be disbursal of assets currently held by large farms. The future diversification of agriculture will also provide greater opportunity for private enterprises and for rural employment.

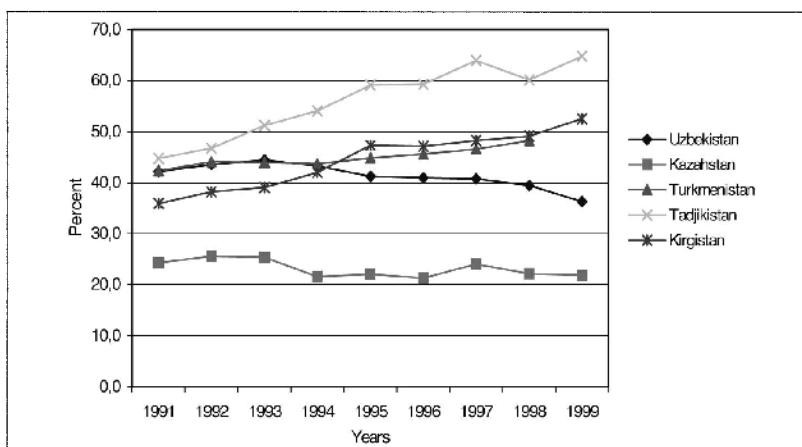


Figure 2. Agricultural Share in Labor Force of Central Asian Republics (in percent)

## Production

Since gaining independence, agricultural production in the region has been characterized by significant decline in outputs except for wheat. Central Asian Republics (except Kazakhstan and Kyrgystan) have developed and implemented a policy of self-sufficiency in grains (Figure 3). Significant progress has been made in reducing imports of grain. In most cases a self-sufficiency in grains was achieved as sown areas were converted from cotton and animal feeds to wheat production.

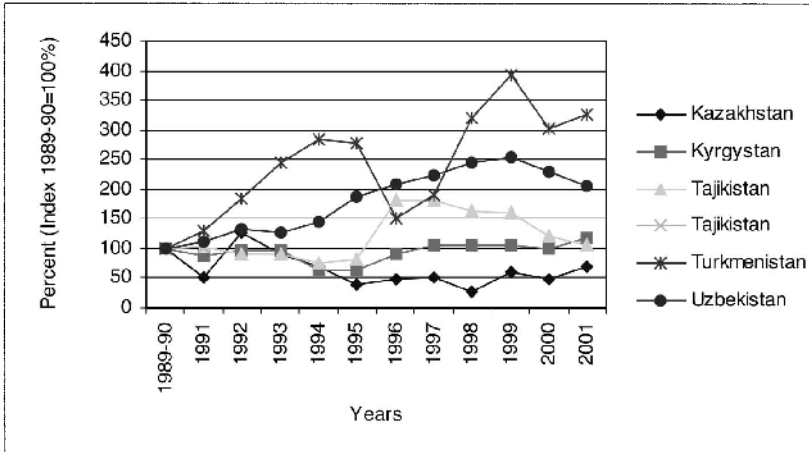


Figure 3. Index Changes in Production Amount for Grain in CAR.

In comparison with 1991, the amount of cotton sown in 1998 declined by 17.4% in Tajikistan, by 14.3% (1997) in Turkmenistan and by 11.5 % in Uzbekistan. The impact of this policy was a reduction in cotton export earnings and declining farm incomes due to very low prices for wheat. As the countries with most liberalized agricultural markets in Central Asia - Kazakhstan and Kyrgystan did not reduce the sown area for cotton and even increased it in the case of Kyrgystan by 23.1 %. However, in Uzbekistan and Tajikistan, the cotton output during the independent period has declined (Figure 4.).

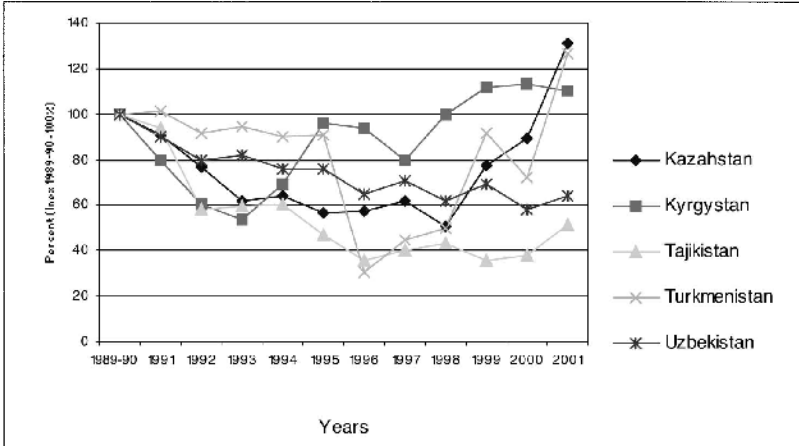


Figure 4. Index Changes in Production Amount for Cotton in CAR.

An interesting tendency may be observed in that the reduction of areas where cotton was sown by 10% is bringing a reduction of cotton production by 20-27 %. The reasons are a lack of incentives for farmers to increase yield, lack of input and low prices for cotton. Due to favorable conditions for agribusiness, cotton production in Kyrgystan and Kazakhstan for the same period has increased rapidly.

Meat production has been reduced in most Central Asian Republics except Uzbekistan and Turkmenistan (Figure 5). In Uzbekistan, at the beginning of the reformation period, some steps such as privatization of Kolkhoz and Sovkhoz livestock farms through auctions and the development of private farms created a base for sustainable growth. The number of cattle increased 23% during the period. In spite of the lack of food, the policy aimed to maintain the number of cattle and increase milk production (Figure 6).

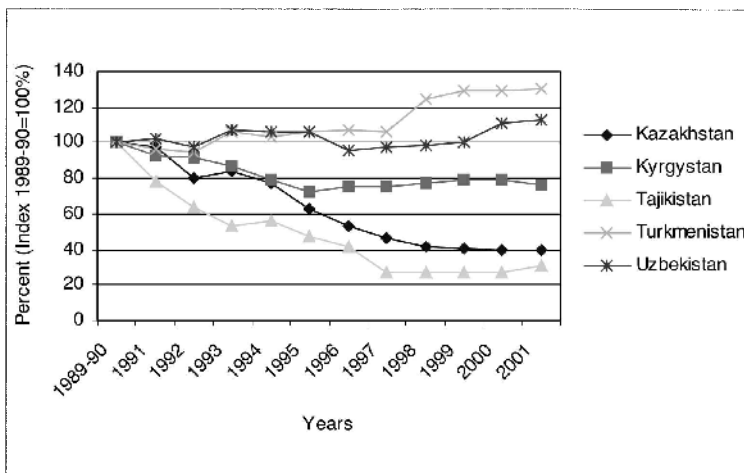


Figure 5. Trends in Meat Production in CAR

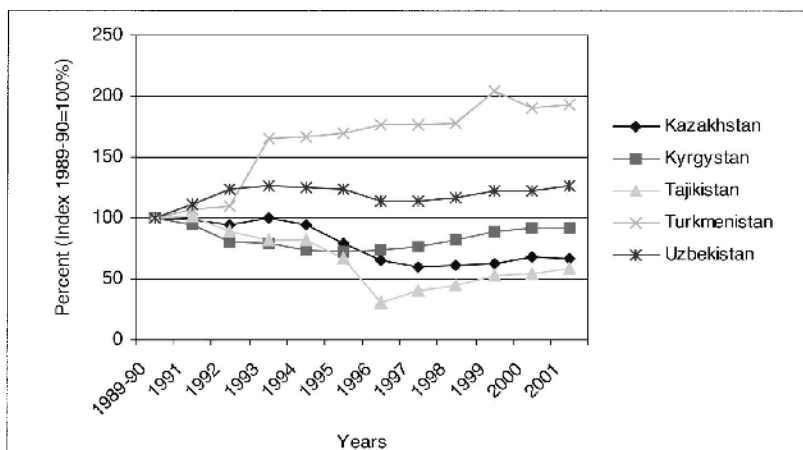


Figure 6. Trends in Milk Production in CAR.

For the same period, the number of cattle in Kazakhstan declined 2.5 times. Sharp privatization of agricultural enterprises caused cattle numbers to decline by 25% in Kyrgyzstan. In Tajikistan, due to civil war and sown areas being converted from livestock feed to wheat production, the number of cattle reduced by 38.6 %. In Turkmenistan during 1990-2000 the number of cattle increased 1.5 times, while the number of cows has increased 2 times.

A dangerous situation now exists in lamb production in Kazakhstan and Kyrgyzstan. Compared with pre-independence times, the number of sheep and goats has declined. By January 2001, the decline was up to 4 times in Kazakhstan and 3 times in Kyrgyzstan. In Tajikistan, the number of sheep and goats decreased by 33.3 %. In Uzbekistan a tendency for growth was observed in the first years of independence. Influences of the self-sufficiency policy led to lack of food in most of these countries.

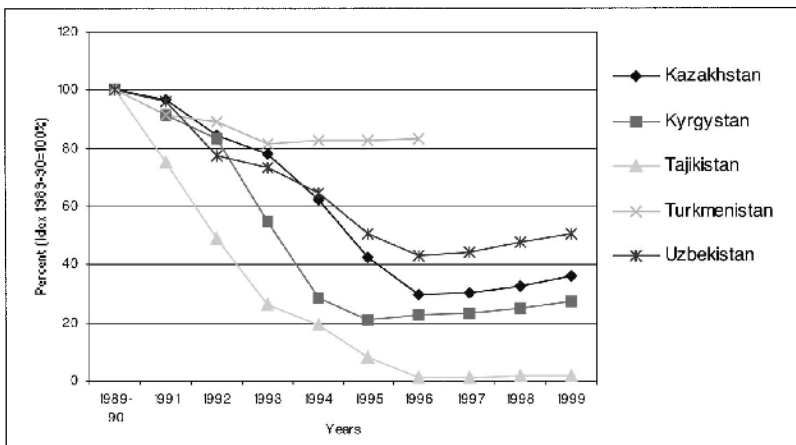


Figure 7: Trends in Egg Production in CAR

Poultry production has collapsed in all Central Asian Republics due to lack of combined food, medicine and veterinary care. On the domestic market, many imported chickens pushed out local products because of cheap pricing and higher quality. The number of poultry in 1999 (compared to their 1990 levels) is as follows: Tajikistan, 7.9 %; Kyrgyzstan, 17.8%; Kazakhstan, 28.5%; and Uzbekistan, 38.6%. This tendency has had a direct impact on egg production, which has declined in the Central Asian region during the period to half of its previous level (Figure 7).

Due to the increasing impact of Islamic movements the number of pigs in all Central Asian Republics has sharply declined. It has caused some difficulties in meat processing for sausage production. The number of pigs has

declined by 4 times in Kazakhstan and Kyrgyzstan, and by 8 times in Uzbekistan. There are no pigs in Tajikistan at all.

The decline in agricultural production in Central Asia has continued into the second half of the 90s. The main reasons are the following: a significant reduction in government subsidies for inputs, remaining partial government control of purchase prices and administrative costs of handling products for which the value is greater than the price at which it is transferred (e.g. implementing export bans). The shares of CAR in the CIS's total output of major output products have reached pre-reform 1989-90 levels, but there is a gap between livestock and plant production (Figure 8). The decline in the contribution in shares of livestock production indicates lack of animal feeds, veterinary care and decline in purchasing power of the population for costly and expensive foods. During the period (1990- 2000) the performance of CAR countries in total agricultural production has been better than the overall performance of CIS countries.

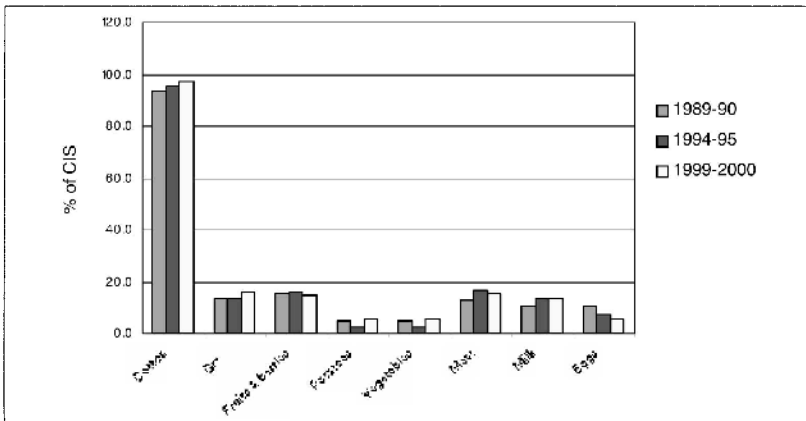


Figure 8. Agricultural Production of CAR as a Percentage of CIS Production

## Agricultural Productivity

Agricultural productivity is declining in CAR. The average performance of CAR represents a partial recovering of some crops, including potatoes and vegetables (Figure 9). The comparative analysis of cotton yields for the first years of reform (1990-95) and the second period of reform (1996-1999) showed a declining yield by 18.3 % in Kazakhstan, by 25.7 % in

Tajikistan and by 1.1 % in Uzbekistan. Due to more developed markets and a more competitive environment in agribusiness, an increase in cotton yield has been observed in Kyrgyzstan. The strong government procurement system present in Uzbekistan is maintaining a stable level of productivity. Wheat productivity, however, was not so sharply reduced. In Uzbekistan the wheat yield has been doubled during this period. In the rest of CAR, a tendency for yield stabilization is also observed. The main reasons underlying this are price policies and the possibility for farmers to store some part of the yield for own consumption.

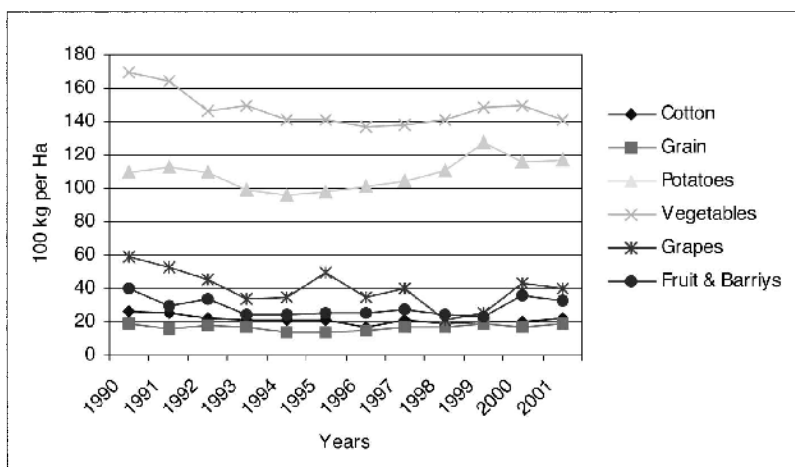


Figure 9. CAR Average Yields of Crops.

Livestock productivity in the state sector also has stagnated and is at 30% of West European Levels. The main reason for declining productivity is a serious shortage of protein food and animal vaccines. Most Central Asia countries have natural grazing land of degraded status. The pastures and grasslands are not well maintained, thus fodder output has declined. There is significant scope to improve the quantity and quality of concentrate feed produced (D'costa, 2000).



## **Consumer Expenditure for Foodstuffs and Consumption.**

Food security is a main goal for most government policies throughout CIS countries. Due to transformation into a market economy and accompanying price liberalization, government social expenditures have decreased, thereby resulting in a decline in population solvency. As a result, a significant recession of consumption per capita for main agricultural products is evident.

Real income for the population of Central Asian countries has been sharply declining, and the number of people who cannot afford to buy good quality food products is increasing. The average consumer expenditure for foodstuffs is about 60 %. There is, however, a gap between the biggest share (76.5 %) in Tajikistan and the lowest (48.3 %) in Kazakhstan (Figure 10.). The examination of caloricity of consumed food products shows a decline of 7% in Kyrgyzstan and 10% in Uzbekistan. Share of fat and protein from livestock are decreasing and share of carbohydrates in consumption of food substances is increasing. As a result, the share of bread products consumed by the populations of Kazakhstan and Kyrgystan are increasing. Currently, the Academy of Sciences estimates that the levels of food consumption and nutritional levels in the Central Asia Republics approximately three times below the recommended levels.

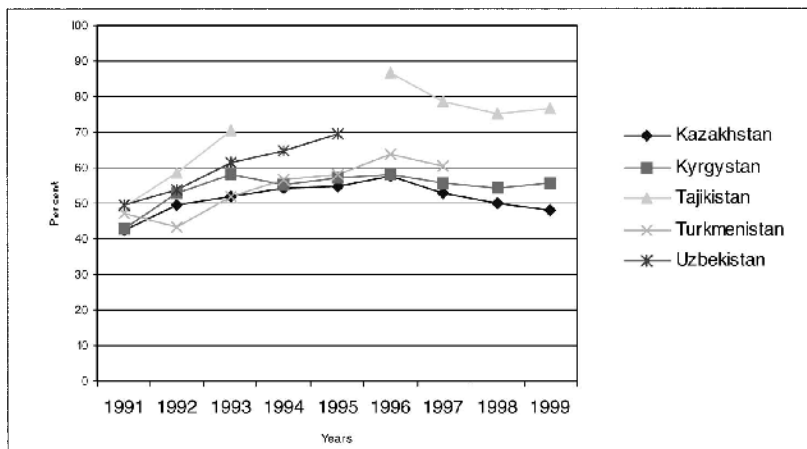


Figure 10. Share of Consumer Expenditure for Foodstuffs in CAR (%)

Due to differences in natural climatic conditions and economic bases of reforms, there are some differences in consumption among CAR. Consumption of meat was higher in Kazakhstan, at 70.5 kg per capita, and Kyrgyzstan, at 48 kg per capita at the beginning of transformation period in 1991; at the same time, in Tajikistan it was 21 kg per capita, in Uzbekistan 30 kg per capita, in Turkmenistan 38 kg per capita (Figure 11). An explanation is that the regional specialization of each republic has resulted in the excessive production of the products with the lowest cost of production. In Kazakhstan and Kyrgyzstan, these were meat and wheat. The rest of the CARs specialized in production of fruit, vegetables and cotton.

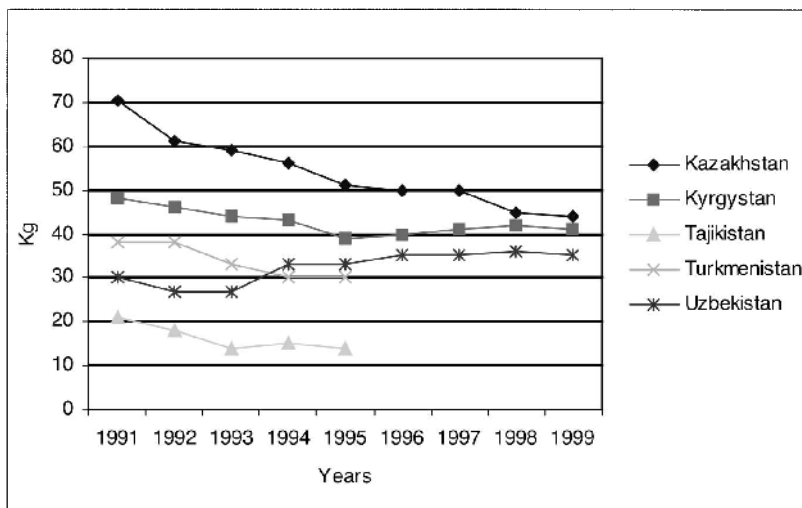


Figure 11. Meat Consumption per capita in CAR (kg)

During this period, these indicator levels have decreased for all CAR except Uzbekistan. In Uzbekistan, meat consumption increased by 10%, because of privatization and the selling of most livestock farm products at auction.

Bread consumption has had a tendency to increase for all countries in the first years after independence, being a cheap food product. Since 1993, however, a difference amongst CAR can be observed (Figure 12). In Kyrgyzstan, bread consumption has been increasing, while sown area for wheat has declined. In Uzbekistan, the consumption level is stable during the years since independence, while in Kazakhstan (except 1997) bread consumption has decreased.

Due to favorable natural climatic conditions, the CAR were always net exporters of fruit, vegetables and melons with high contents of sugar. In the former Soviet Union, the regional specialization of Central Asian republics continued securing these agricultural products in the regions. For that reason, we observe no changes in fruit and vegetable consumption per capita until 1997, but since 1998 it has sharply increased because of the fast growth of food prices for livestock products (Figure 13).

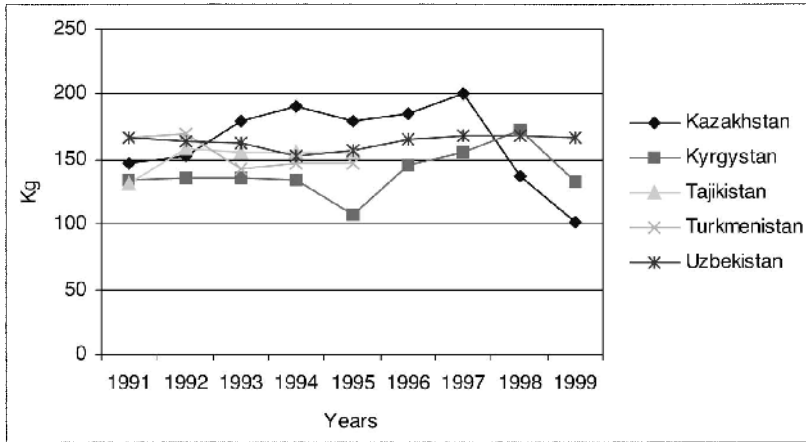


Figure 12. Bread Consumption per capita in CAR (kg)

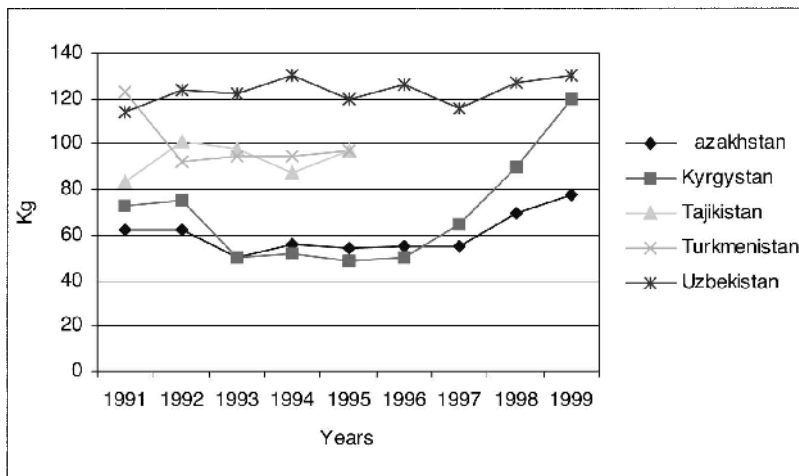


Figure 13. Vegetable and Melon Consumption per capita in CAR (kg)

Availability of oil, fruits and vegetables in Central Asian Republics have been mostly maintained. Availability of eggs, dairy meat and milk have fallen substantially during the same period. The largest decline amongst food products has been observed in egg consumption. In the period between 1991 and 1999, consumption fell in Kazakhstan 2.2 times, in Kyrgystan 3.3 times in Tajikistan 10 times, in Uzbekistan 2.4 times. As significant decline of egg

consumption per capita is a result of a lack of feed and concentrate in the poultry industry (Figure 14).

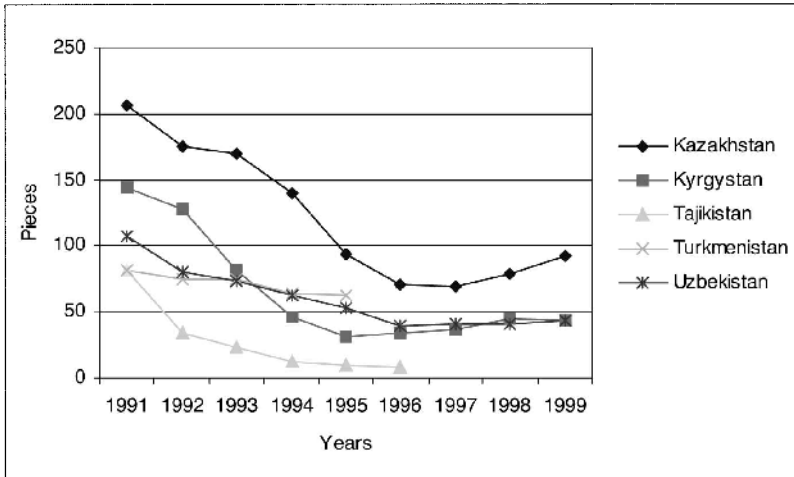


Figure 14. Egg Consumption per capita in CAR (pieces)

## Trade

Agricultural imports and exports have changed considerably as a result of the collapse of traditional markets, failure to develop new markets and declining consumption. Until 1997, the region has continued to be a net importer of agricultural products. Adaptation of export-oriented and import-substitution policy, however, has changed this negative balance in agricultural trade and since 1997 they have become net-exporters of agricultural goods (Figure 15).

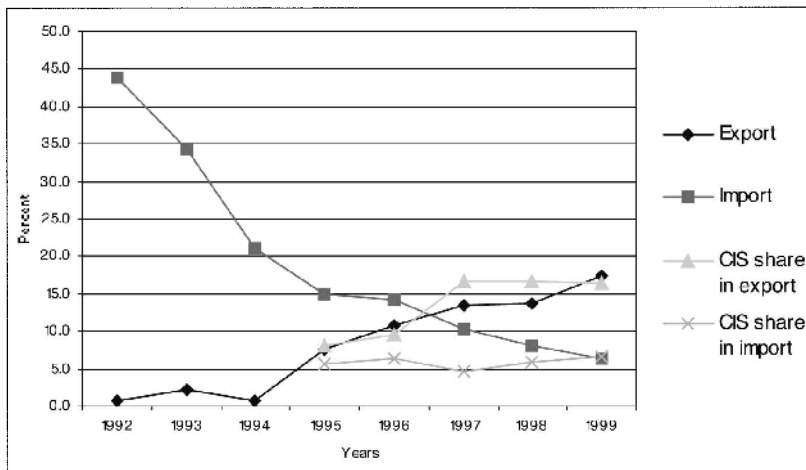


Figure 15. Structure of Agricultural Trade in CAR\*

Due to lack of information from 1996, data for Uzbekistan and Turkmenistan is not included. Intra CIS trade has been increasing as these countries are still not competitive enough to trade in the World Market. Organizing a Customs Union including Russia, Belarus, Kazakhstan and Kyrgystan and reduction of duties on foreign trade both promoted agricultural exports to the former trade partners. It has increased Kazakhstan’s wheat sales to neighbors and substantially increased Uzbek cotton exports to Russia (Figure 16).

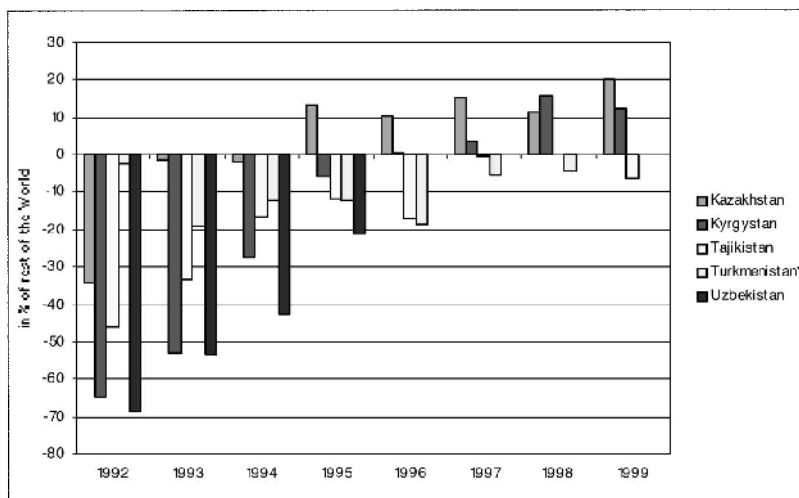


Figure 16. CAR Net Agricultural Trade as a Percentage of Total Trade

There are some peculiarities, which differentiate CIS foreign trade from world trade. First of all, the use of large-scale barter operations in trade between countries that has an impact on prices. As a result, the prices of agricultural commodities among CIS countries are different than those prevalent in the world market. In the long term, however, the price differences will be reduced as soon as CIS countries transform into market economies and their product quality improves.

Import- substitution is becoming a major policy in CAR and the government strategy of development of the processing enterprises increased value added goods. The development of the textile industry is increasing the amount of products made from local cotton fiber. At the beginning of the 90s, Uzbekistan and Turkmenistan processed only 3-5 % of domestically produced cotton fiber. At the end of the 90s this indicator grew to 30-35%.

In fact, CAR agrarian trade is gradually getting integrated to the CIS as well as world agrarian trade. The governments of the region are making every effort to activate trade, including: decreasing direct intervention in production, trade and finance; increasing state investment in public goods; and developing infrastructure and sector changes. Membership in WTO is an important political step towards trade development and access to the world market. Currently only Kyrgyzstan is a member of the WTO and it has the most liberalized agricultural trade system in the region. The rest of CAR countries are on the way to becoming members, but the policy for increasing

protectionism in internal agrarian markets is limiting the opportunity for globalization and future integration.

## STATUS OF REFORMS IN THE REGION

There are two alternative models of reform performed in CIS countries. These are differentiated by speed of reform process and strategy. The **radical model**, based upon active macroeconomic stabilization in the economy, directed to the sharp decreasing budget deficit to the level, which will not exceed 2-3 % of GDP. In this case, the reformation process is accompanied by rapid privatization and liberalization. The **evolutionary model** of structural reforms and institutional changes begins with some tightening of monetary and fiscal policy and speed of adoption is slow. At the initial stage, prices are being corrected and are under government control. In CIS countries both models were applied: the radical approach was used in Russia, Kyrgystan, Kazakhstan and to some extent in Tajikistan; the evolutionary approach was utilized in Uzbekistan and Turkmenistan.

The situation in the different parts of agricultural reforms may be summarized as follows:

### Land Reform and Farm Restructuring

Farm restructuring is a dynamic and continuous process. For a country's agricultural industry to compete in world markets, restructuring must be driven by commercial and economic considerations regardless of political conditions. There are three main types of farms operating in Central Asia (Van den Top, 1999).

*Agricultural Enterprises and agricultural cooperatives, (shirkat) in Uzbekistan:* These are large farms, mainly for production of wheat and cotton. The farm gets the land in perpetual ownership. They are being organized based on the existing kolkhozes and sovkhoses through distribution of shares to the members and workers. The system of family contracts implemented and land distributed to members and family members with temporal contracts for land use.

*Private Farmers:* Mainly dealing with agricultural crops and livestock production. Completely new types of farming provide private incentives created after independence.

Land to these farms is given under a long lease (usually for 10 to 50 years and for 99 years in Kyrgyzstan). The private farms are legal entities and have the right of ownership for produced products. According to the law,



farmers are independent and they may sell output, purchase input and receives credits.

*Smallholders:* Small family subsidiary plots, in Uzbekistan are called as Dekhkan farms and are a legal entity. These produce unpacked fruit and vegetables, meat and milk. The small holders obtain the land as a life- time inheritable possession. The size is 0.06 ha on average. Now the size of the plots extends to 0.35 ha on irrigated land and 0.5 ha on the non-irrigated land.

There are some differences among CAR countries in private ownership of land. In Uzbekistan and Tajikistan, private ownership of land is prohibited by the constitution. In Turkmenistan private ownership of land is restricted for transactions. According to the Land Code, land may be granted as an inheritable lifetime possession without the right to sell, give as a gift or exchange. In Kazakhstan, farm privatization progressed based on the provision of landuse rights and asset ownership certificates.

Farm restructuring and land reform are important parts of the transition to a market economy in the former Soviet countries. This reform demands solutions to new challenges created by the privatization and transfer of trading assets from the state to the private sector in the absence of an established land tenure framework. The difference in area allotted to the countries represents the differences in the average sizes of private farms. The largest size private farm is in Kazakhstan, which is around 400 Ha and basically in a non-irrigated area. (Table 1) The rational land management of farm size during the ten years after certain fluctuation seems to be stabilizing, although there is a tendency for the average sizes to increase in Tajikistan and Uzbekistan. Recently in Uzbekistan, government policy is towards creating private farms greater than 10 ha. However, these policies did not meet the expectation of the densely populated regions. Creation of small holdings and private farms addresses an equity issue, although in practice there is simply not enough land to provide every person with a piece (Table 1).

Table 1. Average Size and Area of Land under Private Farms in Central Asia. (as for 1 January)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	
Kazakhstan	Private farm average size, ha	238	533	06	348	412	471	541	386	398
	Area of land plots, 1000 ha	800	4900	500	7800	12700	20000	27800	22500	26800
Kyrgyzstan	Private farm average size, ha	25	44	7	43	86	48	25	20	17
	Area of land plots, 1000 ha	103,1	374,8	68,2	744	1994	1495	951	975	1041
Tajikistan	Private farm average size, ha	6	0	NA	45	10	28	17	28	N/A
	Area of land plots, 1000 Ha	0,1	0,1	0,7	9	17,3	64,2	139	287,5	N/A
Turkmenistan	Private farm average size, ha	10	11		6	6	9	8	N/A	N/A
	Area of land plots, 1000 ha	1,1	1,1	2,8	5,9	5,9	12	15	N/A	N/A
Uzbekistan	Private farm average size, ha	7	8		14	15	19	19	19	21
	Area of land plots, 1000 ha	13,7	45,1	0,6	193,1	264,6	351,6	413,3	446,5	665,7

Source: Commonwealth of Independent States in 1998: Statistical Yearbook/ Interstate Statistical Committee of the Commonwealth of Independent States - M. 1999. P 296, 355. For 1992-1999. Commonwealth of Independent States in 1999: Statistical Yearbook/ Interstate Statistical Committee of the Commonwealth of Independent States - M. 2000. P 550, 334. For 2000.

A workable land tenure framework is key to the adoption of rational land management practices and also to the regeneration and re-capitalization of agriculture (i.e. farm restructuring). In this respect land reform and farm restructuring are related though they are distinctly different aspects of transition. They also have certain peculiarities in each of the countries.

In most of the former Soviet Union including Central Asia, the transition is from an economic system in which the state 'owned' all the resources to a system based on the allocation of resources through markets. As a result of predominance of agriculture, both as a contributor to the economy and as a user of land, the expression 'land reform' is often taken to embrace only agricultural objectives. In fact, land reform does more than simply increase sown area under private farming. The economic arguments that support land reform are also increasing private share in total agricultural production. Crop production is just one use to which land can be put and, as economies grow, land may be developed for all sorts of other (usually higher value) endeavors such as livestock production, processing enterprises, green houses and others. High efficiency in resources utilization is achieved when the resources are used to generate the highest possible inflow of money.

Land reform is an important part of the transition to a market economy in CAR. The reform demands solutions to new challenges created by the privatization and transfer of trading assets from the state to the private sector in the absence of an established land tenure framework. In addition to the legal details of reform, there are many and varied political and social factors that influence the reform through changes which are brought about in the relationships between people and the resources on which they depend.

Farm restructuring is a dynamic and continuous process. For a country's agricultural industry to compete in the world markets, restructuring must be driven by commercial and economic considerations regardless of the political conditions. A workable land tenure framework is the key not only to the adoption of rational land management practices but also to the regeneration and re-capitalization of agriculture. In this respect, land reform and farm restructuring are related although they are distinct aspects of transition.

The transformation from a centralized command economy to a market - driven economy requires a continuous decentralization of decision making from the government authorities to independent farmers. This requires that a set of legally defined property rights for land and water be developed and adopted by the government. The first steps have been taken by allowing the long term leasing and completing of legal framework for land reform. Current status of land reforms and farm restructuring show exceptionally big differences among the individual countries.

In Kyrgyzstan, significant progress has been made on land privatization and farm restructuring, although the process is not yet complete.

During the last fifteen years the number of state collective farms has been reduced from 504 to 54 and about 38700 private farms have been created. Private farms now constitute 18.5% of the total agricultural area. Land privatization and farm restructuring has been accomplished through many decrees issued by the president or by the government.

In Kazakhstan, initial privatization of large farms has been completed, however the needed restructuring of the farming sector is still in progress. From 2500 state and collective farms about 9000 partnerships, joint stock companies, and cooperatives were created by 1997. Individual family-farms totaled 51300 and farmed about 20 % of the agricultural land. However, a land law passed in 1995 still maintained state ownership of agricultural land.

In Tajikistan, the government has passed several land laws, decrees and distributed 50000 ha for creation of peasant farms (dekhkan farms). Through this operation in 1995 more than 240000 citizens received from 0.08 to 0.15 ha of irrigated land for life long use in agriculture. The number of private farms is about 8000, and the area of land allotted to them is about 139000 ha.

In Turkmenistan land reform is slow but some progress is being made. Area of land allotted to the private farmers is about 15000 ha. The historical forms of land ownership in Turkmenistan that formed under influence of regional factors cannot be ignored. The sanashik form of land ownership is a right on yearly land cultivation and water usage. It had included such conditions as water deficit, demographic distribution of population. Along with negative aspects such as double cropping and monopolistic land use the sanashik system had some obvious advantages. Under this system farmers got in groups to efficiently organize irrigation process. This method prevented the land from being split into small private plots of land. Turkmenistan still maintains this form of land ownership.

Uzbekistan has been more cautious than other countries in the region, including, Russia, Ukraine and its neighbor Kyrgyzstan. In those countries, perpetual rights to cultivate plots of land, with free annual payment (except land tax), are being granted to qualifying individual members of sovkhoz or kolkhoz. Land is divided equally between the members and thus the individual land share becomes the lowest common denominator or building block of a developing land tenure framework.

In Uzbekistan the law "on Land" was adopted in 1990 which stipulated that land would be under state ownership. However, land could be allocated for long term and short term lease, and also for lifetime inheritable possession (law "on Dekhkan Farms", 1992). In 1993-94, a number of resolutions on farm restructuring were adopted. Different forms of land tenure in Uzbekistan (Table 2)

Table 2 : Land Ownership Types and Farm Types in Uzbekistan

Types of land ownership	Types of farms
State	Sovkhozoes
Private	Privatized livestock farms (land under buildings)
Life time Inheritable possession	Smallholdings Private orchards and vineyards
Perpetuity	Kolkhozoes, Agricultural cooperatives.
Lease	Leasholdings Private farms.

*Source: A Medium Term Strategy for agricultural Development In the Republic of Uzbekistan, August 1997. TACIS-FAPU. Uzbekistan. Tashkent.*

The liberalization of the economy is a necessary precondition for successful land reform and farm restructuring. Decreased state interference in agricultural production have stimulated the private sector toward higher productivity and toward overall economic well-being. There are indicators such as share in sown area, agricultural output, and number of livestock that may be used to represent the level of liberalization or economic freedom of the private initiative in the agriculture sector. In economies where prices reflect true values, efficiency is achieved when agriculture generates a maximum profit. Consequently, in most liberalized economies with free pricing of shares in the private sector, total agricultural gains are increasing rapidly (table 3). Due to private incentives, better management and higher productivity, the share of livestock increased from 30-50% in 1992 to 70 -98 % at the end of 1999. The private sector has become more sensitive to market price indicators and better allocated resources than the public sector. Despite the fact that the share of sown area under the private sector was relatively small (from 8 to 47 %) in 1996, the share of the private sector in the total agricultural production showed a relative increase from 48 to 80%.

Table 3: Share of Subsidiary Plots of Households and Private Farms in Agricultural Production\* (in percentage)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Kazakhstan	Share in Sown area	1	2	3	3	5	8	N/A	N/A
	Share in Agricultural output	32	35	39	38	47	48	56	77
	Share in Cattle	34	37	42	45	53	65	79	87
	Share in Sheep and Goats	21	25	27	32	42	58	74	84
Kyrgyzstan	Share in Sown area	4	10	14	18	31	47	N/A	N/A
	Share in Agricultural output	38	47	54	59	78	80	85	87
	Share in Cattle	46	53	60	70	82	89	91	93
	Share in Sheep and Goats	34	47	54	69	84	93	95	97
Tajikistan	Share in Sown area	5	5	5	5	6	18	24	29
	Share in Agricultural output	N/A	44	49	50	51	56	54	58
	Share in Cattle	63	67	72	74	75	81	83	85
	Share in Sheep and Goats	54	57	60	60	59	64	67	70
Turkmenistan	Share in Sown area	1	2	2	3	3	N/A	N/A	N/A
	Share in Agricultural output	17	22	24	N/A	N/A	42	N/A	N/A
	Share in Cattle	58	62	66	69	75	77	N/A	N/A
	Share in Sheep and Goats	32	35	37	39	42	46	N/A	N/A
Uzbekistan	Share in Sown area	7	8	9	11	13	15	16	N/A
	Share in Agricultural output	33	36	38	41	52	55	64	66
	Share in Cattle	68	69	71	74	78	82	85	87
	Share in Sheep and Goats	47	49	50	53	55	62	66	67

\* The number of livestock given at the end of the year.

Source: Commonwealth of Independent States in 1998: Statistical Yearbook/ Interstate Statistical Committee of the Commonwealth of Independent States - M. 1999. P 306, 308, 357, 359, 504, 506, 537, 539, 578, 580. Commonwealth of Independent States in 1999: Statistical Yearbook/ Interstate Statistical Committee of the Commonwealth of Independent States - M. 2000. P 284, 295, 345, 478, 489, 520, 550, 564. For 1999

According to the indicators presented in Table 4, the liberalization rank in Central Asia will be presented in the following manner: Kyrgyzstan, Kazakhstan, Tajikistan, Uzbekistan and Turkmenistan. In practice, however, preservation of the existing production pattern (by state orders and other production requirements) is objective of various organs of government that restricted the liberalization process even in Kyrgyzstan. This directly contradicts with the efficiency objectives of liberalization, although in most Central Asian countries the prices paid for agricultural crops are completely unrelated to their true market values. Hence, free decisions would not achieve an efficient outcome either.

Farm restructuring policies have the means (through share issues) to allocate shares to all people, and then letting them decide amongst themselves whether or not to use the shares to create their own farms. The shareholders of collective farms and agricultural cooperatives, however, did not get any rights for land. Most land is still under strong government control. The small land plots cannot be a basis for solving the land issue. Government ownership of land doesn't exclude the development for land ownership, in which rights for the land can be sold, that will allow for distribution of land resources in the most efficient way. In addition, in Central Asia, sales of land market were prohibited, furthermore in Uzbekistan and Turkmenistan it was not allowed to be put up as collateral for loans or for subleasing. The shareholders of collective farms and agricultural cooperatives didn't get any rights for land.

The growth in the number of smallholdings has been a significant step towards achieving food security. Smallholdings, however, are private commercial enterprises and so their success depends on profitability. Similarly, successful restructuring of kolkhozes requires the potential for profitability. Price and market liberalization are therefore important prerequisites for the development of new forms of farms. Access to capital is also necessary for the new farms. Access to loans and credit requires both profitable production plans and collateral. Profitability can be achieved by price and market liberalization. The provision of collateral by borrowers is more difficult, under conditions where the state retains land ownership. Use of contracts requires that these contracts be marketable. Use of land leases requires that these leases be marketable. The development of a legal basis for contracts and leases, and a mechanism for their transfer in a market, are required for efficiency in agricultural production. These two steps are consistent with achieving economic efficiency in resource use, as well as "reorganization" of agricultural production.

## **ROLE OF THE GOVERNMENT IN CREATION OF MARKET CONDITIONS**

In CAR, governments have committed to transforming agriculture into an efficient and dynamic sector. Government policy for reformation is as follows (Van den Top et al., 1999):

- Retaining state ownership of land, to provide the right of life usage and inheritance on land. In individual cases, to establish private ownership on long-term leasing of land.
- To pursue a gradual transition to market conditions for agricultural production.
  - To create a peasant-owner, who is greatly interested in production, improvement of product quality, etc. This is to be achieved by land lease, or provision of land for life usage with the right of inheritance. In individual cases, land is to be provided for private ownership.
  - To change the system of central planning and management, by transition to organization through the market.
  - To establish and develop farms with a variety of types of ownership.
  - To radically reorganize the internal structure of the agricultural sector.
  - To reorganize all productive and social infrastructure.

The transformation from a central command economy to a market-driven economy requires continuous decentralization of decision-making by government authorities to independent farmers. This requires that a set of legally defined property rights for land and water be developed and adopted by the government.

Level of government intervention in the economies is different between countries. In Uzbekistan and Turkmenistan, a high level of government intervention in agriculture includes state orders for two major crops: wheat and cotton; subsidies for agricultural inputs; direct control on trade and taxation through the state order system.

Kyrgyzstan and Kazakhstan are among the leaders in agricultural sector reform in Central Asia. Governments have supported the reform process to privatize and transform agriculture into a market oriented rural economy. In Kyrgyzstan, markets, prices and the trade systems are liberalized, however in Kazakhstan, significant, but incomplete liberalization of the agricultural market is taking place. Although domestic prices are free, government procurement prices for major crops are still distorted in the local market.

In Tajikistan, the government has committed to provide a favorable environment for private sector development in agriculture. However, civil war



and political instability has restricted the government's power to adopt reforms. In spite of this, elimination of the state order system for all agricultural commodities has been achieved and cotton and wheat prices have been partially liberalized.

Overall, the government has begun initiatives toward policy reforms, provided budgetary support in public goods, and created legislative framework; still, redistribution from the agricultural sector in most of the CARs still exists.

## **INSTITUTIONAL REFORMS**

Institutional reformation is the slowest and most difficult part of the reformation process in agriculture. In Central Asia most ministries have historically had a primarily commercial function. The Ministry of Agriculture, and several other ministries within the agro-industrial sector, were responsible for the coordination of production and the management of state marketing channels for agricultural and food products. Since independence, many sector-specific ministries in the agriculture and food sectors have been converted to "commodity associations or committees," although the functions of these institutions have been retained.

To support a successful transition to market agriculture, it is essential that certain public goods be provided by the government. These include:

- Training and education: foreign advice is being utilized in the revision of various training curricula;
- Agricultural research: new research programs need to be developed to cater for the needs of restructured farms;
- Extension services: there is a great need for technological and managerial advice to new farmers. Some local initiatives are being made using foreign assistance, but a national policy to support these has not been developed;
- Market and price information: the lack of commercial information is a serious constraint to the development of private production and trade enterprises.
- Legal advice on farm restructuring and privatization: various laws and decrees have been passed, but farmers lack clear information about procedures and their rights and obligations.

At the regional and district levels the government in CAR has a representative office, which has wide-ranging responsibilities. These include the coordination of commercial activities in the locality, duties on the board of directors of most joint stock companies in the region, execution of state directives (e.g. state orders), appointment of senior staff in local enterprises,

in addition to the implementation of policy for transition. In Uzbekistan there has recently been some transfer of the social responsibilities of *kolkhozes* (agricultural enterprises) to the *Khokimiat* (local government), including the operation of hospitals, schools, and other facilities on the territory of *kolkhozes*.

Many regions and districts have local branches of commodity associations with extensive commercial interests. It is often a combination of local government and the commodity associations that makes the major commercial decisions in agricultural production, marketing, and investment. This may include pricing, credit and input (including water) supply. Under these conditions the managerial freedom of farmers and enterprise managers, whatever their legal position, is severely constrained.

The combination of commercial and governmental roles has serious consequences for the reform process. It means that state organizations are not focused on their key function for transition, the creation of favorable conditions for the development of private enterprise through the provision of support services. Furthermore, the commercial involvement of state organizations is an impediment to the development and functioning of market mechanisms. The fact that many of these organizations rely on their commercial functions for funding implies that they have little incentive to withdraw from the marketplace.

## **PRIVATIZATION OF AGRO-INDUSTRIAL ENTERPRISES**

Mass privatization through voucher schemes in Central Asia has been rejected as a policy option. Rather, the process of ownership change (privatization) has emphasized the initial transfer of some ownership to employees while retaining some state ownership. The process involves the creation of a joint stock company; issuing of shares in the joint stock company; distribution of a proportion of shares to employees and retention of a proportion of shares by the state property agency and sales of shares to private investors.

As progress of reform has been different among countries, the privatization process has its own peculiarities from country to country. In Kyrgyzstan substantial progress has been made in agro-processing and input supply enterprises, and input process enterprises. In some cases, however, such as fertilizer and farm machinery, public monopolies have become de facto private monopolies. In Kazakhstan, although, formal privatization of state enterprises has been completed, technological improvement and financial consolidation of these enterprises is lagging behind. In Tajikistan

most small and medium enterprises have been sold at auctions, however privatization of medium and large-scale enterprises has been slow. For all large state-owned enterprises, as a first step toward privatization, government has decided on converting them into open joint-stock companies. In Uzbekistan, the government intends to transfer processing enterprises to private control and liberalize the input sub-sector. In Turkmenistan, major processing plants for meat, milk, and horticultural products are under state control. The government is going to increase the scope of private ownership and investment, however, it will most likely retain control and the industries will remain highly concentrated.

In most of the countries, local government and commodity associations still maintain indirect control over enterprises' production mix and pricing, suppliers, labor, and investment. Commodity associations commonly have direct control over input supplies, marketing, and price. Central government exercises direct control over certain aspects of management through such means as wage controls, state orders (cotton, wheat and fertilizer), export and import licensing and the rationing of foreign exchange.

Legislation supports the concept of agricultural processing enterprises being free to make procurement, production and sales decisions. Central government, however, assigns local government many social and commercial responsibilities, which influence the conduct of former state enterprises. Local government influence in most regions extends far beyond cotton and grain, including crop prices, production targets, and employment of plant directors and sales of processed goods. The development and implementation of policies to improve competition must be of the highest priority.

There appears to be a variety of views on competition and decentralized price determination amongst different agencies of government. At commodity association and local government level, competition appears to be viewed as damaging and unnecessary. This serves as justification for centralized control of enterprises to minimize competition and, hence, the need to control prices.

## **AGRICULTURAL FINANCE AND ATTRACTION OF FOREIGN INVESTMENTS**

Agricultural finance as an institutional reform has the weakest place. Financing of agriculture in Uzbekistan and Turkmenistan has involved large and complex money flows into and out of the budget, banking and various off-budget funds. Pahta Bank in Uzbekistan and Daikhan Bank in Turkmenistan are the main channels for procurement of harvest, advance

payment and lending for farmers. In Tajikistan, state controlled Agroinvest Bank, which is cash-flow based only for cotton, and lending from other commercial banks is heavily collateral based with high interest rates which are unaffordable. The financial institutions are weak and rural NGOs, which provide farmers with micro credit, are not widespread. In Kyrgyzstan, reforms in the agriculture finance sector was more gradual in comparison with neighboring countries. The old rural credit system of directed and subsidized credit was replaced with new commercial credit system. The new system, however, is not well developed and has constraints with working capital and investment.

Generally, in Central Asia, most farmers and agricultural processors report serious problems with obtaining credit and with payments in general. It is commonly claimed that firms face serious restrictions in their access to cash and in their use of cash. Without access to cash, and in the presence of late payments, farms have little choice but to use the state-controlled marketing system.

Periodical write-off or rescheduling of debts and arrears remains a critical constraint for an efficient financing system. There does not appear to be a clear government strategy on debt management through the creation of a funded government restructuring agency or the promotion of bank-led debt restructuring. Banks are unlikely to establish procedures and devote staff to restructuring debts unless forced to do so by a bank-restructuring program.

It is common for all agricultural banks that the deposits of these banks are extremely limited and that they remain essentially a channel for government funds. Their narrow loan portfolios and their accumulation of unrecoverable loans left these banks in a financially unsustainable position. The banks are restricted in their ability to offer long-term loans by the lack of long-term funds on the market. Deposits are very limited (due to restrictions on individuals' access to their accounts), and most deposit accounts are for less than one year in any case.

All Central Asian countries have been aggressive in attempting to attract foreign investment, particularly investments involving the introduction of new technology. Agricultural production and agro-industrial processing have been established as priority sectors for foreign investment. In order to provide favorable conditions for foreign investment and to accelerate the process of integration into the world economy, the Government of CAR has created a legislation base.

The major problem faced by foreign investors in Uzbekistan and Turkmenistan is the restrictions placed on access to foreign currency. In addition to being unable to repatriate profits, investors are constrained in their ability to buy spare parts and imported inputs. At the production and marketing level there has been very little investment in agriculture. Some

investors have reported difficulties in accessing raw product in the presence of state-controlled monopolies.

## **PROSPECTIVE SCENARIOS OF AGRICULTURAL DEVELOPMENT IN CAR**

The dynamics of agricultural development indicators in the CAR present both positive and negative outcomes since independence. The positive outcomes include land reform and farm restructuring, agricultural production diversification, market infrastructure establishment, institutional changes and privatization. There are, however, negative outcomes observed in the agricultural sector include declining cotton and livestock production, increasing default on debts, shortages of input supply and increased water scarcity for irrigated agriculture.

Two sets of factors contribute to the current state of economic development. The first group is characterized by long-term inertia that is in part a result of decline in irrigation water supply, reduction of natural land fertility, threadbare agricultural assets and aggravated ecological situation due to Aral Sea wizenig. The second group includes the system factors caused by sluggishness of reforms in agriculture, slow institutional changes and inefficiency of macroeconomic and financial policies (Djalalov et al., 2000).

There are two scenarios for future development which could be drawn from the current economic state of the CAR. The first one is *inertia*, supposing no changes in current agricultural policy (including policy for grain self-sufficiency). The policy of food self-sufficiency, which is popular in most of the CAR can endanger food security in the long run. The major impacts of the import substitution policy have been: reduced cotton export earnings as areas have been converted from cotton to wheat production; reduced livestock production as areas have been converted from livestock feed to wheat production; low farm incomes as farmers are paid very low prices for wheat; difficulties with delivery of wheat as farmers make little or no profits from wheat production; and the administrative costs of handling a product for which the value is greater than the price at which it is transferred including implementation of export bans.

Retention of the state procurement and price regulation for strategic crops will cause income of agricultural producers to decline and as a consequence it will increase shortages of investment in production and increase poverty of the rural population. The continuation of this policy over the longer term will bring stagnation to the process of creating decentralized market and instability in financial situation. As a consequence, the import of food and input increases, it will increase balance of payment deficits. The

massive food imports will force out the local producers from domestic market and deprive their potential income.

The second scenario is *mobilizing* scenario, directed to create export-oriented agricultural sector and advancing the liberalization agenda by decreasing state intervention to the agricultural economy. It calls for the liquidation state order system, full market liberalization, real privatization of agricultural processing enterprises, development of competitive markets and the private sector and the establishment of ownership strata in rural areas. In order to achieve these goals the state has to take the following steps: reform the financial sector and agricultural banks; stop state intervention in agricultural markets, support exporters of agricultural goods and decrease tax incidence on producers.

It is difficult to forecast which one of the above and when the reform process in the CAR will be completed. The countries with significant natural and economic potential such as Kazakhstan can quickly benefit from the reform scenario. Other countries, such as Kyrgystan, have liberalized their economies but have big debts from international financial organizations. The government is spending a significant part of the budget to pay back these financial commitments. With poor mineral and natural resources endowment, they need prudent economic management to avoid stagnation of economic growth.

On the whole, the analysis of agricultural production reflects the stability and growth in the second half of the independent period in comparison with the first half. However agricultural production is declining and it is predicted that this tendency will continue for the next 3-5 years. It should be mentioned that production and productivity indicators in CAR countries are higher than in the rest of CIS, however interregional differences among countries are significant. It is possible to say that a crisis has already occurred and maximum decline in agricultural production happened between 1995-1997. Yet the recovery and increase in agricultural production will be dependent on the progress of reforms in the next 5 years.

A policy of self-sufficiency in grain will increase the grain production in the future, except in Kazakhstan. It will stabilize grain production over the next 3-5 years and will then decline. Cotton supply to the world market has declined during recent decade due to low prices, yet, demand for cotton is likely to increase. That will increase the cotton production in CAR as a number two exporter in the world. The strategy for development of a common agricultural market will increase the opportunities for export fruit and vegetables to CIS countries— traditional goods to Russia and neighboring countries. It will increase the production of melons, fruits and vegetables. The meat and dairy products will be in shortage and it is forecasted that import of those products will increase.

Unless new reforms are designed and implemented, import substitution, food self-sufficiency and local producer protection will continue to be main objectives of agricultural policy in CAR. The countries' aim for grain self-sufficiency may even harm production of the main export earner, cotton. While the policy of self-sufficiency is criticized by economists due to high opportunity cost, the factors of social stability and food security continue to be the priority of policy makers in the region.

## CONCLUSIONS AND POLICY RECOMMENDATIONS

The major conclusions, which may be drawn from this review, are the following:

1. The process of reform is a complicated and unexpectedly long process. Even for Kyrgyzstan and Kazakhstan with most liberalized economies in the region, it is difficult to predict how long the reform process will take for completion. The performances of the individual countries are quite different. Despite the great economic difficulties, significant progress in reform has been made in Kyrgyzstan and Kazakhstan. In countries with strong government intervention, reform process continues to be slow.

2. The reform process in CAR has been effectively summarized by Csaki (2000). "*The biggest transformation has taken place in the price and market environment, creation of legal framework; while there is a substantial lag in solving financing problems of agriculture in the area of institutional and land reforms*". Success of reforms in agriculture depends on the efficiency of reforms in the other sectors of the economy. Privatization and liberalization in relation to other sectors of the economy will create the appropriate market environment and assist agricultural recovery.

3. The low production level of grain, meat, milk, and eggs, and the decline in purchasing power of the population has resulted in low levels of consumption. Consumption of meat and dairy products has decreased 1.5-2 times, while potato and bread consumption has increased – a reverse trend compared to the growing economies of Asia. The differentiation in consumption has increased across countries and population strata. It is estimated that food consumption of most of the population is critically below the recommended daily allowances. An inferior consumption with lack of vitamins, protein, macro and microelements would negatively impact the population health and human capital in the long run.

4. In current economic conditions and path of reforms, the role of government has to be reconsidered. It is necessary to clarify the government regulation functions, which should be changed according to the market economy conditions. It is on the one hand incorrect to exaggerate the role of

the market and underestimate the role of government, on the other hand overestimate the government opportunities, and refusal to recognize the role of market self-regulation. The optimum is in the middle. The role of government will be increased in transition period, in transformation from one form of society to the other and in economic crisis. After economic stabilization, the role of government will decline and direct methods have to be substituted for indirect approaches.

5. The restructuring process of large farm structures like kolkhoz and sovkhoz, which has survived from central planned economies, is very slow. The changing of the names and status of the farms does not automatically result in transforming the property rights for land and long term leasing. It is likely that commodity associations and local governments still make most major decisions in former state enterprises. In many cases, there is an informal policy of collusion amongst enterprises. The combination of external control and little competition restrains the emergence of dynamism in former state enterprises. The result is that the development of imports is encouraged, and that the former state enterprises are discriminated against relative to small independent firms.

The principal policy recommendation is that government should define and communicate the boundaries of commercial authority to enterprises, commodity associations and local governments. The basis of the definition must accommodate the two keys to enterprise dynamism, independent management and competition. Priority areas include developing competition, and encouraging centralized organizations to release authority over enterprise decisions, such as choice of suppliers, choice of buyers, price determination and appointment of senior management. The government should consider a more liberal approach to the control of cash expenditure and salary levels. Former state enterprises must be able to compete with small private producers by exercising greater financial and management freedom (Nazarova, 1999).

6. The political condition in the region has significant influence on the progress of agricultural reforms. That extremist forces try to destabilize the situation directly impacts the budget expenditures reducing public goods and rural infrastructure development. Currently, even strong political leadership with clear objectives and long-term strategy for reform, are not guarantee of success in reforms.



**REFERENCES**

- Csaki, C., 2000. Agricultural Reforms in Central and Eastern Europe and the Former Soviet Union: Status and perspectives. *Agric Econ.* 22, 37-54. [www.elsevier.com/locate/agecon](http://www.elsevier.com/locate/agecon).
- D'Costa, J. 2000, March 28. Food and Livelihood Security Situation in Tajikistan. A Background Paper for Tajikistan Food/ Livelihood Security Assessment. Mercy Corps International Report.
- Djalalov S., Juraev A., Kasimova S. and others. 2000. August. Agrarnai reforma v yslovichah liberalizacii economici. (The Agricultural Reforms in the condition of economy liberalization). Tashkent. Center for Economic Research.
- Lerman, Z., Brooks, K., 2001. March. Turkmenistan: An Assessment of Leasehold- Based Farm Restructuring. World Bank Technical paper # 500. Washington D.C.
- Nazarova F., 1999. Agrarnai politika v kontekste nacionalnih modeli ekonomicheskikh reform. (Agricultural Policy in the Context of National Economic Models). *Economic Bulletin of Uzbekistan* 3. pp. 25-28.
- Van Den Top M., Djalalov S., Baker D., and others. 1997. August. A Medium Term Strategy for Agricultural Development in the Republic of Uzbekistan. Reports of Food and Agricultural Policy Advisory Unit FAPU-TACIS. Tashkent. Uzbekistan.
- Van Den Top M., Djalalov S., and others. 1999. February. Land Reform and Farm Restructuring; policy guidelines, Reports of Food and Agricultural Policy Advisory Unit FAPU-TACIS. Tashkent. Uzbekistan.
- World Bank. 2001, January 5. Tajikistan: Towards Accelerated Economic Growth. A Country Economic Memorandum. Report #. 22013-TJ. Washington D.C.
- World Bank. 1998, June 10. Kyrgyz Republic: Agricultural Policy Review. Strategy for Rural Growth and Poverty Alleviation. Report # 17734-KG. Washington D.C.
- World Bank. 1999, February. Uzbekistan Structural Policy Review. An Economic Report. Washington D.C.

## CHAPTER 5

# A COMPARATIVE ANALYSIS OF TRENDS IN AGRICULTURAL PRODUCTIVITY IN CENTRAL ASIAN TRANSITION ECONOMIES

Sandjar Djalalov

*Center for Efficient Economic Policy, Uzbekistan*

## INTRODUCTION

The long- term development of Central Asia agriculture attempted to measure the rates to change in agricultural output, input and agricultural productivity since the early 1960s, when official statistical yearbooks of USSR become published. As is common for any statistical analysis particularly for Soviet republics, both the reliability and coverage of agricultural production diminish considerably.

Previously comparative studies were made amongst socialist countries and consider the Soviet Union as one country. However the Soviet Union was very diversified at the republics level. The following study, which covers the period 1960 to 1990, compares difference in agricultural productivity and cost of agricultural production for major crops in five Central Asian Republics (CAR): Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan and Turkmenistan. Each of those nations is different in terms of agricultural reform policy, degree of liberalization and growth patterns. As presented in Fig. 1 the growth rate of aggregate agricultural output varies among these five nations, which impacted the productivity growth. Two types of productivity indexes – land and labor productivity are expressions of total factor productivity – the indicators of technical progress were used in this research.

The agricultural productivity growth rate slowed down before Soviet Union collapsed and has sharply declined after disintegration. In this paper I intend to delve into many aspects of the reform like the changes in trends in land and labor productivity; the contribution of technical change in agricultural growth; and finally, the trends of total factor productivity which could be observed in cross-country comparison in the former central planned economies.

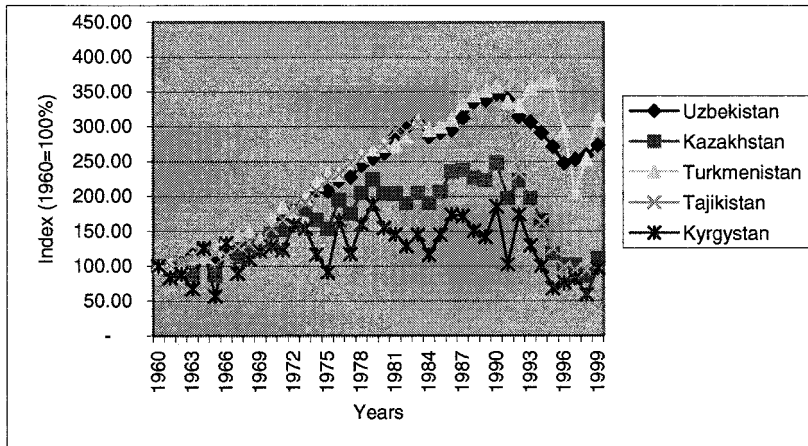


Figure 1. Growth Rates in CAR Agricultural Production

## TENDENCIES IN LAND PRODUCTIVITY

Land productivity for major crops for Central Asian countries was measured in wheat units per hectare. This methodology was used in the earlier studies by Yujiro Hayami, Vernon Ruttan, Lung Fai Wong for measuring agricultural productivity in socialist nations. In Central Asia land is not a limited recourse except in Tajikistan and Kyrgyzstan, which are located in the mountains area. Due to arid climate, agriculture is mainly based on irrigation, therefore water is the most limited input. The data presented in table 1 (appendix) shows only relationship between production and land. This relationship does not represent institutional changes and policy reforms take place in considering the period from 1950 to 1999. The annual growth rate of land productivity was greater during the 1950-1960, after that during four decades this indicator in all five nations has slowed down. The highest land productivity before getting independence in 1990 was observed in Kyrgyzstan and Tajikistan. The low level of land productivity in Turkmenistan and Kazakhstan is partly due to large uncultivated agricultural areas and low value of produced goods from these areas.

There are several reasons for slowing annual growth rate that are identified in the analysis. First, the population growth rate in Central Asia (except Kazakhstan with significant share of Russian population) was one of the highest in the world. More than 60 % of population has been living in the

rural areas. Second, the land-labor ratio has increased during 1960-1980 due to reclamation of virgin land for cotton production. However, after this period, high birth rates and lack of investment for cultivation new land has negatively impacted the land-labor ratio. New machinery promoted less labor-intensive technologies in crop production. Third, agricultural land during Soviet period was a state-owned and rented to the collective farms, this policy still continues in Uzbekistan and Turkmenistan. The private sector with smallholdings and private gardens had small share (3-5 %) in total agricultural land. State ownership for the land did not stimulate employers of large-scale state and collective farms to increase land productivity.

The situation in Uzbekistan in many cases is similar to the situation in China in 1980s. The population rose from 8.7 million in 1960 to 25 million in 1999, creating heavy pressure on the agricultural sector. Furthermore, Uzbekistan has been considered as a main cotton supplier for Soviet Union textile industry, therefore each year cotton production has been increasing and area under food crops has declined. However, after getting independence situation in Uzbekistan was reverse of China (Pomfret, 2000). The success of China's agrarian reforms based on the lack of restrictions on farmer's production designs. In Uzbekistan reforms assisted to create new household farms. However, they did not replace the old large state controlled institutions. State budget was strongly dependent on major crop, cotton, therefore it retained control on distribution of water and other inputs such as fertilizer, seeds and electricity.

In China, limited land resources stimulated intensification of cropping practices, adopting Green Revolution innovations. Uzbekistan during the last three decades also has been intensifying the application of resources in each sown hectare. The consumption of fertilizer was 10 times higher than average among Soviet Union Republics. Furthermore, in Kazakhstan and Kyrgyzstan fertilizer use increased from 1950 to 1985 by 18 times and 7 times respectively. The industrialization program adopted after 1965 has increased significantly the number of tractors in agriculture. For example, in Tajikistan, it rose 2.2 times and 3.1 times in Turkmenistan. However, intensification of cropping practices, increasing in land preparation and planting without adequate changes in management and marketing negatively influenced the land productivity annual growth rate.

The indicator wheat unit per hectare used in this chapter does not represent the changes in individual cropping patterns; therefore it cannot be used as indicator of agricultural performance. The crop yields can be used as a useful indicator of agricultural development for comparative analysis of particular agricultural production systems. A summary of the annual growth rate of yield for different periods of time is reported in appendix table 4. The biggest growth rate is in cotton, potatoes and vegetables observed in the 1960-70 period for all Central Asian nations. The high yield growth was caused by

institutional changes with application of some free markets elements in production and distribution systems. However, since 1980 short term increase was replaced with long-term decline in agricultural productivity affected by introduction of state order system, which reinforced the trend toward cotton monoculture. In the condition of central planned economy, potatoes and vegetables were mainly sold through private channels: *kolkhoz* markets and *potrebcooperaci* (producers and sellers cooperative). The chance to escape state regulated marketing channels and tax exemption had stimulated farmers to produce these products on private gardens and smallholdings. As a result the yield growth rates for potatoes and vegetables were greater than for state controlled strategic crops such as cotton and grain.

## CHANGES IN LABOR PRODUCTIVITY

In the previous studies labor productivity is defined in terms of wheat units per agricultural laborer. This definition was used with special purpose for a cross-national comparison study for countries that have different price structures, currencies and output compositions. In the former Soviet Unions all republics have the common price structure and currency, therefore for the Central Asian countries labor productivity in this study is identified in two ways: with wheat units per labor as was used in the previous studies and production of particular crops per work hour.

Labor productivity for the five Central Asian nations analyzed in this study calculated in appendix table 2. During the last four decades the ranking among the five countries were varied. Kyrgyzstan had the highest rank and Turkmenistan the lowest. There were no significant shifts in the rankings, except Turkmenistan. In 1950 Turkmenistan was third, among the group, but by 1990 it fell to the last position, during the same time, Uzbekistan and Tajikistan climbed one position in the ranking. It should be mentioned that all countries have achieved substantial increases in labor productivity during the analyzed period. Even Turkmenistan, with lowest productivity, increased 4 times from 1950 to 1990.

The labor productivity growth rate was also calculated by decades from 1950 to 1990. As indicated in appendix table 2 the higher labor productivity all countries experienced was in 1950-60, the lowest in 1970-80. The average growth rate for these countries during the 1960-80 was 2.53 percent almost two times lower than at the same period in Central Planned Economies (CPE). Wong and Ruttan, (1986) explained this high labor productivity growth rate with high average growth rate of aggregate agricultural production. However, during the same period the average growth rate of aggregate agricultural production was 4.21 percent, which is higher

than 2.91 received by the author for CPE. One reason for this tendency could be the decline in labor force, which is naturally transformed into labor productivity growth rates. Reduction in the size of the agricultural labor forces between 1960 and 1990 was noted in Kazakhstan (27 %) and Tajikistan (44%). During the same period, however, Uzbekistan's agricultural labor forces increased by 51%; Turkmenistan's increased by 28%; Kyrgyzstan's increased by 69%. The causes of decrease in Kazakhstan and Tajikistan are the development of non-agricultural sectors of economy. The industrialization process in the 1960s does not affect other Central Asian countries. Agriculture was a main source for the new factories and plants in the cities. However, high birth rate, nomadic population and higher income from private gardens were the main reasons for the increase in the agricultural labor force. Shortage of labor in the urban areas caused the construction of labor intensive factories in the densely populated regions, in case of Ferghana valley main textile and chemical industries were built in the rural areas.

More detail picture regarding labor productivity is represented in indicator plant and livestock production per workhour. The data in appendix table 2 shows that, from 1962 to 1990, labor productivity ranking in cotton production changed in only two countries from five countries, and then only minimally. In addition, Kyrgyzstan that has a highest rank in wheat unit per labor approach in this calculation become the lowest in CAR. The low level of labor productivity in Kyrgyzstan is partly that cotton share in gross agricultural product was small. In grain and potatoes production labor productivity ranks does not have a significant differences with previous wheat unit per laborer computation. Kazakhstan and Kyrgyzstan have higher labor productivity also in milk and meat productions. A summary of the annual growth rate of labor productivity per work hour is calculated for different periods of time. The substantial growth rate was in the 1962-70 period for all crops and livestock products. The lowest growth rate of labor productivity for all agricultural products except grain indicated in the 1980-90 period. The reason for this is the land- labor ratio in CAR that has the same growth rate as labor productivity. Land -labor ratio in these nations decreased in the 1950-90 period, which mince that each laborer had less land to cultivate than in the previous periods. Finally, the investment increase per labor in agriculture in the 1980 led to the in adoption intensive program based on mechanization and less labor intensive technologies.

Cotton – the main crop in Central Asia, required a sizable agricultural labor force in cotton-picking season. It is common practice to use “temporary workers” and urban workers during the peak season in agriculture. Development labor-intensive cotton production technologies in the virgin lands increased consumption in the educated well-trained tractor operators and farmers. The fourth cotton producer in the world Uzbekistan has a sizeable growing rural population. Its rural population increased from 5.62

million in 1960 to 12.36 million in 1990, thus growth added 722 thousand workers to Uzbekistan agricultural labor force a 64% increase during these period.

In summary, the following tendencies could be observed from the presented data. First, Kazakhstan - most industrialized and Kyrgystan less labor and land intensive countries have a highest level of labor productivity and biggest agricultural output. Second, the differences in labor productivity among Central Asian countries are large however, has a trend for decreasing. In 1960, labor productivity of Uzbekistan was 8.4 times of Kyrgystan. This ratio decreased to 4.8 times by 1990 a 75% of decline. Third, in all Central Asian nations labor productivity growth was much greater and faster than land productivity. Despite the facts that total agricultural area has increased more than labor all former Soviet Union republics experienced food problem due to inefficient use of input.

## **CROSS-COUNTRY COMPARISON AND TRENDS OF TOTAL FACTOR PRODUCTIVITY**

The total factor productivity represents the effect of technical change and factor substitution. There are two ways to measure the technical change: it could be measured as a ratio of aggregate output to the aggregate of all inputs and shift in the production function of conventional factors. Therefore, two approaches usually used by the economists Hayami and Ruttan, (1983) for the measuring technical change - the index number approach and the production function approach. Both approaches has some biases, however most popular way to measure productivity is to combine several factors and express them in index form. The arithmetic and geometric index commonly utilized for computing productivity change. The arithmetic index approach was used in this study. The arithmetic index integrates inputs weighted by the price of inputs. However, complete price information for all five Central Asian republics was not available, if it was available those were distorted by the strong control of a central planned administrative system. To avoid this problem the factor shares could be utilized for expression arithmetic index as illustrated in equation below.

$$C_t = (Y_t/Y_{60}) / \sum S_i (X_{it}/X_{i60})$$

where,

$Y_t$  = aggregate output in wheat units

$X_{it}$  =  $i$  th input quantity at year  $t$

$S_i$  = factor share of corresponding input

$C_t$  = arithmetic index for year  $t$

$l = 1, 2, 3, 4, 5$

$t = 1950, \dots, 1990$

The factor shares for socialist countries were estimated in the previous studies (Wong and Ruttan, 1986) as estimated production elasticities of socialist agricultural metaproduction functions, which are 0.155 for labor, 0.042 for land, 0.239 for fertilizer, 0.173 for machinery, 0.391 for livestock. A summary of the calculated indices together with the annual growth rate of the indices for the 1950-1999 period presented in Table 3.1.

The arithmetic index of technical change shows the significant increase in 1950-1960 and sharp decline in total factor productivity in the next decade. In contrast to the total factor productivity the labor and land productivity trend have sharp decrease after the Soviet Union collapse in 1990. Except for Uzbekistan, all republics experienced negative growth rates in total factor productivity during the Soviet period (1950-1990). The negative growth rate was particularly serious in Kazakhstan and Kyrgyzstan. However, after some major economic reforms in agriculture, those countries managed to reverse the downward trends and achieve positive growth rate after Soviet Union disintegration. Most notable was the 15.64 annual growth rate during the independent period (1990-1999) in Kazakhstan. The agricultural trade liberalization and Land reforms created condition for the free design making for most important for the farmers questions "what to grow and where to sell?"

Trends and fluctuation of total factor productivity, land and labor productivity for individual countries presented in Fig. 1 – 5. In most nations, the differences between partial productivity and total factor productivity tend to increase from 1970 to 1990. Furthermore, in contrast to the East European socialist nations the divergence between labor productivity and total factor productivity in Central Asia is smaller than the divergence between land productivity and total factor productivity, except in the Kazakhstan case.



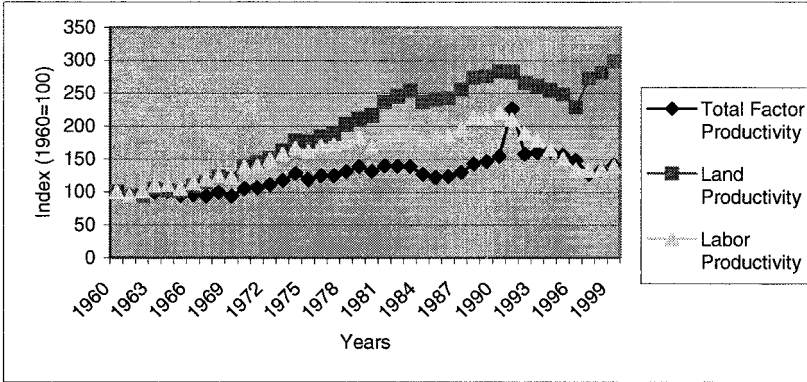


Figure 2 Uzbekistan Productivity Trends

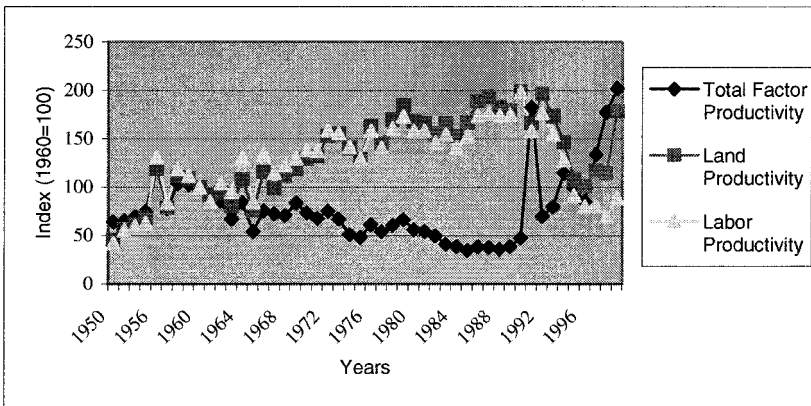


Figure 3 Kazakhstan Productivity Trends

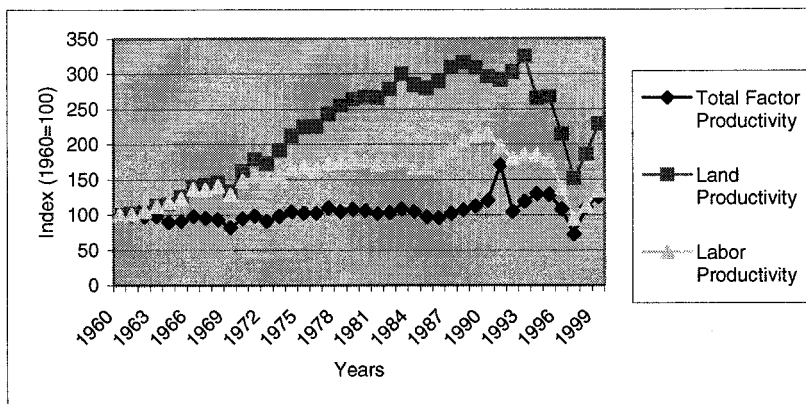


Figure 4 Turkmenistan Productivity Trends

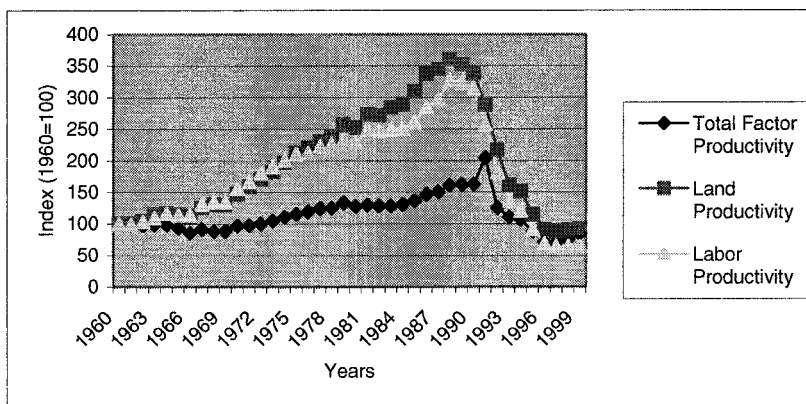


Figure 5 Tajikistan Productivity Trends

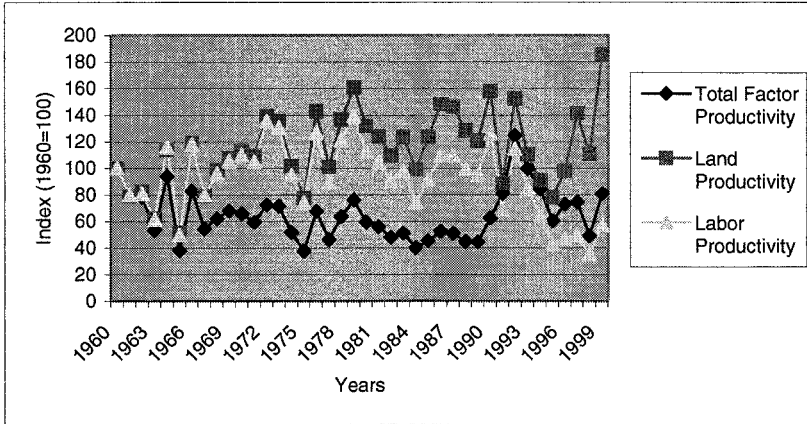


Figure 6. Kyrgystan Productivity Trends

The arithmetic index approach uses a single year as a base year and did not represents year-to-year technical changes. In contrast to the arithmetic index, the geometric productivity index, developed by Sollow, is usually uses for estimation the yearly shift factor. The mathematical expression for the geometric productivity index is as follows:

$$A'/A = y'/y - W_i I'/I - W_f f'/f - W_m m'/m - W_s s'/s$$

where,

A = shift factor,

y = output per labor (Y/N),

I = land per labor (L/N),

f = fertilizer per labor (F/N),

m = machinery per labor (M/N),

s = livestock per labor (S/N),

W<sub>i</sub> = factor share of corresponding factor

Using the equation above yearly shift factor for five nations were calculated and shown in the appendix table 5. As indicated in the table all nations have values negative during the Soviet period 1950-1990. This mince that all republics were able to move back to positive gain in technical change. It should be mention that average shift factor much smaller than in the East European socialist nations. This indicates that level of technical progress in the Central Asia was much lower. The greater yearly shift factors pointed out in Kyrgyzstan and Kazakhstan. In the independent period the range of the average shift factors in all nations become positive.

The pattern of agricultural productivity growth in Central Asia diverges in two different ways, which is indicated in the previous studies (Hayami and Ruttan, 1983). The first way is the same as in USA, Canada and Australia, where favorable man-land ratios prevail. This is close to man-land ratio observed in Kazakhstan and Turkmenistan. The second way similar as in Asians countries where unfavorable man land ratios prevail, same as in South-East nations and Japan. This ratio is common for Uzbekistan, Kyrgyzstan and Tajikistan. However, the availability of land resources does not guarantee productivity growth in water scarce Central Asia region.

## **CONTRIBUTION OF TECHNICAL CHANGE IN AGRICULTURAL GROWTH**

There are several factors considered as sources of agricultural growth in centrally planed economies of Central Asia. First, increase expanding sown acreage on irrigated land. Second, Soviet Union heavily invested to the machinery, fertilizer and irrigation. Third, institutional changes after World War II that applied some market elements in marketing and production chain. It is clear, that observed decline in total factor productivity results of increasing use of conventional inputs than the rate of aggregate output grows. To exam this statement the cross-country analysis with the same methodology as in Wong and Ruttan study with some additional elements were used in the Table 1.

Table.1 Contribution of Technical Change to Agricultural Labor

		Uzbekistan	Kazakhstan	Turkmenistan	Tajikistan	Kyrgyzstan
1.	Labor Productivity (1) = Y/N, in 1960	7,02	21,48	6,39	5,34	58,73
2.	(2) Y/N, in 1990	15,48	42,62	13,77	16,79	74
	(2) Y/N, in 1999	9,76	19,15	8,58	3,42	33,6
3.	Gross Growth (3) = (2) - (1) in 1990	8,46	21,14	7,38	11,45	15,27
	In 1999	2,74	-2,33	2,19	-1,92	25,13
4.	Technology Index (4) = A (1990)/A (1960) in 1990	0,87	1,0	1,02	0,95	0,65
	(4) = A (1999)/A (1960) in 1999	1,0	1,03	0,97	0,8	0,53
5.	Constant Technology productivity (5) = (2)/(4) in 1990	17,79	42,62	13,47	17,62	113,26
	in 1999	97,60	185,92	8,85	4,28	63,40
6.	Growth of Productivity, net of technical change (6) = (5) - (1) in 1990	10,77	21,07	7,08	12,28	54,53
	In 1999	2,68	-5,79	2,46	-1,07	4,67
7.	Productivity growth explained by increased input (percent) (7) = (6)/(3) x 100 in 1990	127,3	99,7	95,7	107,3	357,1
	in 1999	98	244	112,1	55,5	18,6
8.	By technical change (%) (8) = 100.0 - (7) in 1990	-27,3	0,3	4,1	-7,3	-257,1
	in 1999	2	-144	-12,1	44,5	81,4

The varying degrees of contribution to technical change have been considered for two periods: the Soviet period until disintegration (1960- 1990) and after Soviet Union was breaking up for the period 1960- 99 periods. The first rows of the table, shows labor productivity in 1960, 1990 and 1999, respectively. The difference between 1960 and 1990, 1999 represents the gross growth caused by increases in inputs or technological change as shown in row 3. All five Central Asian republics have different but positive growth in labor productivity for the period 1960 –1990. The negative gross growth in 1999 for Kazakhstan and Tajikistan in labor productivity could be explained by the strong agricultural labor migration from Tajikistan villages to the neighboring countries mainly to Russia; in Kazakhstan development of high-income industrial sector has resulted in agricultural labor transfer to the other branches of economy. The agricultural labor in Kazakh villages is currently

replacing by cheap labor from less- income neighboring countries. Row 4 represents total factor productivity in 1990 and 1999 – an indicator of technological change during the 1960- 1999 periods. Row 5 indicates the “constant technology” labor productivity in considered years, which is obtained by dividing row 2 by row 4. Lung Fai Wong interpreted constant technology labor productivity as the “ *net amount of technological change that would have occurred ..... if technological factors had remains constant ... it is the increase in productivity resulting solely from increased output*”. For instance, in 1990 Uzbekistan’s labor productivity would have been 17.79 if 1960 technology and 1980 input levels were being utilized. Thus Uzbekistan’s “constant technology” labor productivity for 1990 (row 5) minus its labor productivity for 1960 (row 1) is the net growth of productivity for the 1960 – 90 period, which is only due to adjustment of input level, as shown in row 6. In case, figure in row 6 is larger than the figure in row 3, this presents that the technical change was not initiated the productivity growth and vice versa. The portion of growth in labor productivity that can be explained solely by increased inputs is the ratio of row 6 to the gross growth in row 3, as shown in row 7. In addition, the unexplained part of growth of labor productivity can be considered as share of technical change, as shown in row 8.

The figures calculated in row 8 of Table 1 for 1990 suggest that only Turkmenistan and Kazakhstan have indicated a positive net gain in agricultural labor productivity from technological change. However, calculation for 1999 shows that in 10 years those countries have had a negative net gains. Those changes can be explained that agricultural growth has come from increased use of factor inputs, not from technological change. Although Uzbekistan, Tajikistan and Kyrgyzstan have a positive net gain from technological change in 1999. The higher result in Kyrgyzstan interpreted due to more liberalized agricultural sector and land reform program that successfully adopted in the recent years. Another reason for negative values of total factor productivity is the misallocation of resources, which has to be considered as a common condition for central planned economies. Government targeted agriculture does not stimulated efficient use of resources.

## CONCLUSIONS

The land, labor and total factor productivity indices analyzed in this paper present strong upward trends until 1990 and downward trends during 1991-1996 period, some recovering signs appears close to 1999. In all five Central Asian Republics, land productivity was much higher than labor productivity, which was achieved at a relatively high cost. In order to get self-

sufficiency in food products, which were never attained during Soviet period, government has spent enormous amount of resources. However, they could not increase food production very much but managed increase land productivity in high cost.

The sharp decreases in total factor productivity after getting independence in 1990 is a divergence from misallocation of resources. The misallocation also implies that inefficiency and unbalanced cost of production surrounded in the central planned agricultural system. As a result Soviet republics has always paid a higher cost for production and the increases in labor and land productivity than they counterparts from developed countries.

The introduction new technologies in the Soviet Union have a minor role in agricultural growth. This tendency could be explained with the loss caused by resource misallocation and the result of factor substitution along to the production function.

## REFERENCES

- Pomfret, R. 2000. Agrarian Reform in Uzbekistan: Why Has the Chinese Model Failed to Deliver. *Economic Development and Cultural Change*. Volume 48, Number 2.
- Wong, Lung Fai and Vernon Ruttan 1986. A Comparative Analysis of Agricultural Productivity Trends in Centrally Planned Economies. A Special Study of the Kennan Institute for Advanced Russian Studies. P 25
- Hayami, Y. and Vernon W. Ruttan 1983. *Agricultural Development: An International Perspective*. (Baltimore: Johns Hopkins University Press, 1983)



**APPENDIX***Table 1. Land Productivity in CAR (wheat units per Ha)*

	Uzbekistan	Kazak	Turkmenistan	Kyrgyz Republic	Tajikistan
<b>1950</b>	0,1	0,08	0,03	0,62	0,30
<b>1953</b>	0,23	0,10	0,04	0,68	0,35
<b>1954</b>	0,25	0,11	0,04	0,68	0,35
<b>1955</b>	0,26	0,12	0,04	0,67	0,36
<b>1956</b>	0,29	0,20	0,04	2,24	0,37
<b>1957</b>	0,33	0,13	0,04	1,19	0,40
<b>1958</b>	0,38	0,19	0,05	2,10	0,42
<b>1959</b>	0,39	0,18	0,05	1,92	0,45
<b>1960</b>	0,41	0,17	0,05	1,90	0,46
<b>1961</b>	0,38	0,16	0,05	1,50	0,47
<b>1962</b>	0,38	0,16	0,05	1,57	0,49
<b>1963</b>	0,43	0,14	0,06	1,18	0,53
<b>1964</b>	0,42	0,18	0,06	2,16	0,54
<b>1965</b>	0,41	0,13	0,06	0,98	0,53
<b>1966</b>	0,44	0,20	0,07	2,26	0,52
<b>1967</b>	0,47	0,17	0,07	1,50	0,58
<b>1968</b>	0,50	0,19	0,07	1,87	0,60
<b>1969</b>	0,49	0,20	0,07	2,04	0,60
<b>1970</b>	0,56	0,22	0,08	2,15	0,68
<b>1971</b>	0,59	0,22	0,09	2,07	0,74
<b>1972</b>	0,62	0,26	0,09	2,65	0,79
<b>1973</b>	0,66	0,26	0,10	2,57	0,84
<b>1974</b>	0,72	0,24	0,11	1,93	0,91
<b>1975</b>	0,72	0,22	0,11	1,48	0,98
<b>1976</b>	0,75	0,28	0,11	2,71	1,02
<b>1977</b>	0,77	0,25	0,12	1,92	1,07
<b>1978</b>	0,82	0,29	0,13	2,59	1,10
<b>1979</b>	0,86	0,31	0,13	3,05	1,19
<b>1980</b>	0,88	0,29	0,13	2,50	1,17
<b>1981</b>	0,96	0,28	0,13	2,35	1,27
<b>1982</b>	1,00	0,26	0,14	2,07	1,26
<b>1983</b>	1,03	0,28	0,15	2,35	1,32
<b>1984</b>	0,96	0,26	0,14	1,88	1,34
<b>1985</b>	0,98	0,28	0,14	2,34	1,44
<b>1986</b>	0,99	0,32	0,15	2,81	1,56
<b>1987</b>	1,04	0,33	0,16	2,78	1,60
<b>1988</b>	1,11	0,31	0,16	2,44	1,67
<b>1989</b>	1,12	0,31	0,15	2,29	1,63
<b>1990</b>	1,15	0,34	0,15	3,00	1,56
<b>1991</b>	1,15	0,28	0,15	1,68	1,34
<b>1992</b>	1,08	0,33	0,15	2,90	1,00
<b>1993</b>	1,06	0,29	0,16	2,10	0,75
<b>1994</b>	1,04	0,25	0,13	1,72	0,70

<b>1995</b>	1,01	0,18	0,13	1,48	0,53
<b>1996</b>	0,93	0,17	0,11	1,86	0,42
<b>1997</b>	1,11	0,20	0,08	2,68	0,40
<b>1998</b>	1,15	0,19	0,09	2,10	0,42
<b>1999</b>	1,22	0,30	0,11	3,52	0,43
<b>Growth rate</b>					
<b>1950-60</b>	7,74	8,15	5,52	11,79	4,32
<b>1960-70</b>	3,24	2,60	4,98	1,25	3,94
<b>1970-80</b>	4,63	2,65	5,08	1,52	5,54
<b>1980-90</b>	2,72	1,71	1,05	1,83	2,96
<b>1950-90</b>	4,57	3,75	4,14	4,01	4,18
<b>1960-80</b>	3,93	2,63	5,03	1,39	4,73
<b>1960-90</b>	3,49	2,30	3,65	1,52	4,10
<b>1970-90</b>	3,67	2,18	3,04	1,68	4,24
<b>1960-99</b>	2,89	1,52	2,17	1,62	-0,22
<b>1970-99</b>	2,75	1,13	1,20	1,74	-1,63
<b>1980-99</b>	0,05	1,72	0,32	-5,20	-0,82
<b>1990-99</b>	0,05	0,54	-1,09	-12,19	-2,55

Table 2. Labor Productivity in CAR (wheat units per worker)

	Uzbekistan	Kazakhstan	Turkmenistan	Tajikistan	Kyrgyzstan
<b>1950</b>	2,86	9,06	3,45	2,88	17,48
<b>1953</b>	3,56	11,96	4,70	3,25	21,62
<b>1954</b>	3,83	12,89	4,69	3,39	21,18
<b>1955</b>	4,09	13,55	4,67	3,52	20,62
<b>1956</b>	4,98	28,03	5,17	3,96	69,81
<b>1957</b>	5,61	18,02	5,66	4,30	35,75
<b>1958</b>	6,56	25,52	6,00	4,70	62,28
<b>1959</b>	7,17	24,04	6,09	5,11	57,68
<b>1960</b>	7,02	21,48	6,39	5,34	58,73
<b>1961</b>	6,63	18,22	6,43	5,27	46,85
<b>1962</b>	7,09	22,37	6,74	5,53	47,55
<b>1963</b>	7,74	20,39	7,17	5,87	36,12
<b>1964</b>	7,78	27,95	7,53	6,20	68,13
<b>1965</b>	7,41	18,17	7,83	6,06	29,32
<b>1966</b>	7,95	28,80	8,71	6,05	69,25
<b>1967</b>	8,38	24,69	8,68	6,99	46,84

<b>1968</b>	8,69	26,37	8,99	7,19	56,41
<b>1969</b>	8,51	27,92	8,21	7,16	61,90
<b>1970</b>	9,63	29,73	9,42	8,33	64,50
<b>1971</b>	9,80	29,52	9,95	8,90	61,73
<b>1972</b>	10,50	34,22	9,43	9,60	79,53
<b>1973</b>	11,02	33,45	9,90	10,15	76,69
<b>1974</b>	11,64	30,35	10,53	10,67	55,47
<b>1975</b>	11,27	27,79	10,69	11,16	43,46
<b>1976</b>	11,85	33,88	10,43	11,21	73,97
<b>1977</b>	11,96	30,18	10,96	11,74	51,07
<b>1978</b>	12,43	34,49	11,07	11,85	69,11
<b>1979</b>	12,63	37,13	11,16	12,22	79,32
<b>1980</b>	11,74	33,84	11,21	11,83	63,74
<b>1981</b>	12,64	33,53	10,80	12,45	58,93
<b>1982</b>	12,94	31,01	10,85	12,30	51,19
<b>1983</b>	13,19	32,72	11,16	12,45	56,96
<b>1984</b>	12,34	30,22	10,65	13,37	43,51
<b>1985</b>	12,57	32,80	10,71	13,92	53,46
<b>1986</b>	12,86	37,31	11,12	15,20	64,14
<b>1987</b>	13,63	37,86	12,27	15,83	64,28
<b>1988</b>	14,81	37,26	13,14	17,51	58,37
<b>1989</b>	14,89	37,57	13,48	17,30	55,66
<b>1990</b>	15,48	42,62	13,77	16,79	74,00
<b>1991</b>	14,74	33,92	12,61	13,74	40,40
<b>1992</b>	13,26	37,92	11,51	9,68	67,22
<b>1993</b>	12,52	33,25	11,89	7,27	49,53
<b>1994</b>	11,54	27,41	11,79	6,43	37,52
<b>1995</b>	10,53	19,63	11,35	4,86	25,24
<b>1996</b>	9,38	17,22	8,84	3,70	27,69
<b>1997</b>	9,36	17,34	6,02	3,48	29,28
<b>1998</b>	9,42	15,02	7,18	3,45	20,76
<b>1999</b>	9,76	19,15	8,58	3,42	33,60
<b>Growth Rate</b>					
<b>1950-60</b>	9,39	9,02	6,36	6,37	12,88
<b>1960-70</b>	3,22	3,30	3,95	4,56	0,94

<b>1970-80</b>	2,00	1,30	1,75	3,57	-0,12
<b>1980-90</b>	2,80	2,33	2,08	3,56	1,50
<b>1950-90</b>	4,31	3,95	3,52	4,51	3,67
<b>1960-80</b>	2,61	2,30	2,85	4,06	0,41
<b>1960-90</b>	2,65	2,29	2,56	3,85	0,77
<b>1970-90</b>	2,40	1,82	1,92	3,56	0,69
<b>1960-99</b>	0,86	-0,30	0,77	-1,15	-1,44
<b>1970-99</b>	0,04	-1,53	-0,32	-3,07	-2,26
<b>1980-99</b>	0,05	-0,97	-2,97	-1,40	-6,37
<b>1990-99</b>	0,05	-4,51	-7,69	-4,61	-14,71

*Table 3 Arithmetic Indices for Total Factor Productivity (1960=100)*

	Uzbekistan	Kazakhstan	Turkmenistan	Tajikistan	Kyrgyzstan
<b>1950</b>	76	64	93	78	42
<b>1953</b>	72	65	91	76	40
<b>1954</b>	74	69	83	76	41
<b>1955</b>	74	75	80	76	39
<b>1956</b>	85	121	83	80	122
<b>1957</b>	90	78	94	84	60
<b>1958</b>	97	104	97	89	104
<b>1959</b>	102	103	97	96	101
<b>1960</b>	100	100	100	100	100
<b>1961</b>	95	88	99	97	79
<b>1962</b>	96	86	98	98	79
<b>1963</b>	100	67	98	98	54
<b>1964</b>	101	84	89	98	94
<b>1965</b>	95	54	91	93	38
<b>1966</b>	96	76	98	85	83
<b>1967</b>	94	73	95	91	54
<b>1968</b>	99	71	94	88	62
<b>1969</b>	94	84	82	89	68
<b>1970</b>	105	73	95	97	66
<b>1971</b>	106	68	98	97	60
<b>1972</b>	111	75	91	100	7
<b>1973</b>	117	67	98	105	2
<b>1974</b>	128	51	104	111	52
<b>1975</b>	119	48	102	116	3
<b>1976</b>	125	61	102	119	8
<b>1977</b>	125	54	110	124	46
<b>1978</b>	131	60	105	125	6
<b>1979</b>	138	66	108	133	6
<b>1980</b>	132	56	106	128	59
<b>1981</b>	140	54	101	130	56

1982	139	50	103	128	48
1983	139	41	108	128	51
1984	127	39	104	131	40
1985	122	35	97	136	45
1986	124	38	96	147	53
1987	130	38	102	150	51
1988	143	36	107	161	45
1989	146	39	112	162	45
1990	154	47	120	163	63
1991	227	183	170	204	81
1992	157	70	104	125	124
1993	160	80	119	111	100
1994	162	114	130	107	84
1995	156	99	129	88	60
1996	148	85	108	71	73
1997	127	134	73	70	75
1998	133	177	110	76	49
1999	141	202	125	85	81

### GROWTH RATE

1950-60	2,73	4,55	0,78	2,55	9,12
1960-70	0,48	-3,05	-0,52	-0,34	-4,09
1970-80	2,29	-2,64	1,11	2,84	-1,03
1980-90	1,58	-1,70	1,29	2,42	0,55
1950-90	1,77	-0,76	0,66	1,86	1,02
1960-90	1,43	-2,44	0,61	1,62	-1,53
1970-90	1,93	-2,18	1,20	2,63	-0,24
1960-99	0,90	1,84	0,59	-0,43	-0,56
1970-99	1,04	3,61	0,97	-0,47	0,71
1980-99	0,23	4,45	0,57	-1,40	1,05
1990-99	-0,88	15,64	0,40	-6,32	2,55

Table 4 Yearly Shift Factors for Geometric Index

	Uzbekistan	Kazakhstan	Turkmenistan	Tajikistan	Kyrgystan
1950	-0,0009	-0,0057	-0,0018	-0,0014	-0,0053
1953	-0,0004	-0,0031	0,0001	-0,0004	-0,0008
1954	-0,0004	-0,0032	-0,0001	-0,0004	-0,0004
1955	-0,0007	-0,0223	-0,0003	-0,0002	-0,0958
1956	-0,0007	0,0109	-0,0006	-0,0006	0,0588
1957	-0,0010	-0,0123	-0,0003	-0,0006	-0,0529
1958	-0,0004	0,0000	-0,0002	-0,0007	0,0090
1959	-0,0001	0,0006	-0,0006	-0,0004	-0,00001
1960	0,0002	0,0021	-0,0003	0,0000	0,0168
1961	-0,0004	-0,0011	-0,0001	-0,0002	-0,0045

1962	-0,0009	0,0041	-0,0009	-0,0008	0,0211
1963	-0,00005	-0,0108	-0,0001	-0,0004	-0,0509
1964	0,0002	0,0107	-0,0006	0,0001	0,0664
1965	-0,0006	-0,0143	-0,0010	0,0004	-0,0783
1966	-0,0004	0,0043	-0,0002	-0,0010	0,0412
1967	-0,0007	-0,0048	-0,0002	-0,0003	-0,0215
1968	0,0001	-0,0032	0,0008	0,0000	-0,0115
1969	-0,0014	-0,0038	-0,0020	-0,0017	-0,0063
1970	-0,0005	-0,0008	-0,0011	-0,0009	0,0049
1971	-0,0008	-0,0084	0,0004	-0,0009	-0,0349
1972	-0,0008	-0,0011	-0,0012	-0,0008	0,0045
1973	-0,0013	0,0058	-0,0016	-0,0011	0,0400
1974	0,0001	0,0044	-0,0009	-0,0011	0,0275
1975	-0,0011	-0,0145	0,0000	-0,0006	-0,0801
1976	-0,0003	0,0079	-0,0013	-0,0010	0,0560
1977	-0,0012	-0,0113	-0,0006	-0,0005	-0,0486
1978	-0,0007	-0,0070	0,0005	-0,0013	-0,0320
1979	-0,0004	0,0081	-0,0002	0,0004	0,0366
1980	-0,0016	-0,0002	0,0001	-0,0014	0,0093
1981	-0,0006	0,0048	-0,0007	0,0001	0,0189
1982	-0,0005	-0,0050	-0,0011	-0,0008	-0,0212
1983	0,0012	0,0051	0,0006	-0,0003	0,0349
1984	-0,0003	-0,0049	0,0000	-0,0011	-0,0334
1985	-0,0002	-0,0095	-0,0003	-0,0017	-0,0389
1986	-0,0012	-0,0008	-0,0011	-0,0005	0,0026
1987	-0,0015	0,0044	-0,0004	-0,0014	0,0247
1988	-0,0001	0,0012	-0,0001	0,0005	0,0099
1989	-0,0005	-0,0084	0,0000	0,0009	-0,0456
1990	0,0006	0,0158	0,0009	0,0032	0,0782
1991	0,0016	-0,0105	0,0002	0,0046	-0,0753
1992	0,0005	0,0094	-0,0012	0,0049	0,0485
1993	0,0010	0,0115	0,0007	0,0010	0,0335
1994	0,0013	0,0190	-0,0001	0,0031	0,0398
1995	0,0016	0,0056	0,0032	0,0030	-0,0107
1996	-0,0004	-0,0027	0,0074	0,0005	-0,0070
1997	-0,0005	0,0075	-0,0037	-0,0004	0,0257
1998	-0,0011	-0,0209	-0,0037	-0,0002	-0,0390
1999	0,0	0,0	0,0	0,0	0,0
<i>Average</i>					
1950-59	-0,0006	-0,0044	-0,0005	-0,0006	-0,0109
1960-69	-0,0004	-0,0017	-0,0005	-0,0004	-0,0028
1970-79	-0,0007	-0,0017	-0,0007	-0,0008	-0,0026
1980-89	-0,0008	-0,0016	-0,0006	-0,0008	-0,0022
1990-98	0,0005	0,0038	0,0004	0,0022	0,0104

## CHAPTER 6

# LAND REFORM AND FARM RESTRUCTURING IN CENTRAL ASIA: PROGRESS AND CHALLENGES AHEAD

Ramesh Deshpande  
*Independent Consultant*

### AN OVERVIEW

Land reform in Central Asia, a critical element of the region's ongoing transition to market economy, is indeed at the crossroads. Since the collapse of the Former Soviet Union (FSU) in 1991, the overall objective of most FSU countries including those in Central Asia, has been, by and large, to fundamentally change the relationship between people and property (land and non-land assets); promote different forms of land ownership and use; and establish, through restructuring of former state-owned and collective farms, many family farms and small farm enterprises which could compete among themselves and help create a market-oriented agriculture.

The Central Asian countries including Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan, have, over the past decade, privatized and/or leased out approximately 40 million ha of arable lands held by former state-owned and collective farms. The five Central Asian countries have a total agricultural area of about 306 million ha of which pastures account for about 266 million ha which generally remain in state ownership. In Kazakhstan, for example, out of 222 million ha of agricultural lands, lands actually used are only about 18 million ha. Kazakhstan has 182 million ha of pastures and 21 million ha of forested lands. The scale, scope and speed with which the land reform initiatives were designed and implemented by the Central Asian countries have been formidable - especially against the backdrop of experience in land reform across the world and complexities that

were involved in privatizing and restructuring decades of state-owned and collective farming, on which depended the livelihood and social safety of a large proportion of the rural population of about 32 million (56% of the total).

This paper reviews land reform effort in three countries of Central Asia, namely, Kyrgyz Republic, Kazakhstan and Turkmenistan with particular reference to privatization of agricultural lands and restructuring of former state and collective farms, and explores the challenges ahead, which are also relevant to two other Central Asian countries, namely, Tajikistan and Uzbekistan. In both Tajikistan and Uzbekistan, some progress is being made in farmland privatization and farm restructuring, however, much remains to be done in these countries to make legal frameworks for agricultural land tenure (including ownership) and transactions conducive for development of active land markets and encourage remaining collectively managed farms to restructure and become more efficient and productive.

An accelerated implementation of land reform and farm restructuring programs is critical for all Central Asian countries to promote investments, productivity and growth in the rural sector and reduce unemployment and poverty. Even in lower middle income economies of Kazakhstan and Turkmenistan, where the share of agriculture in total GDP is relatively small and per capita GNP higher at \$1,780 and 1,122 respectively, further land reform and farm restructuring remain matters of high priority, especially to reduce rapidly emerging income disparities and poverty in low income rural populations which have limited skills and asset endowment.

Specifically, the major thesis of this chapter is that the existing legal frameworks in Kazakhstan, Kyrgyz Republic and Turkmenistan, though provide assured tenures including ownership and/or lease rights, are still regressive in many ways and must be systematically liberalized over time, if land reform initiatives already introduced must serve their intended objectives.

Empirical research in land reform initiatives worldwide has demonstrated that (Stern, 2003):

*“First, providing secure land tenure to land can improve the welfare of the poor, in particular, by enhancing asset base of those (such as women) whose land rights are often neglected. At the same time, it creates the incentives needed for investment, a key element underlying sustainable economic growth.*

*Second, facilitating the exchange and distribution of land, whether as an asset or for current services, at low cost, through markets as well as through non-market channels, is central to expediting land access by productive but land-poor producers and, once the economic environment is right, the development of financial markets that rely on the land as collateral.*

*Third, governments have a clear role to play in promoting and contributing to socially desirable land allocation and utilization. This is*



*demonstrated by farm restructuring in the context of de-collectivization and land reform and post-conflict land policy in economies of highly unequal distribution of land ownership where land issues are often a key element of social strife.”*

The following review of land reform initiatives in Kazakhstan, Kyrgyz Republic and Turkmenistan must be seen in the this context as well as in the context of underlying political economies of these countries and prospects for democratization and integration with local, regional and global economies.

## **THE CONTEXT**

Inheriting the legacy of Soviet agricultural policy which had, over the past seven decades, resulted in predominance of large-scale state and collective farms, the Central Asian countries began their journey as newly independent states in 1991 with a formidable task of dealing with an inefficient agricultural sector where the state intervened heavily in the management of farm operations in terms of directing what and how much to produce; allocating inputs; controlling marketing of outputs, and regulating prices and incomes.

Incentives to state-owned and collective farms and their workers were particularly lacking as the State used to seize almost all agricultural production to support industrialization in urban areas, while peasants were forced to survive off their tiny private plots. Factor productivity in FSU agriculture was generally less than half of that achieved by individual and family farms in climatically comparable areas of Canada and the United States.

Table 1: Central Asian Economies: Key Indicators (2003)

Indicator	Kazakhstan	Kyrgyz Republic	Tajikistan	Turkmenistan	Uzbekistan
Size (Sqkm million)	2.7	0.2	0.1	0.5	0.5
Population (millions)	15.0	5.0	6.0	5.0	26
Rural Population	44%	65%	72%	55%	58%
GDP (\$ million)	30,000	1,908	1,553	6,201	10,000
GDP Growth Real Annual %	9.2	6.7	10.2	16.9	4.4
Value Added in Agriculture (% of GDP)	8	39	23	25	35
GNP per capita (\$)	1,780	340	210	1,120	420
National Poverty Rate (% pop)	NA	48	.NA	.NA	28

Source: World Bank Little Data Book, 2005.

Note: Low Income Countries: Kyrgyz Republic, Tajikistan and

Uzbekistan; Lower Middle Income Countries: Kazakhstan and Turkmenistan.

An important element of FSU's land reform program before the break-up in 1991 was that the then government had allotted a number of small garden plots, orchard plots and dacha plots to residents on state-owned and collective farms as well as to urban residents, for purposes of country cottages and seasonal vegetable production. The sizes of plots allotted to urban residents were slightly larger than those granted to rural residents.

The allotment of small plots of land (dachas) to both urban and rural residents proved important in both political and economic terms: politically, the distribution and ownership of small plots eventually helped to galvanize support for land reform and economically, although small plots occupied less than three to four percent of the total cultivated area because of the inherent incentives of private farming; they produced as much as 20-30 per cent of the total agricultural output in the country.

Since there were no signs of improvements in agricultural production and productivity, despite massive subsidies provided by the state, the FSU (then Soviet Russia) had begun to introduce, by about late 1980s, new forms

of land tenure such as lifetime inheritable possession, lease rights and highly restricted private ownership of tiny dacha or garden plots and peasant (family) farms. The peasant farm program which was implemented in all republics in Soviet Russia (including Central Asian), envisaged allotment of plots of land, ranging from 20 ha to 40 ha to those who were willing (and qualified) to establish such farms. Usually entrepreneurial, skilled and politically connected farmers went for this program. The lands for peasant farms were allotted from the so-called Rayon (district) Land Funds, which comprised of mainly unused or under-used lands of state-owned and collective farms. Some good lands were also transferred to this Fund.

Initially, a number of peasant farms came to be established but the momentum slowed down as a result of difficult macroeconomic environment; peasant farms' lack of access to working capital; and inadequate marketing infrastructure, which forced private farmers to rely on inefficient marketing systems state-owned and collective farms. The rayon level Land Funds also got rapidly depleted with initial allotments and could not replenished without diverting land from other users and owners, which was legally as well as politically not feasible.

FSU's land reform process in terms of privatization and restructuring of former state and collective farms accelerated only after its break up in 1991. In particular, the newly established Russian Federation spearheaded land reform by a Presidential Decree that turned all farm workers on state and collective farms as owners. Initially, this was done by providing state and collective farm workers, a notional share in their respective farmlands and non-land assets (without physical demarcation).

The new Presidential decree also provided an opportunity to eligible members of former state-owned and collective farms establish either individual farms or pool their shares of land and non-land assets to form new, independent, partnerships or associations with other farmers. This initiative set a kind of important benchmark or precedent for other FSU countries including those in Central Asia to achieve, in the spheres of land reform and farm restructuring.

Thus, for the newly independent Central Asian countries, it was not enough just to privatize land; there was an urgent need to introduce legal and operational frameworks that would not only encourage privatized state and collective farms to restructure but also allow their members to take informed decisions as to the kind of legal entities they would want to establish, including those operated by individual members and groups of farm members as entrepreneurs, partners, shareholders, lessees, and workers.

As for the question, why to restructure state and collective farms and why not simply privatizing them; it is not sufficient to take an industrial approach to privatization, transfer ownership and assume that new owners would manage restructuring of farms to protect their assets. International

experience shows that new owners of farm assets can and do, in fact, manage restructuring and what they need is a practical legal framework in which to proceed effectively and equitably, and technical assistance in choosing an alternative organizational and management structure.

For this reason, the land reform programs in most FSU countries, as in some East European countries have included additional mechanisms through which owners could create new farming units, either within an existing farm or through exit. Even after formal restructuring, the new owners need support to implement, on a continuing basis more fundamental changes on the farms that would occur in most industrial enterprises. Economic theory offers a number of reasons why large farms owned and operated by groups of people might not remain competitive. Besides the independence and self-reliance inherent in individual and small-scale farming, most agricultural operations require high-quality labor and good judgment. In large enterprises, it is costly to assess which workers are performing well and which poorly. The efficiency of labor thus tends to be low and costs high. Individual shareholders may also feel little personal responsibility for debts incurred by the group, and the incentive to increase debt will be high. Further, financial institutions may be wary about accepting jointly owned assets as collateral, and thus commercial lending to group farms may not be forthcoming. Shareholder farms may therefore seek a high level of borrowing for investment but receive little commercial financing. Unless government steps in with special credit programs, shareholder farms may remain undercapitalized. Government credit programs usually involve poor allocation of credit and entail high risks of default. A simple transfer of ownership to members and employees of the state and collective farms would not have, therefore, viable and competitive production units. This was the rationale for the inclusion in land reform programs in most FSU countries including those in Central Asia, of additional mechanisms through which owners could create new farming units, either within the existing farm or through exit. Privatization of state-owned and collective farms thus immediately proceeded into restructuring.

Also, the shareholder farms created out of a collective farm or a state farm do not have an analogue in market economies. It is sometimes argued that a corporate farm in North America is the analogue for a shareholder farm in FSU countries. There is a further misconception that since corporate farms dominate North American agriculture, why not simply convert state and collective farms into corporate farms to improve efficiency (Lerman, Brooks and Csaki, 1994). It must be noted that corporate farms do not dominate agriculture in North America and do not resemble collective or state-farms re-registered as joint stock companies in FSU countries. Most corporate farms in North America are family farms incorporated for tax reasons, not companies with many shareholders.

For farm reorganization to proceed systematically, smoothly and speedily and without socio-political conflicts, it could not have been done by administrative fiat; it was important to ensure that the processes underlying farm restructuring provide for: (a) a voluntary arrangement based on farms' decisions to reorganize; (b) a choice driven process where farm members could decide what farm activities to pursue; (c) the division of state and collective farms into a number of private (family) farms and partnership of farms; (d) a transparent process for trading entitlements, organizing enterprise structures, and resolving disputes; and (e) a public information system that will inform farm members about the program and guide them through the process.

The approach to farm restructuring in Russian Federation, Central Asian countries (as well as a few other FSU countries) would not have emerged but for deliberate efforts of a few formal and informal pilot programs that were implemented in the Russian Federation during early 1990s, the years immediately after the dissolution of FSU. As for the formal farm reorganization, the pilot project implemented in Russian Federation's Nizni Novgorod oblast (province) by the International Finance Corporation (IFC), an affiliate institution of the World Bank, and the U.K. Know How Fund (now Department For International Development (DFID)), was perhaps the most pioneering and the most well-documented, systematic approach to farm restructuring. Some 65 farms, mostly in Nizni Novgorod, were restructured using these formal procedures. Also, a number of farms in the new Russian Federation had taken informal initiatives, some reorganizing internally into a system of relatively small, autonomous profit centers without dismantling the structure of the existing farm units.

Specifically, in the policy reform area, Nizni Novgorod oblast had undertaken to liberalize input and output prices; reduce government procurement; promote private trade; eliminate restrictions on trade margins; and reduce and rationalize agricultural subsidies (even though the reforms in these areas in the rest of the country were likely to come about at a slow pace). In credit prototypes, the pilot was to develop strategies for market-based rural finance with participating commercial banks financing credit prototypes for commercially viable activities, and moving away from state-subsidized credit programs. The pilot's market development initiatives were to focus on defining region-specific, policy, legal, institutional and operational framework for primary and wholesale markets; introduction of warehouse receipt and pledge financing; and input supply and marketing cooperatives. The pilot was financed by grants provided by the British Know How Fund (now DFID) supplemented by contributions from clients, participating commercial banks, and the oblast administration. The launching of Nizni Novgorod pilot would not have been possible but for the interest taken and support extended by

former reform-minded Deputy Prime Minister of Russia, Mr. Boris Nemtsov, who was then the Governor of Nizni Novgorod Oblast.

These pilots were particularly important for FSU countries to dispel considerable resistance to farm restructuring among the rural population, farm managers and government bureaucrats, which was largely contributed by broader economic crisis that followed the FSU break-up and resulting pessimism, cynicism and conservatism among the people across the board. For this reason, for farm restructuring to become more acceptable to those working for and dependent on farms, it was important for FSU countries to introduce reforms in the overall agricultural policy environment, including liberalization of input and output prices and inter-provincial and international trade to create incentives for farm productivity and profitability improvements. Unfortunately, this did not happen in most FSU countries including those in Central Asia to the extent required and soon enough thereby delaying progress on both land reform and farm restructuring.

### Box 1

#### **NIZNI NOVGOROD FARM RESTRUCTURING PROCESS: KEY FEATURES**

- *Voluntary process based on the farms' decision to reorganize;*
- *A choice driven process, where farm members decide what farm activities to pursue;*
- *The division of the state and collective farms into a number of private (family) farms and partnership of farms;*
- *A transparent of process of trading entitlements, organizing enterprise structures, and resolving disputes;*
- *A public information system to inform farm members about the program and guide them through the process.*

In November 1993, the first Russian state-owned farm was reorganized under the Nizni Novgorod model program and the process was subsequently perfected by reorganization of several additional farms. The Nizni Novgorod model used sequential steps as follows: land and property entitlement certificates were distributed to farm members; an information campaign was launched to educate shareholders on how their entitlement certificates might be traded, leased, sold, bequeathed, combined, or otherwise used, including instructions on how to “buy” a portion of the farm at auction; the farm and property were divided into lots for auction on the basis of

existing operational subdivisions; individuals and groups could increase their purchasing power by soliciting additional entitlement certificates; land and property lots were “sold” for entitlement certificates at an auction where individuals and groups could bid for sections (business units) of the farm; and finally, land and property deeds were issued to the new owners.

The Nizni Novgorod method provided farm members several options for using their land and property entitlements including selling or leasing land entitlements to another farm member; selling a property entitlement to another farm member; bequeathing a land entitlement to a child or other relative; exchanging a land entitlement for property entitlement (or vice versa), and using a land and property entitlement to bid for a land plot or property asset at an auction. Structural outcomes of informal (or spontaneous) reorganization of farms, as in the case of formal reorganization (Nizni Novgorod model) theoretically provided for all possible outcomes, including individual peasant farms, association of peasant farms, partnerships, and closed and open type joint stock companies.

Subsequent to the experience with Nizni Novgorod model of formal restructuring and various informal reorganizations in Russian Federation, the World Bank-assisted Farm Privatization Project in Azerbaijan carried out as a pilot program in restructuring of six former state-owned and collective farms and transfer their assets to local population. This project achieved successful land reform and established a mechanism for rapid yet egalitarian distribution of land plots and an accurate cost-efficient land registration system. In six pilot farms, 23,282 citizens (6645 families) living in 21 villages received in total 10,458 ha of farmland covering 6645 families. Land titling was then rolled out countrywide privatizing all farmland in Azerbaijan over an area of about 1.4 million ha of farmlands distributed to 869,785 families by mid 2001. The process followed for the privatization merits description as a simple yet robust means of promoting fairness. On a given farm, land was first divided into parcels, and then the parcels were chosen by farmers whose place in the queue to make a choice, was set by lottery. In this way, it was assured that those responsible for the preliminary division would do their best to ensure evenness in value; not knowing which plots they themselves might receive. The finalization of land rights made an immediate and very substantial difference to farmers, even though prior to the project the liveliness of “private” farming had already been noted despite the fuzziness of ownership rights. Following formal receipt of land titles as evidence of absolute ownership, people used land differently. Data from 2001 compared to that of 1997 shows a productivity increase of 250 to 300 per cent (World Bank, 2004).

Informal farm reorganizations were generally initiated with the goal of creating a series of distinct profit centers on the farm, or transforming itself into an asset-holding organization or it could involve only a subset of farm

members, either individually or in groups, establishing separate, individual or group farms. They were also motivated by the belief that changes in management and organizational structures of farms would improve productivity and profitability as smaller units are easier to manage; improve management's scope and decision-making in market conditions; and enhance management's ability to maintain good labor discipline. In some cases, informal reorganizations were motivated by the fear that farm members could lose land at some time in future, if farms are not registered as private entities. Farm members also expected that weak management could be more easily replaced through reorganization.

Both Nizni Novgorod formal model and informal approaches to reorganization were well received and provided a conceptual framework for the land reform legislation that was introduced over the years in Russian Federation and Central Asian countries.

## STATUS OF LAND REFORM & FARM RESTRUCTURING IN THREE CENTRAL ASIAN COUNTRIES

### Kazakhstan

Kazakhstan inherited from FSU, a land tenure structure that was dominated by state farms (2120) and collective farms (430), which accounted for over 96% of the total crop and pasturelands (43 million ha). The remaining land was held by peasant farms (3.8%) followed by households, as garden (*dacha*) plots (0.2%). By the end of 1998, the government had succeeded in privatizing much of the land held by former state and collective farms, and in distributing surplus public lands to newly established private farms. The initial privatization of land was on a 99-year lease basis.

Table 2: Land Use in Kazakhstan (Million Ha)

Total Area	Agricultural Area	Pastures	Arable Land			
			Cultivated	Hayfields	Forested	Total
272.5	222.0	182.4	17.7 (40.5%)	5.0 (11.5%)	21.0 (48%)	43.7 (100.0)



Kazakhstan's land reform law evolved over time and in phases. In Phase I, by passing the Land Reform Law of 1991, the government had begun the process of re-issuing all past grants of land (including agricultural lands) on the basis of: (i) life, inheritable tenure for individual private farms; and (ii) permanent usufruct (user rights) for state farms and collectives. To accelerate the establishment of private farming, the Family Facility Act of 1993 was another important step, which defined the rights and responsibilities of family farms. Later, a Presidential Decree issued in 1994 confirmed that individuals and legal entities (other than state farms) could sell, bequeath, lease and pledge their land rights.

Subsequently, the Civil Code of 1994 recognized various types of legal farm structures in the following four major groups: Producers Cooperatives (PC); Joint Stock Companies (JSC), Partnerships of various types; and Individual Peasant Farms. The Land Code passed thereafter (December 1995) took yet another important step and confirmed 99 year lease rights to agricultural lands, retaining the ownership with the government.

The basic land laws were supplemented by Laws on Mortgage of Real Estate and State Registration of Immovable Property Rights and Transactions (both adopted in December 1995). These laws helped to create, as of April 1, 1999, as many as 90,000 new legal entities, including 85,000 peasant farms, 2380 production cooperatives; and 2790 joint stock companies and other legal associations. The number of state-owned entities in agriculture was reduced to 60 with their operations confined primarily to crop and animal breeding.

*Table 3: Number of Farms by Type of Organization \*(As of April 1999)*

Total	State Farms	Production Coops	Joint Stock Companies	Limited Liability, Partnerships	Collective Partnerships	Peasant Farms	Others
89,996	60	2380	373	2290	43	84,766 *	84

*\*Excluding about 5 million household garden plots, with a land area of 0.4 million hectares.*

In Phase II, Kazakhstan adopted a new Land Code (June 2003) and introduced for the first time since independence in 1991, private ownership of agricultural lands. However, among the Central Asian countries, Kazakhstan experienced perhaps the most intense political controversy over the draft of this Land Code. Those on the reform side argued that land privatization was a necessary step in market-orientation of the economy, while the opponents argued that the Land Code as drafted by the government was not adequate as it would benefit primarily the wealthy and would not allow land to be distributed fairly. Both communist and nationalist politicians opposed any

kind of private ownership of lands. The Kazak President, however, signed the Land Code into law not on the basis of a Parliamentary resolution on the Land Code per se but by using the “vote of confidence” procedures permitted by the new Constitution adopted in 1999.

The new Land Code of 2003 recognized Kazak citizens’ and legal entities’ right to both own and lease agricultural lands, in addition to industrial, commercial and residential lands which they were able to own under the earlier law. Specifically, the Land Code provides that agricultural lands may be granted in (a) private ownership, to Kazak citizens for development of personal supplementary farms, gardening and dacha construction; (b) private ownership or land use, to Kazak citizens and Kazak legal entities for maintenance of peasant (farms) holdings, commercial agriculture, forestry, scientific research, experimental and educational purposes, maintenance of supplementary agriculture, gardening and cattle raising; and (c) for short-term leases up to 5 years and longer-term leases up to 49 years to Kazak citizens and Kazak entities and up to 10 years lease to foreigners and stateless persons. The Land Code requires government to issue to land owners and leaseholders passbooks showing limited cadastre information on soil, soil improvement, geo-botanical studies and soil quality categories for purposes of state supervision on the maintenance of the quality of agricultural lands by users and the nature of their rights in land.

The new Land Code also introduced a system of payments to the state to transform the leased land into owned land, which helps the state to raise revenue and possibly use these resources to fund development of rural infrastructure. More important of the Land Code provisions are reviewed below. Some of these provisions are restrictive and can potentially delay or adversely affect the functioning of the land market.

**Land in Ownership:** The Land Code lays out the basic principle that Kazak lands will be in state ownership except where land plots are transferred in private ownership on the basis of Land Code provisions. At the outset, the Land Code transferred ownership of land free of cost to all Kazak Citizens in certain situations, namely where they held (a) notional shares in lands under (housing) condominiums; (b) lands for individual housing, supplementary personal housing, dacha and gardening; and (c) lands allotted by the state under the Land Code and other laws for eligible purposes including agriculture. The tenure in ownership introduced by the Land Code was indeed a revolutionary change. Land users are subdivided into the following: state-owned and non-governmental; national and foreign; physical and legal entities; permanent and temporary, permanent and secondary. Land use rights arise when these are granted, conveyed and transferred in accordance with the procedure of universal legal succession (inheritance and reorganization of a legal entity such as state-owned and collective farms). Granting, conveyance

and transfer of land use rights are carried out subject to the designated purpose of the given land plot. Land use rights arise on the basis of the acts of state authorities; civil law transactions; and other grounds provided for by the legislation of the Republic of Kazakhstan.

**Land Sizes:** The Land Code prescribes guidelines on sizes of land plots that could be granted to Kazak citizens and Kazak entities for both agricultural and non-agricultural purposes. Sizes of land plots granted to Kazak citizens into private ownership free of charge are set as follows: (a) for supplementary personal farms (including an allotment of land attached to the house) in rural area: 0.25 hectare for non-irrigated and 0.15 hectare for irrigated lands; (b) for individual housing construction, 0.10 hectare; (c) for garden or dacha, 0.12 hectare. These outer limits on land holdings can be varied by provincial (municipal) governments taking account of local conditions and any other special considerations. The Land Code also authorizes local governments to set upper limits on sizes of peasant farms and lower limits on irrigated agricultural lands.

**Conditional Ownership & Ownership Subject to Payments:** While Land Code granted ownership of land to the millions of citizens free of cost, it also made (the ownership) conditional in that if the owners decide to sell the grant land, they would have to pay to state the price for that land according to parameters set by the Land Code. All other lands transferred from state to private ownership either on a sale or lease basis also require payments to the state either upfront in the case of sale and in installments in the case of a lease. Ownership provides rights of possession, use and disposal of land plots. Representative bodies and government officials at the national, provincial, district and local levels exercise the rights of the state as the owner of land, within the provisions of the Land Code and other related civil laws. As for selling of Private Ownership Rights: Land plot owners have the rights of possession, utilization and disposal of land plots at their discretion without obtaining any permits from state authorities. Land plots can also be conveyed to another person with all encumbrances existing at the time of transfer.

Owners of land plots have the right to lease out land plots without changing the plot's designated purpose, for temporary utilization on the basis of a temporary land use agreement (with the lessee/tenant) or a charge-free use agreement with gratuitous user. Land plot ownership rights apply only to the surface soil layer, water reservoirs and plantations within its boundaries.

The Land Code provides for the state to lease out land on a "chargeable temporary (short-term and long-term) land use rights" to citizens, non-governmental legal entities as well as international organizations (foreign nationals) on the basis of an agreement between the state and the lessee. This agreement sets the period of lease, which can be renewed by a new agreement, with a prior notice of minimum three months.

When a land plot in a state ownership is sold, the lessee of that land plot has a priority right to purchase it. Leasing of agricultural lands for maintenance of peasant farms and commercial agricultural production is permitted up to 49 years for citizens and non-governmental legal entities of Kazak origin and for a period up to 10 years to foreigners and stateless persons.

**Restrictions On Ownership & Leasing:** Among diverse restrictions on ownership and leasing rights introduced by the new Land Code include the following: (a) A person losing his or her citizenship must return the land to the state which, where relevant, will refund the purchase price; (b) Kazakh land users may lease land from the state either on a short term basis (up to 5 years) or on long term basis (from 5 to 49 years). Only short-term land use rights are granted free of charge and that too to only Kazakh citizens and legal entities. Any disposal or sub-lease of short-term use rights received free-of-cost, is prohibited.

The state can allot land plots for gratuitous temporary use to Kazak citizens and legal entities for distant cattle raising (seasonal pastures); for cattle grazing of population and for hay collection; to governmental land users; for vegetable gardening; in the form of employee land allotments (to certain categories of employees of state owned enterprises); for building common use roads, state property and social cultural designation; recovery of degraded and disturbed lands; cultural facilities; and other items approved by the Land Code and other legislative acts. The period of gratuitous temporary land use does not exceed five years, except in cases where land plots are granted in the form of employee land allotments and for recovery of degraded and disturbed lands and land under buildings (which is determined by the period of use rights for the relative buildings). Alienation of land plots under gratuitous temporary land use, including their transfer into secondary land use, is prohibited

**Purchase of Land From the State:** Besides initial grants of garden and dacha plots and peasant farms given free of cost, Kazak citizens and Kazak legal entities can purchase agricultural lands in state ownership into private ownership, against payment of a price equal to cadastre (or estimated) price or at a privileged price as determined by the government as per Land Code provisions. A person who has paid the full amount (up front or in installments) of the purchase price, has the right to commit any type of transactions with regard to the relative land plot (including sale) upon expiry of 10 years from the time of the registration of the private ownership right. This restriction does not apply to pledging of land plots, and pledging of a land plot is permitted pro rata only after fifty per cent of purchase price is paid.

The Land Code authorizes the state to set basic rates of payment for land plots when these are granted in ownership, in lease or to governmental land users, according to the methodology and procedures set out in the Land

Code. The cadastre (estimated) valuation is done using various coefficients based on soil quality, access to water, distance (remoteness) from support infrastructure and services, etc ensuring that the land valuation is not less than the rates for the land tax. Lease payments to the government are also set on the basis of estimated (cadastre) value of the land plot. When ownership rights or land use rights are terminated, a land plot or land use right is valued in accordance with their market prices.

**Implications of Pricing Land Allotment:** Under the old law, all agricultural lands were given by the state to Kazak citizens free of charge for up to 49 years but without ownership. The holder could then sublet this land. Thus, the new law eliminated an important option, especially for small holders who cannot cultivate the land by themselves. Land under long-term lease can be subleased subject to certain restrictions on subleasing of peasant farms referred later below. According to Kazak Ministry of Agriculture, about 42% of Kazakhstan's 14.8 million population, live in rural areas and although a large portion of the rural population owns land granted to them, it does not work on the land. Formerly, farmers were able to sub-lease land to agricultural producers, generating income from rent or sharecropping. Under the new law, as of January 1, 2005, land granted by the state for short-term leases (up to 5 years) can no longer be subleased. Deprived of this source of income, many people are likely to abandon rural areas, with a resulting decrease in rural population. There is also a concern that the land ownership may get concentrated in the hands of wealthy people.

**Land Ownership and Leasing by Foreign Nationals and Companies:** Foreign individuals and companies cannot own agricultural land, but can lease such lands up to 10 years, compared to 49 years for Kazakh citizens. However, the wording of the new law suggests that non-Kazakh residents (foreign nationals?) may be able to purchase agricultural land through a local legal entity, either in a joint venture or wholly-owned. Foreign national and entities can own land designated only for industrial purposes and residential construction; as noted, they cannot buy agricultural lands.

**Land Mortgage of Limited Utility:** The Land Code allows pledge (mortgage) of land plots under private ownership. Where a pledged land plot or land use right is converted into ownership of a pledge holder, the Land Code requires state approval. There are several restrictions on pledging of land plots and land use rights. For example, while pledges of temporary long-term land use rights is allowed up to the period of the lease agreement, the pledges of short-term chargeable temporary and gratuitous temporary land use rights are not allowed. A pledge or a mortgage agreement cannot provide for automatic conveyance of a land plot or land use right to the creditor or third parties nor the creditors can extract any returns from that plot of land. The classification (designated use) of the mortgaged land cannot be changed. The use of land as collateral is thus possible only to a limited extent and it is

debatable if commercial banks or non-bank lenders will ever be willing to go for lending against such restricted mortgages.

**Land Stock:** The Land Code has formalized a Special-Purpose Land Stock or Fund for purposes of redistributing lands to agricultural producers. This Fund comprises of land plots which eligible Kazak citizens and entities have refused to accept; lands with no heirs or heirs who have been deprived of land rights or those who have refused to accept inherited lands; as well as lands under enforced reservation by the state for reasons of owners not using the lands for designate purposes or in violation of other laws and regulations. The special-purpose land stock does not include lands unsuitable for agricultural production. Kazakh citizens who exited state-owned agricultural organizations because their lands were not subject to division and were not previously granted the right to a notional land share; peasants residing in a given territory and repatriates receive priority in allotment of reserve lands for establishing peasant farms or other agricultural production activities.

**Farm Restructuring:** Kazak Land Code makes special provisions for privatization and restructuring (including liquidation) of state-owned and collective farms, which reflect the experience with earlier initiatives in the Russian Federation, both Nizni Novgorod pilot and informal farm reorganizations.

The Land Code recognizes that employees, pensioners and persons engaged in industrial, social and cultural spheres on state-owned farms (for example, dairy workers, school teachers, nurses, and others who do not directly work on farms) have a right to a notional share in the farmland. Farm lands exclude certain categories of lands such as populated areas, lands included in special-purpose land stock, distant lands earmarked for cattle raising, chemically contaminated and overexploited lands.

The notional land shares of individual farm members are calculated in hectares by dividing the total area of the farm that is in use by the number of persons having the right to a notional land share, and in a similar way with reference to rank-hectares (rank of soil quality multiplied by area). The distribution of land shares is approved in a general meeting of a work collective of the farm to be privatized, providing required transparency to the process. The minutes of the general meeting are recorded and require approval of district land authorities.

Local governments confirm rights to land shares by issuing certificates within three months of the general meeting, and within one year from the receipt of certificates; holders of notional shares have the right to receive into ownership or land use (lease) a land plot against such shares and register land plots under separate (individual) or common (association or a company) ownership and land use. When a Kazak citizen ceases to be a citizen, his/her rights to a notional share are terminated.

Overall, the Kazak Land Code and its regulatory framework for land transactions is well-defined but has become overwhelming and complex under the weight of its numerous regulations and the ideological baggage that the prevailing Kazak political leadership carries. This means that the prospects of any meaningful and healthy development of land market in the country is unlikely to emerge in the foreseeable future except perhaps to a limited extent in long-term lease rights for which lease rents are fixed by the state. *On the positive side*, the Land Code has made a good beginning by recognizing land ownership and land lease tenures, which are fundamental to create necessary incentives to invest in land and improve its productivity. The Land Code also allows foreign nationals to lease land for business and housing purposes, a welcome feature to attract foreign investments, although ownership rights could be more meaningful and result in improving the investment climate in the country, especially for agribusiness development.

While Kazak land reform initiatives have evolved over time and formally dissolved soviet-style collective farming, farm restructuring per se, implemented since early 1990s was, seriously flawed with uneven results. In Kazakhstan, the Nizni Novgorod model that propagated democratic and transparent procedures of farm restructuring was not seriously used. Initially, the majority of farm members did not receive adequate information about their rights to land tenure and ownership of non-land properties. They were also not sufficiently informed about choices they could make with regard to formation of new legal entities including peasant or family farms. Many farm members were then unprepared to go in for private farming, as they did not have sufficient experience in total farm management or technical farm activities, apart from their own previous specializations in farm activities and did not know how to go about in securing credit, procure inputs, and sell outputs outside the state-controlled marketing channels.

Because of these aspects and often under pressure from former managers, many farm members pooled their land and non-land assets to form new large cooperative farms, with little or no change in the former collective style of management. For most of the newly organized farms, the limited farm restructuring that took place in early 1990s did not bring about much efficiency gain and the farms' financial condition continued to deteriorate. Farm sizes in Kazakhstan are generally large, the average area varying by agro-climatic conditions of the regions in which they are located. After initial restructuring (as of end 1998), larger farms registered as production cooperatives (2,380) had an average area of about 14,000 hectares per farm; corporate partnerships and joint stock companies (2,706), about 8,500 hectares per farm; and relatively small, so called peasant farms (85,000), about 450 hectares per farm. Production cooperatives, partnerships and joint stock companies accounted for as much as 70% of the total agricultural land. Farms in Northern and Central Kazakhstan range between 20,000-30,000

hectares (with 2000-6000 hectares of crop lands), while those in the South, with larger irrigated areas are relatively smaller. Farms with mixed crop and cattle production usually have about 1500 hectares, with 300-1000 hectares of croplands, depending upon feed requirements of cattle. Family farms located in cattle or fruit growing areas have lands up to 40-220 hectares, except that in cotton areas, farms have relatively smaller area 2-50 hectares. Household plots are of an average size of 0.8 ha and produce mostly potato and vegetables contributing as much as 45% of total agricultural production.

In 1996, the government, therefore, launched a new initiative to identify so-called “real owners or managers” and encouraged other farm members to lease out land and non-land property to these individuals, hoping that this would reduce the number of large cooperative farms and create smaller, more efficient, farming units. This effort also ended up without much success. Following the crisis situation in the farm sector in early 1990s, most farms became heavily indebted to the state, input suppliers and farm workers and were practically illiquid. Farm losses were caused primarily because of low prices for outputs due to continued state controls on marketing, exacerbated by the fact that input prices were liberalized. Due to the lack of creditworthiness, former state and collective farms did not have access to working capital either from the state or from the banks, which contributed to further decline in their production and productivity. In this environment, in spite of several initiatives that the government took toward land reform and farm restructuring, to create different forms of ownership and management, the expected outcomes did not materialize.

Against this background, in 1998, the government launched a new approach to farm restructuring based on an extensive application of the Law of Bankruptcy of 1997. This approach had dual objectives: first, to reduce the sector’s debt burden, which had rendered it (the sector) non-bankable, and second, to accelerate changes in farm sizes, ownership and management so that they could become more efficient and viable. For implementing this approach, the government classified all state farms and cooperatively owned large farms (Production Cooperatives; Joint Stock Companies and Partnerships) into three categories as follows. Group 1: Farms which were in sound financial condition and required no special restructuring effort (961 farms or 21% of the total); Group 2: Farms facing financial problems but having a reasonable chance of recovery (2811 farms or 62% of the total); and Group 3: Farms having no reasonable chance of recovery which must be liquidated (770 farms or 17% of the total).

Remarkably, over 1700 farms were taken through pre-bankruptcy procedures and reorganized into about 1250 new juridical entities (partnerships, joint stock companies and cooperatives) and 6675 peasant farms. The remaining non-viable farms were required to face liquidation. Some 380 farms, which had a reasonable chance of recovery, were



rehabilitated. On some farms, even the new bankruptcy approach was misused in that while debts due to the government were written off, there was no material change in FSU-style collective management. Farms in agriculturally less favorable areas preferred to go bankrupt and close down.

However a study issued by the FAO/World Bank Cooperative Program in June 1999 indicated that the "bankruptcy approach" to farm restructuring was fraught with serious problems as follows (World Bank, 1999).

First, Government authorities rather than the farms, which were taken first through a pre-bankruptcy procedure, initiated the bankruptcy of farms. This procedure had been adopted for two reasons: to protect moveable assets from being stripped from the farms and sold to buyers from outside the community; and to put in place a single owner-manager to improve management and accountability. Under this procedure, members of the Producer Cooperative (the commonest legal form prior to restructuring) were encouraged and assisted by local administrations to create one or more limited liability partnerships and to transfer remaining quality (principally non-land productive assets) into the name of the Partnership Director. This procedure protected cooperative assets from seizure through liquidation under the subsidiary liability for debts of individual cooperative members. In this way non-land assets could be kept on the farm and the cooperative members were freed from their debt burden, although they no longer owned the assets. After the assets had been moved to the new entity, the old producer cooperatives were taken through bankruptcy procedures.

Second, even though pre-bankruptcy restructuring relieved cooperative (farm) members of their debt liability, it raised several concerns: (a) it concentrated non-land asset ownership in the hands of a few individuals and reduced the status of the farm workers from shareholders to wage laborers. This was a direct and immediate negative distributional consequence of asset concentration. Often workers were encouraged to transfer their land entitlements as well to the new owners rendering them little more than landless laborers facing a very uncertain job market. The concentration of farm assets at the time of formation of the partnerships tended to reduce farm members' options for subsequent farm restructuring into smaller production groups or into family farms. The form of farm organization favored by the authorities was Partnership with limited liability, typically of a significant size (3-5 partnerships created from a single producer cooperative) but there was no strong economic or business justification for believing that the newly created partnerships would form an enduring and effective form of farm organization. Several aspects of pre-bankruptcy restructuring lacked transparency both in with regard to decisions to give ownership to current farm directors or in other cases, in the selection of outside investors (usually with involvement of local government authorities).

In essence the local government authorities were trying to pick “winners” in situations where their judgment could have easily swayed. Kazakhstan avoided fragmentation but at the expense of inequitable acquisition of leases by a powerful rural elite. Finally, commercial creditors had little confidence in bankruptcy procedures as long as pre-bankruptcy restructuring to avoid asset liquidation was possible.

The above study noted that there were several potentially viable farm types which suggested that government policy should have concentrated on facilitating the emergence of whatever farm types and structures are favored by the market (or by farm members through voluntary and transparent decision-making process a la Nizni Novgorod model), rather than trying to impose a blueprint of a specific organizational form after restructuring.

The effect of bankruptcy-led restructuring on former (and present) farm workers in many cases was adverse as they had to relinquish property (and often land) to escape from debt liabilities, with very little value left in their shares in the new farm. Such workers had not only lost the right to work enshrined in the soviet system but many were in fact promptly made unemployed. The workers in less favored areas were in a worse position than the former group because of the dearth of economic opportunities in their communities with the collapse of farming bases.

The FAO/WB study concluded that that while Kazakhstan’s attempts at farm restructuring helped to highlight the contrast in outcomes for farms in viable and non-viable areas (largely opened up under FSU’s Virgin Land Campaign), the pre-bankruptcy procedures were clearly not equitable and imposed unacceptable risks to farm members (shareholders).

On many farms, oblast (provincial) authorities favored formation of particular farm types and the selection of existing managers which negated or diluted the government’s declared policy on farm restructuring which envisaged that emergence of multiplicity of farm types (where individuals are free to break away to create family farms; join various forms of partnerships and create joint stock companies) suited to widely varying farm and market conditions. The procedures for farm liquidation should have also provided greater security for commercial creditors and loopholes in protection of farm assets must have been closed.

A recent World Bank study (2005) observed, “ By most accounts, Kazakhstan’s land reform has excessively emphasized preservation of large farms, many of which have been bought up by vertically integrated private grain companies (Esirkepov, 2001). Preservation of large farms has contributed to continuation of extremely uneven allocation of land from the Soviet times, while “share privatization” which made implicit promises to farm employees about land distribution that were not kept. Kazakh officials maintain that the land reform has favored efficiency over equity in an effort to avoid the fragmentation of land ownership observed in other countries.

However, the skewed distribution of land carries with it a skewed distribution of income, which will preserve rural poverty.”

“By 2002, the owners of conditional land shares in Kazakhstan’s former state and collective farms had exercised their rights in the following ways:

- 18 percent of shares were transferred as base capital to newly formed corporate farms. These shares were primarily those of former managers and specialists of state and collective farms, members of their families and other persons who were better informed or were entrepreneurial. These persons gained access to the assets of newly-formed farming companies.
- 29 percent of shares were transformed into physical land plots for forming family farms. The holders of these shares were primarily specialists from collective or state farms, who had agricultural machinery and financial resources.
- 4 percent were sold to commercial farms,
- 3 percent were transferred (given) to other persons,
- 18 percent remained unclaimed or were returned to the government. These were the shares of rural residents who either never claimed their shares or abandoned them, because they migrated to cities or other countries.
- 28 percent were leased out. These were primarily the shares of pensioners, social and cultural workers (doctors, teachers, etc.), the poor and those employed in other businesses.

According to the World Bank (2005) study, “following farm restructuring during 1993-99, the size of Kazakhstan’s corporate farms shrunk by two-thirds. A small portion of the area was taken from corporate farms to form family farms but most of the land was simply taken out of use. Nearly all of this was grazing land. At the same time the number of corporate farms in Kazakhstan fell from 7,000 to 4,600, so that the average size of a corporate farm fell from 29,000 to 12,000 hectares. Such farms are still far larger than even the largest categories of farms found in the United States (Hoppe, 2001).

The World Bank study also reports:

*“The average size of a family farm in Kazakhstan in 2002 was 312 hectares. The area under family farms grew rapidly from 1993 to 1997, but has grown more slowly since then. Still, the combination of reducing the average size of corporate farms and distribution of land for family farms has resulted in about 40 percent of cultivated land in individual farms”. This is indeed remarkable in spite of the government officials’ bias toward maintaining large farms.*

*Also, agro-climatic conditions in the country influenced the outcomes of farm restructuring. The reduction in corporate farms' size was dominant mostly in Northern Kazakhstan and increase in number and land under family farms was dominant in the South. In southern Kazakhstan, agriculture is specialized in fruit and vegetable production and a great deal of manual labor is used. Family farms are concentrated in the southern oblasts of Almaty, Atyrau, East Kazakhstan, Zhambyl and South Kazakhstan. The portion of land in individual (family and household) farms in these oblasts averaged 69 percent in 2002. In Northern Kazakhstan, where machinery is used to grow crops on large-scale corporate farms, joint-stock companies and associations replaced the collective and state farms. In the northern oblasts of Akmola, Kostana, and North –Kazakhstan, the portion of land in individual (family and household) farms averaged only 30 percent.”*

The focus of the Land Code's interim provisions however may lead to concentration of land in corporate farms emerging from former state and collective farms and reduce the land held in family farms. For example, Article 170 of the Land Code provides that Kazak citizens and non-governmental legal entities who have land plots granted under temporary land use rights for purposes of establishment of peasant farms and commercial agricultural production, have a right to purchase these land plots into private ownership. However, those who have such rights into secondary land use (sublease) were required to terminate such sublease agreements by January 1, 2005 and either cultivate the lands themselves or contribute these lands to business entities (corporate farms) emerging from former state and collective farms. Sub-leasing for peasant farms is now illegal. If prevailing peasant farms fail to act as above, local government authorities can potentially enforce them to do so using the provisions of the Land Code and place these land into district level special-purpose land stock. Government land policy is to discourage absentee or speculative ownership of land but the outcome could be the concentration of land in few hands.

In the spirit of discouraging absentee or speculative land ownership, Kazak citizens and Kazak legal entities who had previously purchased permanent, long-term, land use rights from the state for establishing peasant farms or commercial agriculture can now become owners of land plots without paying any additional cost to the state. They can also sell private ownership rights to these lands after 10 years from the date of registration of purchase, requiring them to actually cultivate the land for this tenure.

As for the holders of land share rights in former state and collective farms who have leased these out were obliged to sell (give up) that right by January 1, 2005 using following options: (a) purchase a land plot into private ownership; (b) receive a land plot into temporary common or separate land use for purposes of establishment of peasant (farmer) and/or for commercial agriculture; and (c) transfer the plot as a contribution into authorized capital

of a business partnership (entity), as payment for shares of a joint-stock company or as a contribution to a production cooperative. Here again, retaining absentee ownership of land shares in former state and collective farms is now illegal but since many leaseholders would not have cash to buy these lands, the restriction in question is likely to lead to expansion of land under former state and collective farms or their managers.

The World Bank study noted that bankruptcy and buyout process and state policies for corporate farms in Kazakhstan seemed to have improved profit performance of farms. Debt write-off was a part of the process, and the rise in agricultural prices after 2000 was probably also important. But there was ample qualitative information indicating that much of the profitability of corporate farms was boosted by access to substantial government support (subsidies) and credit programs funded in large part by oil revenues which indicated at least a partial continuation of soft budget policies of the past. Even with these supports and subsidies, nearly half of Kazakhstan's corporate farms remain unprofitable.

In northern Kazakhstan there are certainly some theoretical advantages to large-scale farms. Large farms, because of their higher sales and profits, can afford farm machinery, have scale advantages in marketing and obtaining finance for inputs, and access to markets and finance by merging with processors or export firms. But all these advantages depend on the ability of large farms to make profits and reinvest them wisely and they do not continue to be protected by the state from their creditors. The fact that nearly 50 percent of corporate farms in Kazakhstan are unprofitable raises serious doubts about whether large farms in northern Kazakhstan are actually able to exploit their theoretical advantages of being large while being financially sustainable.

The World Bank Study (2005) (based on a survey) indicated that in Kazakhstan, there is a positive perceptions of land reform among the population but this may be due the country's oil boom, revenues from which have helped the government to finance provision of rural services and continue subsidizing unprofitable large corporate farms, especially in the North. The oil boom has also raised the overall wage level and demand for labor, so that although land reform deprived people of their assets, they entered the labor market with relatively higher wages. The combination of three positive factors that ensure that farm households have access to wage income--rural development, maintenance of the large farm system, and rising wage levels--likely explains why Kazakh farming households do not seem to be more negative about the unequal distribution of agricultural land in the country.

In spite of government subsidies and credits, crop yields on corporate farms are stagnating while those on individual farms continue to improve, accounting for an increasing share in the total agricultural output. Agriculture

growth thus comes from family farms. The government claim that maintaining large corporate farms helps achieve “efficiency” over “equity” seems debatable. It appears that well-being in Kazakhstan may have improved in spite of the land reform process, due in large part to off-farm work opportunities and quality of service delivery in rural areas which the oil boom has helped to provide. In the longer run, however, the government policy must aim to improve rural incomes and employment by improving efficiency and productivity of corporate farms through market-based restructuring; deepening of land reform and land market; elimination of state subsidies; and improving overall agricultural policy environment, through continued emphasis on price policy and trade reforms, development of market-oriented rural finance and improving farm sector’s access to marketing and technical services.

## **Kyrgyz Republic**

For Kyrgyz Republic, land reform and farm restructuring has been the cornerstone of the country’s economic reform program with a focus on creating an effective market environment for improving farm productivity and profitability, and providing equal opportunities to citizens for development of various types of farm enterprises.

Soon after the country’s independence, the Kyrgyz government issued a Land Code of 1991, which retained the state ownership of land but allowed land to be given to enterprises, organizations and individuals under various tenure arrangements. As for agricultural lands, the 1991 Land Code recognized concepts of an “individual farm”, a “peasant farm” and “other types” of farm organizations including agricultural production cooperatives, association of peasant farms and joint stock companies.

However, the implementation of the 1991 Land Code did not make much headway given that the country was facing considerable economic difficulties including significant decline in agricultural production and productivity coupled with an uneasy socio-political environment, which was an inevitable outcome of the sudden transition that the FSU countries including the Kyrgyz Republic, were then faced with.

As stagnation and even reversal of the land reform process seemed to take hold, the government in 1993 suspended the reform process under the 1991 Land Code and introduced in 1994, a new Presidential decree to further reinforce land reform. This decree became the centerpiece of the legal framework for agrarian land and non-land property distribution and farm restructuring.

The 1994 decree (supplemented by additional decrees, government orders, and ministerial regulations issued in 1994, 1995, and 1996) authorized the distribution of rights to land from the former state and collective farms to individual farm households by issuing either State Acts guaranteeing 99-year user rights (with some restrictions) or Certificates of Right to Use a Land Share. It also provided for distribution of non-land assets (machinery, livestock etc) on state and collective farms to their members.

While the distribution of land and non-land property shares proceeded rapidly across the country except in one of the six oblasts (provinces), namely Chui where the progress had been slow due to local opposition to farm restructuring. Even after a decade, in Chui, land shares have still not been delineated at the ground level but have been allocated to larger fields that are farmed in common (or collectively).

Table 4: Land Use in Kyrgyz Republic (Million Ha)

Total Area	Agricultural Area	Pastures	Arable Land			
			Cultivated	Pastures	Forest	Total
20	10	10	1.2 (87%)	0.04 (3%)	0.14 (10%)	1.4 (100.0)

The Land Code passed in June 1999 recognized for the first time Kyrgyz citizens' right to own land as well rights that go with land ownership including right to sale, lease, donate, exchange, and mortgage land or do any other transactions including transfer of land in succession subject to certain restrictions of relative laws. The "state" and "communal" were the other two types of ownerships recognized by the 1999 Land Code.

Land plots for housing and dacha were granted to all households gratuitously (only once) throughout the country. The Land Code also provides that low productive agricultural lands can be granted by the state to Kyrgyz citizens free of cost for development of more productive agriculture. The owners of agricultural plots have the right to establish collective or other farms of economic management of the land, based on joint ownership (peasant farms), associations, cooperatives, and general partnerships. With regard to farm restructuring, the Kyrgyz Land Code gave members of former state and collective farms the following options including: (a) divide into individual and peasant farms; (b) divide into individual and peasant farms with voluntary reconsolidation into associations and cooperatives; (c) reorganize whole or part of the farms into joint stock companies; or (d) declare bankruptcy, with property sold by auctions to other producers.

While most of the agrarian land is now privatized, distributed and marked, and ownership certificates issued to shareholders of land, private farms hold about 42% of arable land; joint stock companies, collective peasant farms and producer cooperatives account for about 45%; and seed and breeding farms about 13%. The seed and breeding farms were originally kept in state ownership but have since been privatized. More than 84,000 private farms are reported to be now operating. Non-arable lands including pastures and forests are either in state or communal ownership.

The Land Code of 1999, besides protecting legal rights of land owners and land users attempts to serve a range of other objectives including preservation of land as a natural resource, security of state and ecological safety, targeting land use and agricultural priorities; and ensuring accessibility of information on rights to land. The Land Code covers all categories of lands including agricultural lands, settlement lands, (lands in cities, towns and rural and urban settlements), industrial lands, lands designated for transportation, communications, defense and other specially protected lands). In the process, the regulatory framework and related institutional arrangements for land administration have become very complex with potential to adversely affect the efficient use of land resources and rapid, market-oriented, development of the rural sector.

In 2001, the government addressed, at least partially, the concerns about complexity of land laws by passing a special law on Management of Agricultural Lands to regulate legal relations and promote more efficient and safe use of such lands. However, both laws, the Land Code and the Law on Management of Agricultural Lands, remain overly restrictive in many areas probably reflecting the prevailing political economy of the country as well as the influence of traditional social and inheritance laws and customary practices that govern the Kyrgyz society. It remains to be seen if the recent change in the government will lead to further economic reforms including liberalization of land laws.

Among major restrictions prescribed by the 1999 Land Code, the following may potentially constrain the country's transition to market economy and more efficient use of agricultural lands.

**A Large Segment of Agricultural Land Held in Reserve:** The Kyrgyz government has in the process of reform, created a large reserve of land, which formerly belonged to state and collective farms. Initially, about 50 per cent of the total irrigated land was transferred from state and collective farms to the Agricultural Land Redistribution Fund (ALRF). In later years, the allocation was reduced to 25 per cent. Some farms transferred unused and inefficiently used lands to ALRF but there are also instances where the farms were required to transfer their best, irrigated, lands to this fund. The ALRF's original goal was to create "peasant farms", with special consideration given to "traditional Kyrgyz ways of farming, through processes of auction and



short-term leases—with an underlying objective of redressing social inequities. Initially, the local governments who were responsible to manage the ALRF did allocate these lands to the needy but over time. They seem to be using the bulk of the ALRF lands for revenue earning (through leases) and show little interest in selling these lands to the needy. Even the land leases are limited to 5 years.

- It is questionable if the ALRF is achieving the underlying social objective. The ALRF governance may need a close watch by involving local communities in land allocation processes (including auctions), which still remain very much undeveloped. Also, in view of the uncertainties about the lease period, which cannot exceed five years, the lessees are unlikely to maintain or improve the leased lands and instead resort to mining of these lands for realizing maximum economic returns. It is, therefore, important to develop alternative sources of revenue for local governments and free up the ALRF lands for sale to those in need – and make a substantial contribution to reduction of rural inequalities and poverty.

**Sales and Purchases of Lands Highly Restricted:** While legal provisions for leasing of agricultural lands by individual owners and the state are relatively flexible those for sale and purchase of land remain very restrictive. Thus, privately owned agricultural land shares or land plots can be leased out without restrictions while lands in state ownership can be leased but subject to open competition which is essential for reasons of transparency and secure maximum possible revenue for the state. A sub-lease of state-owned land is prohibited. An owner of an agricultural land share can sell his share only to the other owners of the land shares in corresponding land plots, without any state fee. Also, an owner of an agricultural land plot can sell the plot only in its entirety as no subdivision is permitted.

- A buyer of an agricultural land must be a citizen of the country and of 18 or more years of age and should be a resident of the rural area for at least two years. The maximum area of ownership of a land plot or a land share is placed at 50 ha. If the owner of an acquired land share or land plot resells his/her land, he must pay to the state a fee equal to 50% of the purchase price in Year 1, 40% in year 2 and 10% in year 4. Lands allocated from the ALRF cannot be sold except in exceptional cases as approved by the national government backed by resolution of the national parliament. While the underlying objectives seem to prevent concentration of ownership and fragmentation of, and speculation in agricultural lands, the legal provisions to achieve these

objectives have practically stopped sale and purchase transactions restricting the emergence of an active and healthy land market.

- The situation is further exacerbated by the fact that the ownership of pasture lands still remains exclusively with the state, which, by law, cannot sell these lands. In Kyrgyz Republic, rural families complement their income from agricultural lands by grazing cattle and sheep on neighboring pasturelands. The Government needs to develop appropriate pasture use models, integrated with local agriculture and introduce long-term lease arrangements for individual or groups of rural communities.

**Land Mortgages Limited to Authorized Banks and Other Financial Institutions:** The Law on Management of Agricultural Land grants the right to receive such lands in mortgage only to banks and specialized financial institutions authorized by the National Bank of Kyrgyz Republic. If the banks and specialized financial institutions enforce mortgages of agricultural land shares, they must sell these shares to other owners of the land shares in the farm where the relative plot is located. Agricultural land plots can be sold to buyers who satisfy the criteria laid down by the Land Code and the Law on Management of Agricultural Lands – i.e. the buyer must be a citizen of Kyrgyz Republic, a resident of at least 2 years in the rural area and of 18 years of age or older.

- If banks and specialized financial institutions are unable to sell the mortgaged agricultural land shares and plots within three months from the date of possession, they must approach the Court to appoint an auctioneer to arrange the sale. If there is no buyer for the mortgaged agricultural land shares and land plots at the auction, the government buys the land share and/or the land plot at the “standard” cost. The use of the mortgage instrument, which is indeed critical for developing countries, to promote formal, longer-term, financial intermediation and investments in agriculture, is gradually expanding. However, overall, there is not only the need to liberalize restrictive provisions of the law on mortgages but also those on buying and selling of agricultural lands.

**Succession & Gift Laws:** The legal framework for succession to agricultural land shares and land plots seem to follow the Kyrgyz traditional law and allow such lands to be transferred to only one successor. The underlying objective probably is to ensure that at each point of succession, the land shares or the land plots do not get fragmented and that this resource is used for the benefit of the rural population. Accordingly, the land law provides that the successor should use these lands for his/her own benefit or dispose it of to buyers who must meet the criteria laid down by the Land Code and the Law

on Management of Agricultural Lands – essentially the buyer must be a resident of a rural area for at least two years. If the original successor cannot meet these criteria, he or she must transfer the land share or the land plot to another successor who will be able to do so. This is a complex arrangement which may potentially lead to leaving large parts of land either unused or deteriorated. The succession arrangements with regard to agricultural lands must be flexible and easy to administer to allow for efficient use of natural resources for the benefit of the society at large while protecting monetary interests of the successors and ways must be found to achieve this goal.

- Allocation to and Ownership of Land by Foreign Nationals Prohibited. The Land Code and the Law on Management of Agricultural Lands prohibit allocation and transfer of ownership of land to foreign persons except for a fixed term or temporary use as in the case of mortgage financing of housing construction. The allocation and transfer of ownership of agricultural lands to non-citizen Kyrgyz residents, Kyrgyz legal enterprises including joint ventures, and spouses (if one of them is a foreign national or a non-citizen resident is also prohibited. These restrictions are intended to ensure the fundamental principle of Kyrgyz Land Reform that the country's land belongs to the state and its citizens. However, a total ban on allocation and/or transfer of ownership of land to a foreign national or a non-resident Kyrgyz national could potentially hamper the flow foreign investments and technology for agricultural development especially in the areas of agro-processing, marketing and support services. There could be better ways to manage the transfer and ownership of land to foreign nationals and Kyrgyz joint ventures with foreign nationals within safe limits and containing speculation in land or repatriation of capital gains on such lands.

Overall, the new Land Code of 1999 read with the 2001 Law on Management of Agricultural Lands provides a comprehensive legal framework for protection and management of land tenures including land ownership, which can become more effective and conducive to land market development if restrictions on sale and purchase of lands are further liberalized.

As for farm restructuring, contrary to initial government expectations that most of the former state and collective farms will dismantle and restructure, as much as 45% of the arable land still remains under collective management structures, essentially unchanged from those of the command economy era. The constraints to or lack of incentives to the restructuring of

collectively managed farms are still prevalent, in varying degrees, in Kyrgyz Republic. While overall macro-economic framework is becoming increasingly conducive for agriculture, there remain administrative interferences in markets and movement of goods, such as multiple licensing requirements and imposition of informal fees on road traffic; customs union and free trade zones are ineffectual; input and output prices are liberalized but irrigation water and power for agriculture continue to heavily subsidized; there is proliferation of subsistence agriculture with small marketable surpluses and high prevalence of barter transactions; government practice of collecting taxes in kind and payment of pensions and salaries in kind continues at local levels which seems to impede the monetization of agricultural economy (World Bank, 2002).

Not much recent empirical evidence is available as yet in Kyrgyz Republic to indicate whether collectively managed farms under private ownership are more efficient than erstwhile state farms or state-controlled collective farms. However, there has been gradual growth and diversification in agricultural output since the year 2000 in most FSU countries, which seem to indicate that intrinsic benefits of private ownership coupled with partial liberalization of agriculture are beginning to emerge although these are still much below the potential. In Kyrgyz Republic, agricultural output in 2002 as a percentage of 1990 (pre-FSU) level was 102% but the question is whether the 1990 level of agricultural output was optimal? A Childress and Mogilevsky, 2000 study done with reference to 1999 crop year indicated that:

*“As of January 2000, 47 per cent of the 1.4 million ha arable land in the country had come under the control of small and medium sized farms under the control of 69,000 small and medium farms cultivated since independence in 1991. The other 53 per cent was still managed by 600 corporate-collective farm enterprises, which have maintained much of the structure of their predecessor state and collective farms under a variety of new legal forms. Thus far, net returns for all types of production agriculture are low in terms of their ability to generate household income much beyond subsistence at average size of land endowment. Differences in net return among formally defined farm types are not statistically apparent: neither more corporate-collective or individualistic farm management structures can be regarded as superior at present time. Neither are simple scale effects apparent in regression equation modeling the relationship between operational sizes or scale can be considered as a systematic dimension of difference in returns. ... There are significant regional differentiation in returns with areas in the densely populated southern region (Osh and Jalal-Abad) showing the highest returns per worker and the relatively land abundant oblasts of Talash and Chu in the northern region displaying the largest returns per hectare. The interior mountainous region of Naryn showed negative returns for both indicators”.*

If the large segment of collectively managed agricultural lands in Kyrgyz Republic must become more productive and contribute to overall economic growth, there may be a need for further liberalization and deepening of the land laws to allow for accelerated restructuring of farms based on market forces in conjunction with further improvements in overall agricultural environment by reducing government interventions in input and output prices, marketing, trade and strengthening farmers' access to credit and technical services.

The World Bank and ADB have been assisting Kyrgyz Republic in the areas of land reform and farm restructuring. A World Bank-assisted Agricultural Support Services Project (ASSP), approved in 1998, through its Land Component, provided funds and technical assistance to the Kyrgyz government to accelerate the initial privatization of land through issuance of land certificates to a large majority of rights holders. This work was later complemented by passing by the Kyrgyz Government, in 1999, of a Law on Registration of Rights in Immovable Property, which provided the basis for creation of a reliable and well-functioning system of registration of rights in immovable property. Another World Bank-assisted project, the Land and Real Estate Registration Project, approved by the Bank in June 2000 (with a closing date of June 2007), assisted the Kyrgyz Government to carry out the institutional development of GosRegister, including the establishment and operationalization of some 50 registration offices across the country with Swedish technical assistance in wide-ranging areas of cadastral surveys and mapping; land registration processes; land administration; land valuation and taxation; IT design for computerized registration system for future Land Information System and the preparation of business plan for GosRegister (the Registration Agency) to enable it achieve financial viability. ADB has so far provided a policy-based Agricultural Sector Loan and three project loans for agricultural development and rural finance with the latest project focusing on constraints in farm restructuring.

## **Turkmenistan**

Turkmenistan's constitution adopted in 1992 formally recognized private ownership of land. However, during the following years, land reform progressed very slowly. During the first five years of the country's independence in 1991, little land was transferred to private ownership except for small private (dacha) plots granted to individuals. These plots were converted from inheritable possession to private ownership by a Presidential Decree of February 1993. The February 1993 decree also permitted allotment of land up to 50 hectares to individuals from the state land fund

(comprising of virgin lands and lands previously cultivated but currently not used by existing farms). This land, however, could not be sold, exchanged or sub-leased.

*Table 5: Land Use in Turkmenistan (Million Ha)*

Total Area	Agricultural Area	Pastures and Meadows	Arable Land			
			Cultivated	Pastures	Forest	Total
49.1	40.3	32.4	1.6	0.2	1.4	3.2

It was only in 1995 that Turkmen government announced that the practice of collective cultivation of land was unjustified and converted all 570 state and collective farms into farmer associations (Deykhan Birliskik), one association per farm. This was followed by a comprehensive land reform legislation passed in December 1996, which allowed farmer associations to lease land to their members. The leases were conditional in that the leaseholders were required to grow and attain targeted yields in selected products (especially wheat and cotton) for at least 2 years to become eligible for 10-15 years of lease, a requirement that was designed specifically to serve the system of state orders in commodity production. Also, lease land allotments to individual leaseholders were not based on principles of equity but on types of crops that were or would be grown on those lands as required by the state order system, namely wheat or cotton. Wheat growers usually received leases for say 10 hectares each while cotton growers for 2-3 hectares each. This was based on government estimates of per hectare income, which for cotton was 2-3 times higher than that for wheat.

The 1996 program was the natural extension of the family-lease contracts that were practiced in virtually all large farms in Turkmenistan since independence in 1991 and in some cases even earlier since 1986. By January 1998, 1.488 million hectares of land (87.5% of the total cultivated land area) was under the control of the farmer associations leased to some 398,000 families, of which 21% families produced grain on 661,000 ha. (39% of the total) and 65% of families produced cotton on 582,500 ha (65% of the total). Only 52 of the 398,000 leaseholders were granted ownership of land on a pilot basis.

While land tenure rapidly moved from collective structures to a family-based lease structure, the leasehold rights passed on only to a few leaseholders in farmer associations and beneficiaries of land allotted from the Land Fund. Much of the agricultural land still remained in state ownership, which the leaseholders must cultivate as directed by the state. As at the end

of 2000, about 15% of the agricultural area was in use by households and private farms while about 85% of the agricultural land remained with peasant associations (former state and collective farms), which were allocated to households under family leases of 10-15 years of duration. The phasing out of the state order system remained critical for deepening of land reform whereby the ownership and/or leasehold rights to land could pass on to leaseholders and they were allowed to operate in a market environment. Clearly, Turkmenistan, being a slow reformer, remained an outlier even among the slow reformers in the Region including Kazakhstan, Tajikistan and Uzbekistan. The Turkmen government was not ready until recently for grant of even limited ownership rights, with full rights of sale, gift, exchange, leasing, subleasing, mortgaging and protection from government administrative procedures that take back the land.

The Turkmen government was not even ready to provide long term leases with a right to sub-lease to help create incentives to leaseholders to invest in land, maintain land and create a land market for trading in land-lease rights. It also failed to recognize that farmers should have the choice to grow any crop that is profitable in response to market signals; use land as collateral for obtaining credit; and lease or sub-lease if needed, so that owners or long-term lease holders could efficiently operate in a market environment which required that the land reforms were de-linked from the requirements of the state order system.

*“State Order System: Key objective of Turkmenistan’s agricultural policy has been to achieve self-sufficiency in food production and increase production of crops intended for the export market. In support of these objectives, the government has subjected the production of wheat and cotton to state orders. These crops are planted to over 80% of irrigated land, on 1.2 million hectares out of 1.4 million hectares. Decisions concerning area to be sown and yields to be achieved for individual crops are taken by government agencies and not by producers. Government provides substantial input and credit subsidies, over 50% of the production cost, to producers of wheat and cotton. It controls procurement, processing and marketing of these crops (exports in the case of cotton). The government regulates both input and output prices. There is no cost recovery for irrigation (except when used in excess of the quota), energy, and transport of produce to marketing points.*

On the positive side, the state order system has indeed brought about a remarkable integration of input supply, production, processing and marketing, which most of the transition economies have found it problematic to achieve. However, much of the increased production has come about by increasing the area planted to the two crops, rather than any significant improvements in yields. Expanding area under wheat and cotton in a desert country like Turkmenistan involves severe irrigation losses, soil salinity and water table problems. This also involves mono cropping on large areas

ignoring technologically required crop rotation, which is leading to degrading of soils, spread of diseases and lowering of yields. The lack of good quality seed, inadequate supply of fertilizers, poor state of agricultural machinery and sufficient supply of agricultural chemicals have seriously constrained productivity improvements in both wheat and cotton.

While Turkmenistan has a demonstrated competitive advantage in producing cotton, the area to be planted to wheat must be determined by economic efficiency and commercial profitability of the crop vis-à-vis other crops including cotton. The situation is exacerbated by low prices paid by the government for wheat and cotton producers: lower than international prices adjusted to farm gate. The difference is substantial in the case of cotton and lesser so in the case of wheat, which has affected producer incentives.

Both wheat and cotton on the one hand are implicitly taxed and on the other subsidized by low cost credit and no cost recovery on irrigation infrastructure and operations and maintenance cost. There is also no cost recovery for energy used for irrigation and other purposes. The disincentives created by low output prices are generally not been reversed by input subsidies. Various studies have shown that the state order system is confronted with serious technical, economic and financial efficiency issues which would potentially have an adverse effect on agriculture's productivity, profitability and sustainability, leading to reduced rural incomes and increased rural poverty. Farm budgets show low returns on both wheat and cotton. The low yields of wheat and cotton per hectare (with some exceptions) are indicative of the lack of incentives to producers.

Besides enormous inefficiencies involved in the use of scarce national resources, especially irrigation and energy, the state order system has also delayed the implementation of the land reform program which is so vital for improving incentives to farmers to invest in and maintain land quality, as well as privatization of state-owned input supply, procurement and marketing agencies which operate with characteristic inefficiencies." Extracts from the Author's Agricultural Sector Study in Turkmenistan, 1999-2000. There are no significant changes in the state order system since then except for the 2004 Land Code provision that allows farmers to operate outside the state order system by giving up government subsidies for inputs and irrigation.

It was only in 2004, after three years dismal cotton crop, the government was compelled to reintroduce some the basic land reforms that were tried earlier but retracted because of the fear that land could end up in a few hands and the country may not be able to reach its production targets. The government proposed a two-pronged approach to land reforms: (a) on one hand, all farmers would be allowed to lease land and decide their own crop rotations and (b) on the other, the state would pool all land, technical and support resources into shareholder societies and offer financial incentives to farmers to join these societies. Accordingly, Turkmenistan adopted a new



Land Code in October 2004, the fundamental principle of which was that agricultural land belonged to the state and would be given to those people who tilled these lands. The new Land Code provides that:

- **Housing, Garden and Dacha Plots.** All households, urban and rural, now have the right of ownership of garden and dacha plots (0.10 ha. for urban lands and from 0.12 to 0.16 ha for rural plots);
- **Eligibility for Notional Land Shares in Former State and Collective Farms.** Workers of former state-owned and collective farms; forest farms; and persons providing services to former state, collective and forest farms such as doctors, nurses, teachers are eligible for land plots;
- **Limited Land Ownership** Turkmen citizens/farmers may own up to three hectares of land but they cannot sell, exchange or transfer this land except to their children subject to the condition that they use this land for the intended purpose (i.e. agriculture), maintain productivity of the land; and pay the rent (tax) stipulated by the state.
- **Leasing of State-owned lands.** The state could also lease land plots up to 10-16 ha. to individual farmers and farm families for periods up to 10 years, the size of leased land depends upon its location and fertility;
- **Formation of New Shareholder Societies.** Shareholder societies (emerging mainly from former state and collective farms) should pool together resources currently available through various government departments and organizations, including ministries, government organizations, enterprises, families and individuals who would be able to use these resources including agricultural machinery and water at rates subsidized up to 50%;
- **No state subsidies for Farmer Outside the Regime of State Orders.** Farmers have right to remain independent (i.e. not join the society); be not bound by state orders; and have the freedom to grow any crop they choose but in such cases, they would not be entitled to any subsidies on use of the societies' resources or government subsidies.
- **Selective Leasing of Large Plots of Lands.** In irrigated areas of former state and collective farms, former managers, members, associations, groups of farmers, can lease up to 200 ha of land for 10 years and above provided they agree to follow the cropping pattern prescribed by the government, which means that this program is again linked with state orders or state production plans

in specific commodities. Subleasing of this land is prohibited unless agreed by the state.

- **Pasture Lands in State Ownership.** Pasturelands will continue to belong to the state and local governments/land authorities would determine individual and communal rights for seasonal grazing and cut-and-carry practices.
- **No land ownership rights for Foreign National and Entities.** Foreign nationals and entities can rent lands under agreements with the state but in practice this would apply mainly to mineral and oil explorations and not for agriculture. The state retains the right to confiscate the land if it is not used for intended purpose for two consecutive years; the lessee leaves the area; or the land is required for public use.

Overall, in Turkmenistan while declining agricultural production and productivity have persuaded the Government to go a step forward on land reform, there remains much reluctance on its part to give up the old practices that favored running the country's agricultural sector as "one big state farm" where farmers must produce what the government wants, with limited or no role to play for national and international market forces.

There remains the lack of effective incentive framework for farmers and farm workers, which is critical for improving farm production and productivity, even in crops that the government wants them to produce. The government intervention in agriculture covers state orders for 100% of wheat and cotton, except for recent liberation for individual farmers who must give up government subsidies and technical and marketing services if they do not want to comply with state orders.

It is unlikely that in a regulated economy of Turkmenistan, farmers will take the risk of operating outside the state orders, except where farms are located near urban centers, have irrigation and green houses, and are able to produce cash crops such as vegetables for year round consumption.

For example, the government subsidizes input prices for cotton and wheat production up to 50% and there are no costs attached to irrigation water if used for these crops. The government regulates trade in that imports and exports must be registered with the state exchange, which amount to de facto licensing requirement. The government controls all cotton exports including prices paid to farmers and margins downstream. The state also controls all input services and agro-processing businesses. In this environment, it is unreasonable to expect the Government to provide the required commitment and priority to genuine land reform and land market development.

In sum, farmers should have the choice to grow any crop that is profitable in response to market signals; use land as collateral for obtaining credit; and own, lease or sub-lease additional lands, if needed, so that they

could efficiently operate in a market environment, subject to reasonable ceilings on total land holdings on the basis of equity considerations. This implies that the scope of private ownership and leasing of land must be expanded, without any linkage to the state order system, which needs to be phased out in conjunction with broader agricultural sector reforms.

## **THE CHALLENGES AHEAD**

Land reform and farm restructuring programs in Kazakhstan, Kyrgyz Republic and Turkmenistan (as well as in Tajikistan and Uzbekistan) evolved gradually, influenced as they were by difficult economic conditions; agriculture's dominant role in respective economies (except perhaps in Kazakhstan); presence of large rural populations and their dependence on land for employment and incomes; rural poverty especially in Kyrgyz Republic; limited natural resource availability (especially land and water); and above all, political and social ideology that they inherited from the days of Soviet Russia that management of state assets must benefit societies at large.

In this context, land reforms introduced by all three countries, Kazakhstan, Kyrgyz Republic and (to an extent) Turkmenistan were quite radical, particularly in granting outright ownership rights to millions of households in respect of land for housing, personal gardens and dachas; introduction of individual and peasant farming either on ownership or longer term lease basis; and provision of a framework for privatization and restructuring of former collective and state farms.

Overall, while individual farming increased in all three countries and the privatization of former state and collective farms proceeded rapidly, farm restructuring in terms of changes in operational structure and production practices were slow to be realized. Collective farming practices still dominate significant proportions of agrarian land in all three countries; the majority of these still operate with their intrinsic inefficiencies. Unfortunately, the processes developed by the Nizni Novgorod model and other informal pilots were not effectively incorporated and deployed for restructuring of former state and collective farms in Central Asian countries.

Although there is no straight forward correlation between the speed of land reform and/or farm restructuring vs. performance of the agricultural sector as a whole, there is sufficient empirical evidence available internationally (especially from East European countries which practiced collective farming under the Soviet influence) that privatization of land does stimulate entrepreneurial initiatives, investments, outputs and efficiency (productivity) in conjunction with economic environment that is conducive for farms to achieve optimal outcomes. While Central Asian countries have

made much progress toward achieving macro-economic stability and taken steps to liberalize major input and output prices (except for cotton and wheat in Turkmenistan), much remains to be done in eliminating the distortions created by massive subsidies for irrigation and power as well as in improving market infrastructure and streamlining trade regimes.

In the case former state and collective farms in Central Asia, as in most other FSU countries, mere privatization of land shares was not sufficient to make a difference, especially because it was not backed by concurrent demarcation of actual land parcels with owners given an opportunity to reorganize operational structures of the farms into more efficient economic units, choosing various organizational forms (peasant forms, associations, and joint stock companies). Further, while the productive superiority of state-owned and collective farms was indeed mistaken and, given the opportunity, workers/members of these entities would have indeed gone for restructuring. They did not do so as, over the decades, these farms did not just remain the means of production but also engaged in providing farm workers with a wide range of services including health, education, transport and recreation. Farm members did not want to leave these collective structures for the fear of losing access to these services (Deininger, 2005). As in other FSU countries, the local governments in Central Asian countries have since taken over the responsibility for provision of social services to former farm workers and their families, in many situations, these are either unfunded or inadequately funded mandates. This makes farm workers to continue to remain with collective structures. Further farm restructuring would necessarily depend on the progress in making local governments capable of providing required social services through cost recovery for services rendered, revenue generation and funding by higher levels of budgetary sources.

Inequality has risen dramatically in all Central Asian states including in Kazakhstan, the Kyrgyz Republic and Turkmenistan and poverty rate is particularly high in Kyrgyz Republic (48%). Kazakhstan and Turkmenistan are lower middle-income countries with per capita GNI of \$1780 and \$1120 respectively as against \$340 in Kyrgyz Republic, which is a low-income country.

Kazakhstan is an oil-rich country while Turkmenistan is the one of the world's largest natural gas exporters. They would probably finance rural social services and subsistence issues using oil/natural gas revenues. In the mountainous Kyrgyz republic, however, per capita incomes are only starting to recover at a slow pace from a very low level. In all three countries, there are varying segments of rural populations who are poor, especially in more remote parts of the region. Land reform programs may have to address the poverty issue by ensuring that poor families receive land plots of reasonable sizes, with secure ownership or longer term lease tenures to provide them employment and incomes. Implementation of land reforms programs in

poverty groups would be indeed critical to prevent potential social unrest and conflicts. It is said “reform should not be guided by efficiency alone, but also take equity into account”.

Land reforms in Kazakhstan, Kyrgyz Republic and Turkmenistan do not explicitly address gender issues except perhaps for inheritance law that may entitle women to land ownership or leasing rights. As the recent World Bank study noted, “Land ownership confers direct economic benefits as a key input into agricultural production, as a source of income from rental or sale; and as a collateral for credit that can be used for either consumption or investment purposes. However, women may not participate in these benefits as members of households if they do not share formal property rights over the land; only independent or joint ownership can ensure that women have an access to control over land-based earnings. Formal rights to land for women can have an impact on household decision-making, income pooling, and women’s overall role in the household economy. But land is a particularly critical resource for women when household breaks down in the event of male migration, abandonment, divorce, polygamous relationships, or death. In both urban and rural settings, independent real property rights can mean the difference between dependence on natal family support and the ability to form a viable, self-reliant, female headed household” (World Bank, 2005). The Central Asian countries may have to squarely address this issue in their own socio-political context and promote explicit reforms in safeguarding women’s land tenure/property rights.

Finally, while Land Codes in Kazakhstan, Kyrgyz Republic and Turkmenistan have elaborately outlined responsibilities of government institutions and organization at various levels for purposes of land law administration, some are nascent while others have very limited institutional capacity. Institution building must therefore receive high priority. Also, well-functioning markets for credit and other factors of production are critical; however, such markets do not emerge automatically but require high level of institutional and legal infrastructure that is still lacking in many of the transition countries including those in Central Asia (Deininger, 2005). This is an area that is being currently being addressed by International Financial Institutions and bilateral donors but more needs to be done by the countries themselves as land reform and farm restructuring processes deepen to effectively address emerging grassroots level problems, on a continuing basis.

The Unfinished Agenda in Land Reform for the three Central Asian Countries of Kazakhstan, Kyrgyz Republic and Turkmenistan is still very large and complex. It will take significant political will and leadership for successful implementation. Kazakhstan and the Kyrgyz Republic have demonstrated their potential to undertake radical reforms but Turkmenistan is still operating in a Soviet style command economy. As these countries move toward political reforms leading to establishment of democratic and transparent societies, hopefully, they will accord high priority to the implementation of further land reforms including farm restructuring, moving away from collective structures to more efficient units based on individual ownership.

## REFERENCES

- Deininger, Klaus 2005. "Land Policies for Growth and Poverty Reduction" –A World Bank Policy Research Report.
- Dudwick, Nora, Farin Fock and David Sedik, 2005. " A Stocktaking of Land Reform and Farm Restructuring in Bulgaria, Moldova, Azerbaijan and Kazakhstan.The World Bank (ESSD, ECA), Washington, DC.
- Hoppe, R. 2001. Structural and Financial Characteristics of US Farms: 2001 Family Farm Report. Agriculture Information Bulletin No. (AIB768) 101 pp, May 2001
- Lerman, Zvi K. Brooks, and C. Csaki 1994. *Land Reform and Farm Restructuring in Ukraine*, World Bank Discussion Paper 270, The World Bank, Washington, D.C. 124 pp
- World Bank, The. 1998 Staff Appraisal Report, Kyrgyz Republic, Agricultural Support Services Project, April 3, 1998.
- World Bank, The. "Central Asia: Ten Years of Transition" Report, The World Bank, Washington, DC.
- World Bank, The . 2002. "Central Asia, The Agrarian Economies of Central-Eastern Europe and the Commonwealth of Independent States: An Update on Status and Progress in 2002". ECSSD Working Paper No. 37. Washington, DC
- World Bank, The. 1999. Review of Farm Restructuring: A Report Prepared (by Emerging Market Economies Ltd., London) for FAO/World Bank Cooperative Program.
- World Bank, The, 2002. Reaching the Rural Poor in Europe and Central Asia Region. ESSD Working Paper. Washington, DC.
- World Bank, The 2005. " Gender Issues and Best Practices in Land Administration Projects: A Synthesis Report." Washington, DC
- World Bank, The. 2004. Implementation Completion Report No. 26986. Washington, DC.

## CHAPTER 7

# GLOBALIZATION, WATER AND CHANGING POLICIES IN THE ARAL SEA BASIN

Bakhtiyor Mukhamadiev

*Tashkent Institute of Irrigation and Reclamation, Uzbekistan*

Ulugbek Akhmedov

*Tashkent Institute of Irrigation and Reclamation, Uzbekistan*

## INTRODUCTION

Economic integration among inter-dependent countries has become multifaceted, involving economic production and transnational resource mobilization, allocative decisions and intermediation. Central Asian countries are still relatively new in the world economic affairs. They have been involved in the globalization process since the beginning of their economic transition to a market oriented system since 1991. This integration had a tendency with shifts towards new markets, which generally has increased their participation in international trade (UN-ESCAP, 2003) and the inflow of foreign direct investments. The region's abundant natural resources (Seivers, 2001), comparatively advantageous agricultural base and high human resources potential are the foundations to advance further their economic progress and effectively integrate into the global economy.

Water, regarded the region's scarcest and shared resource, has been subject to the rules of interstate joint management and conditioned by the growing sectoral competition at the national scale and between countries, and also under increasing pressure due to impact of climate change and recognition of higher standards for environmental protection and rehabilitation. Beyond these problems, some very unusual events also threaten

to undermine the water security situation in the Aral Sea Basin. A re-emergence of decade-old scheme of transferring the Siberian river flow to the region, a rise of hydropower markets dictated by those who are not really concerned with water situation in the basin and attempts to introduce payments for transboundary waters are definite signs of water globalization specific to the Aral Sea Basin. This paper outlines and addresses these specific threats of globalizations for the water resources management in the Aral Sea Basin.

## **GLOBALIZATION AND WATER ISSUES IN CENTRAL ASIA**

For over fifty years, the world economy has been growing more closely integrated in terms of trade and capital flows. To a great extent, globalization is simply a continuation of that trend. While various aspects of globalization have been examined, the most important, and often neglected factor is the emergence of the global linkages for responding to the problems caused by market forces. It complicates the management of global economy, which is, in substance, the most controversial issue in the global agenda. This controversy also extends to how freshwater is to be obtained, managed and provided to the world's people. A concept of water as an economic good has appeared, following the International Conference on Water and Environment in 1992, leading to heated contentions among the water community around the world. In the last decade, the proposal that freshwater should be increasingly subject to the rules and power of markets and international trading regimes has been put into practice in a number of countries affecting the lives of millions of people. There is also an obvious tendency observed in the form of gradual increase in shifting of development funds from global and regional financial institutions, such as the World Bank, the Asian Development Bank and the European Bank for Reconstruction and Development, to private multinational corporations, such as the Vivendi SA and the Suez Lyonnaise des Eaux.

Development banks have traditionally been susceptible to public pressures and, as such, have developed procedures for evaluating social and environmental impacts assessments in their decision-making processes for projects funding allocated to state-members. On international waters, each development has guidelines that generally prohibit implementation of a project unless all riparians agree to the project (World Bank, 2001). For example, while the World Bank retains its own operational policies for projects on international waterways, the ADB and the EBRD have broadly defined policies with respect to environmental protection. Operational Policies of the World Bank on international waterways are applicable to a range of activities including hydroelectric, irrigation, flood control, navigation, drainage, water



and sewerage, industrial projects. Under its policy, the World Bank requires the riparian state (beneficiary) proposing the project formally to notify the other riparians on the details of the planned activity to receive their consents and if the latter raises objections to the project, the Bank has the right to discontinue processing the project. Private multinational corporations have no such restrictions, and countries thus develop controversial projects. The best examples of these projects now include Turkey's GAP project, India's Narmada River project, and China's Three Gorges Dam that are proceeding the studied avoidance of development banks.

There is a more subtle effect of globalization, which has to do with the World Trade Organization (WTO) and its emphasis on privatization and full cost recovery of investments. Governments have traditionally implemented and subsidized water development systems to keep water prices affordable for users, but under increasing pressure from the forces of globalization, they are becoming more vulnerable to proceed further development through private companies. The multinational companies, in turn, manage profit, and, if they use development capital this is only headed for full cost recovery of their investments. Unless controlled, this can translate into not only immediate and substantial rises in the cost of water, disproportionately affecting the poor, but also to a greater eradication of local management systems. In contrast, privatization and, hence, "commodification" of water are in direct conflict with human and ecosystem rights to water and debates loom large over the future of water resources between market and social forces.

## **VOICES OF WATER GLOBALIZATION IN THE ARAL SEA BASIN**

To a certain extent, a re-emerged plan of Siberian river flow re-distribution to the Aral Sea Basin - the so-called *SibAral Canal Project* - may be regarded as some kind of renewed geopolitical factor in the sphere of water globalization. This mega-project has recently been reanimated and being a subject of heated debates between proponents and opponents of it. The idea of transfer of water from north-bound rivers to the Aral Sea Basin came up as one of the possible alternatives during the former USSR to meet the growing demands of expanding irrigation in the region in 1970s and also to relieve a growing pressure on regions' surface waters to rehabilitate and sustain damaged ecosystem functioning in the region. According to the project proposal submitted to the State Planning Committee of the former USSR in 1980, it was planned to construct a canal with a total length of about 2,500 km, a width of 200 m and a depth of 16 m, from the nearby area of Siberian city of Khanty-Mansiysk of southern Russia to western Uzbekistan through

Kazakhstan to replenish the Amudarya and Syrdarya Rivers near the Aral Sea (Gazeta et. al, 2003). One of the specific technical characteristics of this proposed scheme was that the water flow in the canal had to be lifted for 110 m in total by means of eight pumping stations with an annual energy requirement of 10.2 billion KWh/hours. In 1980s, a rough calculation concluded that an estimated 40 billion rubles were needed to invest for the project implementation. The project envisioned supplying 27-30 km<sup>3</sup>/year of water to Central Asia, an estimated 6-7% of the River Ob's annual flow. The appearance of this project at the end of the 1970s was followed after approval of and due to the Federal Food Program. The Evaluation Committee which met in 1983, however, rejected it with reference to its infeasibility noting, "*...the proposed scheme does not meet essential criteria for the successful implementation of the Food Program*".

A return of the mega-project back to the table has been due to the socio-economic hardships that have appeared following the break-up of the Soviet Union in domestic economies of the newly founded Central Asian States. The land-locked countries of the region are still in a phase of deep socio-economic transition, absorbing the effects of former economic ties and the shifts from a centrally-planned to a market economy. Independence in 1991 was followed by several years of decline in GDP, employment, incomes and budget revenues. Severance of the administrative and economic links with the former Soviet States has led to the loss of northern markets. Transition speed and extent vary among States, as reform measures fluctuated between conservation of existing structures to avoid economic, social, political disruptions and rapid reforms to advance the transition process. Each State has started to address inefficiencies and lack of competitiveness of state entities in industry, agriculture and services and distortions in the pricing of goods, services and natural resources. Heavy reliance of State economies on agricultural sector proved especially problematic for immediate reforms, and input and output prices of agricultural production have remained vague all over the region. The budget decline has led to deferred maintenance and degradation of the vast infrastructure assets and rules of economic activities are still frequently uncertain. Central Asian States, to a great extent, also suffered from a continuing war in Afghanistan, which had constantly raised security issues and absorbed resources for protection against any threats from the south. Tajikistan especially suffered from long internal strife at high economic and social cost.

The return of peace and economic progress to Afghanistan has brought a renewed interest in the development of irrigation and hydropower potentials of Afghanistan's Amu Darya tributaries (AIA, 2002). Outcomes of the Tokyo Conference on Reconstruction of Afghanistan and recent report of the Afghan Interim Authority (AIA) outline major priorities of the government in rebuilding the country's economy, which include, inter alia, national water

resource investment sub-program. According to the program, Afghanistan plans to 'restore existing irrigation infrastructure and also develop dams and storage reservoirs in order to retain water for household consumption, irrigation and power generation.

Beginning since 2002, international plans to rebuild the economy of the Afghanistan will inevitably lead to intensification of the water security situation in the basin (Mukhamadiev, 2003). An increase in water consumption in the upstream areas will, without any doubt, damage the existing water users further downstream in Uzbekistan and Turkmenistan. Any change in present allocation principles in the Amu Darya will further have its effects on the allocation rules among the riparians of the Aral Sea Basin. Against these backgrounds, one has to admit, that Afghanistan cannot solve its problems without developing nation's water resources.

Moreover, climate models are predicting large decreases of rainfall in the region. Figuratively speaking, for the past 35 years the average temperature in the region has risen to 1°C and it is also estimated that the global warming has decreased the capacity of the Pamiro-Alay Glaciers 22%. One of the possible scenarios predict that by 2020, the regional water deficit will further reduce from 6 to 20 km<sup>3</sup>/year (or 5... 15% of the total available water resources of the basin) (SIC Project, 2002).

These very backgrounds have escalated concerns in the region. A response was a common understanding in the region that it is vital to facilitate and implement a set of demand management alternatives with the highest, priority given for increased water saving in all economic sectors utilizing water resources, especially in irrigated agriculture, and promote gradual shifts in uses among industries and sectors (Dukhovny, 2002).

The World Bank and other international organizations that studied the issue of water in the region have concluded and subsequently advocated to change agricultural crops to those that require less water to irrigate, and even promoted policies of substituting national irrigation practice for "virtual" water (Dukhovny, 2002). These appeared to be in conflict with national strategies in each of the basin States where achieving food security was the primary concern in their domestic economic policies. These policies have been subsequently backed up with introduction of various tax and custom barriers for foreign importers of food products in order to facilitate domestic production of foodstuff. A re-appearance of the SibAral Project again on the water agenda of the Aral Sea Basin politics has been initiated by the potential recipients of the water themselves, on the one hand, to ensure that a long-term food program is secured and to help mitigate the severe environmental conditions around the former coastline area of the Aral Sea. On the other hand, the project received international economic and political dimensions. Elements of water globalization made it attractive for the present Russian Government, which

sees the scheme as a way to retain and strengthen its weakening influence in the region using water as an instrument of power.

A rise of *hydropower markets* may be regarded as the second latent form of water globalization affecting the water security situation in the Aral Sea Basin. It displays itself as a capable form of driver with an implication to exert changing patterns on the management, development and allocation of water resources in the basin. This particular trend is characterized by changing the regimes of the hydropower stations with a purpose to boost hydropower generation in the interests of out-of-basin countries, which, hence, are not really concerned with the issues of water resources management in the region. The appearance of a new actor in the hydropower market of Central Asia - the Russian energy giant the RAO UESR (Joint Stock Company - Unified Energy System of Russia) - is the striking example of this trend.

The water-rich upstream countries of Kyrgyzstan and Tajikistan in the Aral Sea Basin, first of all, utilize their water resources to meet their energy demands and concurrently to apply certain pressures on downstream riparians. The RAO UESR and the Joint Stock Company "Energy Stations of Kyrgyzstan" on behalf of the Government of Kyrgyzstan have concluded an agreement to supply, in winter times, 800 million KWt/hr of energy from the Kyrgyzstan's Toktogul Hydropower Station (HPS), located on the upper reaches of the Syrdarya Basin, to the Russian Siberia (RAO UESR Press Release, 2003). This means that, from now on, the Toktogul HPS will abstract additional 1,100 million cubic meters of water in winter regime, and it may go well beyond the framework of meeting the Kyrgyzstan's energy demand under basin-wide agreement on the use of water and energy resources of the Syrdarya River Basin (Syrdarya Basin Agreement, 1998). If the supply of energy to Russia will be generated from the total capacity of the Toktogul HPS, this will be in conflict with the demands for water of the downstream countries and they will face the shortage of irrigation water in the summer periods. In addition, representatives of the Russian energy sector are contemplating a construction of the Kambarata hydropower stations (Kambarata I and II) on the upper tributary of the Syrdarya, the Naryn River in Kyrgyzstan. At the same time, Russia and Tajikistan have concluded agreements on reconstruction and putting into operation of a number of hydropower plans on the two main tributaries of the Amudarya River, the Vakhsh and Pyandj Rivers. Whatever the plans, the Russian RAO UESR will become one of the key decision-making bodies in electricity transmission operations in the future, and this may be dictated by the growing energy demands in Siberia, and in the near future, similar demands may be addressed in neighboring countries of Pakistan, India and Iran, where the price of energy is much higher. This form of water globalization may bring severe negative impacts on sustainable development of all downstream countries in the Aral Sea basin.

An attempt to introduce *charges for transboundary flow* into upstream and downstream water relations in the Aral Sea Basin may be regarded as the third type of trend in water globalization process. The most recent confirmation for this comes in the debate surrounding the Kyrgyzstan law on interstate water use (Kyrgyzskoy, 2001). This law declares Kyrgyzstan to be "one of the major sources of water from the countries of Central Asian States". It then states that Kyrgyzstan's national policy with regard to the use of transboundary water resources originating in Kyrgyzstan and flowing outside its borders will be shaped around introduction of payment for water use in interstate water relations (Heltzer, 1998). By declaring this, the Law recognizes that water is a good with a market price and its sale should consider world prices, and that Kyrgyzstan has a right to be compensated by the other states of the region for the expenses and losses suffered in operating its water facilities serving for the benefits of these states.

Proponents of this Kyrgyz law argue that none of the above runs counter to international law and without providing much support they also claim that the charges for transboundary waters are already a global norm. It is clear that Kyrgyzstan de-emphasizes existing uses, downstream impacts and the vital human needs of the downstream states and other relevant water's social and ecological values, despite emphasis placed on them in customary law and under major international water conventions (UN, 1996). Under international water law, neither of the riparian states in the basin possesses the right to take unilateral actions on a watercourse that will cause or substantially interfere with existing downstream uses, at least without any notice, prior consultation and consent of the states, and also an environmental impact assessment.

## CONCLUSION

The above illustrated case-factors are the products of the globalization process affecting water security situation in the Aral Sea basin, and they will continue to contribute to shape the future of water politics in the Aral Sea basin. If to look through the prism of water security issues than it appears that globalization has, in many respects, negative implications for the development of downstream countries in the basin. Economic development of these countries is largely predetermined by further progresses achieved in agricultural sector, whose further improvement, in turn, depends on sustainable and guaranteed water delivery. At the national level, the significance of water's role in the economy is readily illustrated by the comparison of the gross figures for the proportions of water used in various sectors of an economy and the relevant GDP figures. In the Aral Sea Basin, agricultural sector consumes 85%

of water and generates close to 30% of the GDP. Moreover, it creates jobs for overwhelming majority of the working population whose very livelihoods and their quality depend on incomes generated in the sector. This makes us to conclude that it is crucial achieve and ensure that any decisions regarding major water management investments affecting overall water management regime must be made with the full participation of all riparian countries; otherwise this will undermine trust and the foundation of regional cooperation in the sphere. Ultimately, Central Asian leadership should recognize the limitations to the extra-regional forces in the dynamics of water politics and must give consideration to them in their strategic planning and decision-making.

## REFERENCES

- Afghanistan Interim Authority, National Programme for Reconstruction, National Water Resources Investment Sub-Programme, available at <http://www.export.gov/afghanistan/index.html>.
- Agreement Between the Governments of the Republic of Kazakhstan, the Kyrgyz Republic and the Republic of Uzbekistan on the Use of Water and Energy Resources of the Syr Darya Basin, 17 March 1998
- Akhmedov U, 2001. "Liberalization possibilities in water management of the Republic of Uzbekistan", Tashkent Institute of Irrigation and Land Reclamation, 2001
- Dukhovny, V.A. 2002 "Report on Project Inception Phase". Project "Integrated Water Resources Management in Ferghana Valley". January, Tashkent: ICWC.
- Gazeta.Ru, 2003. *Kanal imeni Yu.M.Lujkova* (A Canal named after Yuriy Lujkov), 4 February 2003, available at <http://www.gazeta.ru/print/2003/12/04/lujkovpredla.shtml>.
- Government of Kyrgyzstan, 2001. *Zakon Kyrgyzskoy Respubliki o mejosudarstvennom ispolzovanii vodnykh obyektov, vodnykh resursov i vodokhozyaistvennih sooruzenii Kyrgyzskoy Respubliki* (Law on Interstate Use of Water Bodies, Water Resources and Water Structures of the Kyrgyz Republic), 23 July 2001, available at [http://www.dundee.ac.uk/law/iwlri/Research\\_Documents\\_National.html](http://www.dundee.ac.uk/law/iwlri/Research_Documents_National.html). President Askar Akayev signed the law into effect on July 23, 2001.
- Helsinki Rules on the Uses of the Waters of International Rivers, 1996. 52 Int'l L. Ass'n 484 (1966); UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Helsinki), 17 March 1992, 31 I.L.M. 1312 (entered into force October 6 1996).
- Heltzer G. 2003. Stalemate in the Aral Sea Basin: Will Kyrgyzstan's New Water Law Bring the Downstream Nations Back to the Multilateral Bargaining Table? *Georgetown International Environmental Law Review*. Vol 15 (2): 291-320.
- Mukhamadiev, B. *What will be the impacts of Afghanistan's increased water utilization on downstream States?* (Unpublished working paper on file with author).
- RAO-UESR Press Release from 18.09.03, available at <http://www.ao-ees.ru/rii/news/pr/pr180903post.htm>.
- Sievers E. 2001. *The Caspian, Regional Sea and the Case for a Cultural Study of Law*, 13 *Geo. Int'l Envtl. L. Rev.* 361 (2001).

SIC IC . 2002. Dialogue on Water and Climate: The Aral Sea Basin Case Study (2002). SIC IC WC Project No 12.130.021,

UN-ESCAP 2003. *Managing Globalization in Selected Countries of Central Asia*, Publication of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), UNP ST/ESCAP/2274 (2003)

World Bank Operational Manual, 2001. Operational Policies, Projects on International Waterways, OP 7.50 (June 2001, Washington D.C.)



## CHAPTER 8

# AGRICULTURE REFORM POLICIES IN UZBEKISTAN

Max Spoor

*Institute of Social Studies, The Netherlands*

## INTRODUCTION

Uzbekistan's agricultural sector is crucial for its contribution to employment, food security and foreign exchange generation and has cushioned the negative impact of the shock after the breakdown of the former Soviet Union. Uzbekistan has done quite well in avoiding a dramatic contraction of its economy, and started its recovery since 1996. However, the model of resource extraction and surplus transfer out of agriculture, which was implemented by the Uzbek government, has put serious strains on the most crucial sector of the economy and rural dwellers in general. The sector received only marginal investments (mostly focused on the rapidly deteriorating irrigation system), and money income of the rural population that is largely depending on agricultural activities shows deterioration, causing increased disparity in comparison with other sectors of the economy. The urban-rural duality has actually become more pronounced during the first decade of transition, with rural poverty becoming a severe problem. According to a recent household budget survey (2000-2001) of the World Bank, rural poverty in Uzbekistan was estimated to be 30.5 percent. Although this is only marginally higher than estimated urban poverty, the signs of stagnation in the agricultural sector, the dependency on water resources that are becoming more scarce, and the reduced soil quality in various regions, might well increase this gap in the near future.

The Uzbek agricultural development strategy during transition can be characterized by three phenomena. Firstly, in comparison with several other FSU countries, in Uzbekistan only a slow and gradual land reform was implemented. Only very recently, since 2003, a move towards enterprise

restructuring and privatization of the large-scale farms (*shirkats*) was introduced. Administrative institutional arrangements of (planned) land-use and state procurement of the strategic crops of cotton and wheat at low official prices have remained until now. However, all other agricultural domestic output markets were liberalized in the early 1990s. By that time the heirs of the state (*sovkhozy*) and collective farms (*kolkhozy*) had been reformed into a cooperative (joint stock company) form (later called *shirkat*), and the already functioning land lease system gave some more space to the households (*pudrat*) in these farm enterprises. This policy supplemented the early reforms that provided more access by individual households to small (subsidiary) plots of land for subsistence and production of high value products for the market, such as fruits, vegetables and meat. These household plots had a symbiotic relationship with the large farm enterprises as their workers produced additional food and income on the household plots, and additional household income was generated while using subsidized collective inputs. The development of 'private' or 'independent' farms did not take-off until late in the 1990s, mainly because of the overall existing land shortage, opposition by the rural elite and a lack of market institutions necessary for the individualization of farming. With the current transfer of *shirkat* land to private commercial (leasehold) farms, however, it seems that the final phase of the Uzbek agrarian reform is underway.

Secondly, the development model during transition in Uzbekistan was based on resource extraction of the agricultural sector, in particular cotton, and also by the available natural gas reserves. The outflow of a net-surplus from the agricultural sector (as the subsidies in terms of inputs and credit were outstripped by the taxation through the procurement system), provided the budget and the authorities with substantial domestic finance. This made it possible to finance some key investment (energy and industrial) projects and particularly urban infrastructural development. The transfer can therefore not be seen as an overall finance for industry, as only particular projects (such as the car industry in Andijan) were chosen for strategic (import substitution-related), rather than economic reasons. The implicit taxation of agriculture was realized by the price differentials between administrative procurement prices and world market prices, minimum state procurement quota for grain and cotton, in combination with the growing wedge between the official exchange rate and the curb or (in the early years of the sum), the *bazaar* rate.

Thirdly, the government made an early policy decision to move towards self-sufficiency in wheat production, as part of a strategy of 'economic independence'. It did not want to become dependent on food imports (from for example Kazakhstan) in a situation where external market-ties were still weakly developed. Therefore, embarked on an import substitution strategy in relation to wheat, while remaining largely dependent

of the exports of 'white gold'. Meanwhile, the urban population was subsidized through controlled flour and bread prices.

This paper will analyze the development of the agricultural and rural sector in Uzbekistan within the framework of the development policy that has been implemented (implicitly and explicitly) as sketched in this introduction. Section two will provide a brief overview of the structure of the sector at the outset of the transition period, focusing on land tenure, dependency on cotton as a quasi-monoculture, and the legacy of the planning and procurement system, and the importance of the sector in the national economy. Section three goes into the changes that took place within a context of gradual reform, in particular in the institutional arrangements that typified the sector. These comprise the changes in land tenure, the fragmented and often state-led input and output markets, and the surplus-transfer mechanism through the procurement of cotton and wheat.

Section four analyzes the trends in agricultural output and productivity, while also discussing the forced move towards food self-sufficiency, its impact on the sector, and the rapid growth of output in the household (garden plot) sector and *dekhkan* (household-based) farms. A dual agrarian structure emerged in the 1990s, with still only a small sector of so-called 'private farms'. In spite of substantial recovery and growth over the past 5 years, it shows signs of strain. Many of the still existing large *shirkat* farms are insolvent, with substantial accumulated debts. The government has recently chosen not to move into the direction of a re-distributive land reform, but towards the formation of medium-sized commercial private (leasehold) farms, betting on a modernization drive to be undertaken by these newly formed private commercial farms

However, there are major problems in terms of investment and maintenance of the irrigation systems, soil salinity and declining productivity. Market institutions have hardly been developed, wages are abysmally low and credit is difficult to obtain for the newly created private farms. Agriculture has been the 'employer of last resort', but there are currently important changes in the labor market. Furthermore, in the restructuring of the insolvent *shirkats* in the new commercial private (leasehold) farms, labor is shed, and unemployment is on the rise, with certainly negative consequences for rural poverty.

Section five will discuss the growing rural inequality and poverty. Although a generalized access to small garden plots guarantees a certain degree of income equity, a new class structure is growing in the Uzbek countryside, in which the 'private', the *dekhkan* and the *shirkat* farmers form distinct categories, ranging from better-off to poor peasants. Access to land is unequal, regional inequalities are large, in part to be explained by resource endowments and distance to markets, while non-farm or non-agricultural employment is often not available. Poverty is more a rural than an urban

phenomenon, and in some regions (Kashkadrarya, Khorezm, Karalkalpaka, and some districts of the Ferghana valley) extreme poverty rates are high. There is a growing urban-rural development gap, which is insufficiently tackled. This seems to be even more important in the specific case of Uzbekistan, as its development model has been and is still very dependent on the performance of the agricultural sector.

In the final section a summary of the conclusions is given and a number of observations made on the current state of agricultural transformation in Uzbekistan, in particular the latest wave of *shirkat* restructuring and privatization into private commercial units, in which the Uzbek government has chosen for 'economics of scale' (which are questionable concepts in relation to agricultural production), and the 'optimal farm size', based on efficiency arguments. It will be shown that this move will neither be efficient, nor equitable, and that the political economy of this third phase of land reform is very much related to a desired by the government to keep on controlling surplus extraction.

## **'COTTON IS KING' AND THE SOVIET LEGACY**

Cotton, grain, fruit, vegetables and livestock were widely produced on the territory of what is now Uzbekistan. However, during its inclusion into the USSR, the crop-mix changed. After the collectivization in the 1930s, cotton became more and more important, while it grew during the period 1960-1985 from 1.4 million hectares until nearly 2.0 million hectares (Spoor, 1993). Cotton transformed in a quasi-monoculture, and the Uzbek SSR in one of the world's largest producers of cotton. The cotton sector developed into the most important supplier of employment.

The sector became the 'playing field' of powerful interest groups in society, a political economy, which continued in existence after independence, as the 'white gold' became a crucial foreign currency earner. The exclusive emphasis on cotton also led to diminishing the -beforehand prevalent- systems of crop rotation, with wheat, alfalfa and the important production of fruit and vegetables. Finally, cotton cultivation, the use of chemical inputs and the dramatically increased demand for water, was the main cause for the emergence of severe environmental problems. These are the increased soil salinity, land erosion, water pollution (with salt and residues of fertilizers and pesticides), and the drying-up of the Aral Sea (Spoor, 1998).

Since the collectivization period of the 1930s, Uzbek agriculture was also organized into state (*sovkhoz*) and collective (*kolkhoz*) farms. When the country became independent in 1991, around 2,000 of these large-scale farms held most of the arable land. A small share of an estimated 3 percent was held

by 2 million households in the form of garden- or subsidiary plots, with an average size of 0.12 ha (Lerman, Garcia-Garcia and Wichelns, 1996). As elsewhere in the former Soviet Union, the household sector produced a comparatively much higher share of output (20-25 percent), as it concentrated on high-value crops and livestock, and produced with high labor and land productivity. It also used subsidized inputs from the large-scale farm, in combination with household labor resources.

The very specific feature of Uzbekistan's agriculture is of course that the country has vast areas of agricultural land, but only 4.2 million irrigated (and therefore arable) land. Additional very small areas can sustain themselves with rain-fed production. Cropland is only 9.1 percent of the total surface of Uzbekistan. At the outset of the transition the average irrigated land availability per capita was 0.37 ha per rural inhabitant, which with substantial population growth during the decade has declined to 0.28 ha/capita in the year 2000. Therefore land pressure is high in general, but even more specifically in certain densely populated areas such as the Ferghana valley (Dukhovny, 2000).

Agriculture has been and still is the single most important sector in the Uzbek economy. During the early period in transition, national accounting was still done by the Soviet system of material product balances, and is not very reliable. However, the share of agriculture was largely around 30 percent of GDP. There was only one outlier in 1996, when the harvests of grain and cotton suffered from severe draught (see Table 1).

Nevertheless, the given average share severely underestimates the importance of the sector for the national economy. Not only around 65 percent of the population is rural, and 35 percent of the labor population is active in agriculture, a much higher share of the rural population is dependent on the sector, whether in subsistence agriculture, or in informal activities related to agricultural inputs and outputs. Agricultural exports (in particular cotton fiber) contributed 35-40 percent of total exports in the past decade.

Furthermore, cotton processing, textile production, knitting, sewing, weaving, shoe making, food processing, dairy products production, represent important industrial activities that process primary agricultural output. It has been estimated that this sector contributes another 5 percent to GDP. Agriculture furthermore is an important market for the supply of domestically (and imported) produced commodities, such as agricultural machinery, fertilizers, pesticides, fuel and electric power. The importance of agriculture in Uzbekistan is therefore larger than what can be deduced from its contribution to GDP.

Table 1. Share of Agriculture in GDP (1992-2001)

Index	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
GAO/GDP	35.4	27.8	34.5	28.1	22.4	28.3	26.8	29.0	30.1	30.2	..	..
GDP (%) <sup>*</sup>	-1.1	-2.3	-5.2	-0.9	+1.7	+5.2	+4.3	+4.3	+3.8	+4.5	+4.2	+0.4
GAO (%) <sup>†</sup>	-6.2	1.3	-7.3	2.2	-5.6	+5.8	+4.1	+5.6	+3.2	+4.5	+6.1	+5.9

Source: Department of Statistics, Ministry of Macroeconomics and Statistics, Tashkent; Khan (2005);

Notes: \* Annual growth of GDP. † Annual growth of Gross Agricultural Output.

In summary, the agricultural sector of Uzbekistan has absorbed much of the initial shock of the transition, as it had a crop-mix which contained a readily tradable commodity (cotton), that brought in substantial of foreign exchange in the sudden absence of budget transfers from Moscow. Furthermore, the cotton sub-sector became the basis of the surplus extraction strategy and provided a large employment base.

## INSTITUTIONAL REFORMS IN AGRICULTURE

Uzbekistan has followed a gradual reform path in the agricultural sector in comparison to other countries in the former Soviet Union. Although it is difficult to differentiate clear stages of reform, the changes in land tenure were, until the late 1990s, rather cosmetic of nature, apart from the redistributive expansion of the household plots that took place in the first few years. Most of the reforms were taking place in the sphere of markets and prices, and in relation to the degree of coverage of state procurement.

In response to popular demand, the government expanded access to household plots, a process that had started since late 1988. By 1993, a total of 650,000 new households had received plots and 1.6 million households had been able to augment the size of their plots. The overall number of households with plots had reached 2,5 million, and the average size per family increased from 0.12 ha to 0.19 per family (Lerman, Garcia-Garcia and Wichelns, 1996). The land distribution took various years, as little land is available, and the government – after independence – decided not to break-up the large-scale farm enterprises at once.

The *sovkhozy* and *kolkhozy* were converted into collective farms, which often only meant a change of name. As they remained largely within the planned system (as far as cotton and wheat concerned, the country's strategic crops) of delivered inputs and procurement of output, this did not mean that there was a move towards privatization. The system of

subcontracting to families [already introduced since the late 1980s], was continued, although there was very little freedom for the household to decide about what to grow and where to sell the output, except on own their garden-plot. Within the collective farms, for a large part of the 1990s, the soviet-type planning system remained in force.

However, on the ground, several experiments, within the margins of the system, were undertaken, such as splitting very large farms into somewhat smaller ones, and management that was decentralized to a certain degree. Even some farms were transformed into joint stock (shareholding) companies (with shares given to their workers) since 1996. Therefore, until late in the decade the agrarian structure remained a dual one, with on the one hand the strictly controlled collective farm enterprises, and on the other hand the very small-scale household plots. The latter were producing most of the high-value agricultural products, such as tomatoes, potatoes, milk, meat and eggs. Much of the livestock also came into the hand of the households, and the large-scale enterprises nearly exclusively focused on cotton and increasingly also on wheat, as the Uzbek government embarked on a wheat self-sufficiency policy, which was forced upon the collective farms.

The new type of farm enterprise that was supposed to become important, as it was introduced with legislation the Law on Peasant Farms of July 1992, was the peasant or *dekhkan* farm. Originally they were intended to become farms of between 10 - 20 hectare, hence quite different in size from the household plots. Since 1999 the term *dekhkan* is used for a formalized form of a household (plot) farm, which uses the household labor force and the private plot given to the head of household for lifelong inheritable ownership. At the same time, state ownership of land remained unchanged, with only different forms of leaseholds in place. They encountered -with often only marginal lands from the collective farms being allocated to them- very fragmented or even missing markets of inputs and farm output, which made their chances of survival rather slim. The household or subsidiary plots numbered 3,362,400 in 2001. In this category the *dekhkan* farms (with which since 1998 now is meant the formalized household farm) have 1.8 million units, covering 290,000 ha of land, with an average of 0.16 ha/*dekhkan* farm (TACIS, 2001:73-74). The *dekhkan* farms (just like the garden-plots of most often similar size) have land with life-long inheritable usufruct rights. The maximum size is 0.35 ha of irrigated land per capita, and up to 0.5 - 1.0 ha of non-irrigated land or in steppe or desert areas. The garden-plots of rural and also urban dwellers that are not considered as *dekhkan* farms, cover around 200,000 ha, with an estimated average of 0.13 ha. The average acreage of arable irrigated land can, however, be substantially smaller than this amount. The official minimum is 0.06 ha (or 6 *sotka*).

At the beginning of 1998, several important laws were adopted, which allow to facilitate the process of reforms in agricultural sector: the Law

on Agricultural Cooperatives, the Law on Farms, the Law on *Dekhkan* Farms, Law on State Land Cadastre and the Land Code. One could see this as the second phase of the land reform, but equally so it can be considered as speeding up of the gradual process that was started in the early 1990s. The most important change was that the collective enterprises were transformed into cooperatives (*shirkats*).

Since 1998, a process of financial sanitation of economically insolvent agricultural enterprises (*sanatsia*) is underway. The Law on Sanitation of Agricultural Enterprises, adopted on 1997, was issued in order to promote the financial sanitation economically insolvent enterprises in the country. In some cases, the process of sanitation ends in reorganizing the farm into private (leasehold) farms, a process which has been speeded up since 2003 (Kandiyoti, 2003).

Table 2: 'Private' Leasehold Farms in Uzbekistan (1992-2004)

Year	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
Number	1,900	5,900	7,500	14,200	18,100	18,800	21,400
Size	7	8	9	14	15	15	15
Acreage	13,300	47,200	67,500	198,800	271,500	282,000	321,000
Year	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002*</b>	<b>2003</b>	<b>2004</b>	
Number	23,000	31,100	43,800	55,400	87,550	103,900	
Size	19	21	20	19	24.5	28	
Acreage	437,000	653,100	889,600	1,054,700	2,148,100	2,929,980	

Source: Department of Statistics Ministry of Macroeconomics and Statistics, Tashkent; Khan (2005)

Note: Data is given for January 1<sup>st</sup> of each year, except for 2002. This reflects the situation in October 2001.

This also contributed to the recent rapid growth of the private [leasehold] farm sector (Table 2), although they still have substantial difficulties in terms of their limited decision making power regarding their crop-mix and sales. These private leasehold farms, when they are producing wheat and cotton, are still covered by the planning and state procurement system, which is -in spite of the reduction of the official procurement quota- still largely in force.

The private or independent leasehold farms now number 55,400, occupying a total acreage of 1,054,700 ha. In particular during the period 1998 - 2002 there is been a rapid growth of this sector, in number of farms and the total acreage they cover. They received long-term land lease rights with a length up to 50 years. As stipulated by law cotton and cereal farms should have minimally 10 ha of (irrigated) land. Horticultural farms, vineyards and other intensive crop farms should have no less than 1 ha, while



in livestock breeding there is a minimum of 30 animals stipulated and at least 0.30-0.45 ha of irrigated land or 2.0 ha of non-irrigated land.

In many cases the farms are still within the boundaries of the *shirkats*, and therefore these are dependent on the vagaries of the *shirkat* management, with regard to access to water and other inputs. Given the fact that the practice of partial allocation of land from collective and *shirkat* farms did not prove to be successful, in line with governmental resolutions, in recent years more than 7,000 'private' farms were established on the territory of 138 unprofitable and 'dead-end' *shirkat* farms.

In the process of division of the large-scale farms, land is allocated to newly established private farms, sometimes including the farm workers that traditionally worked the land. The private farm will then have to pay wages or sub-contract the work to these families. Finally, at regional (*oblast*) and district (*raion*) Associations of Private and *Dekhkan* farmers have been established, which should have the role of supporting both categories, but sometimes forms a new intermediate bureaucratic layer of control.

Until 2002 the *shirkats* still remain predominant with 65 percent of the arable land. However, in these agricultural enterprises, several changes took place in the management, and the operation of the family leaseholds. The *shirkat* farmer works in a *pudrat*, that represent a leasehold contract with a family. Since 1999 the responsibility for keeping the farm accounts (on inputs used and output produced) has been shifted to the *pudratchi*. This is a further step towards financial independence of the leasehold, but given the planning and procurement system which is enforced on the cotton and wheat farms, the room for maneuver is still restricted, while the production risks have been passed on to the leasehold families (Kandiyoti, 2002).

Since 2003, a major change in government policy towards the *shirkats* was introduced, namely the rapid transformation of most of them into private commercial (leasehold) farms. While 'land hunger' amongst the rural population is quite large, and (see below) rural poverty severe, the leadership has chosen for enterprise restructuring and privatization (at least towards leasehold farms), rather than the more obvious step to a re-distributive land reform. Khan (2005) correctly points out that the current process of privatization is far from transparent, and it seems indeed that the rural (and urban) elite takes the opportunity to become a new landlord class in Uzbekistan. It is not efficient, as small-scale farms could be equally productive or even more than medium-size or large farms (also when it concerns cotton). It is certainly not equitable, which would be very important in the case of Uzbekistan. The move seems to reflect the political economy of authoritarian power in Uzbekistan, and the strive of the elite to keep control over resources and in particular over value-chains and resource extraction, through intervention in marketing systems.

## Resource Extraction from the Agricultural Sector

The planned system of inputs and state procurement is still largely in force with regards to the two strategic crops, cotton and wheat. This has meant throughout the decade that low procurement prices were paid to farms, in comparison to world market prices, in particular when one takes into account the large wedge between the official exchange rate and the market curb rate, meaning a large outflow of resources, through implicit taxation. On the other hand, agriculture continued to receive subsidized inputs (fertilizers, pesticides, and water). As a net result agriculture has been and is still taxed. In the early years of transition the net transfer was very high indeed. In 1993 it was estimated that for cotton taxation minus subsidies was 883 million USD, and for wheat (with a much smaller output than in the second half of the decade) there was an additional net outflow of 83 million USD (World Bank, 1994). In 1998 the net transfer was 500 - 600 million USD (Kandiyoti, 2003).

If one would compare these net transfers with GDP, its formable size can be noted. The World Bank estimated this (at a notional, or hypothetical exchange rate), for 1996 as 4.8 percent, for 1997 as 3.2 percent and for 1998 as 6.6 percent, but they might well be higher (World Bank, 1999). During the years 2000 - 2001 world market prices fell and the wedge in the multiple exchange rate system reduced, which meant that the net transfer dropped substantially. However, it is clear that during much of the decade the cotton sector has proven to be the 'milk cow' or 'goose with the golden eggs' for the economy. It is also important to understand that the reduction of state procurement quota for cotton and wheat do not really represent the reality for farms and farm enterprises.

In table 3 it can be noted that quite soon during the decade of the 1990s state procurement was withdrawn from all agricultural sub-sectors, except cotton and grain. The data on the quota should however be understood as procurement percentages of planned output. Planned output for cotton has been consistently higher than actual output, in particular since 1995, which has meant that farms had to sell a larger share of their cotton at official (very low) procurement prices. Although the rest should have been sold at negotiated prices, in order to stimulate production, in practice this above-plan price was just nominally higher.

Therefore a much larger share of cotton is bought by the government - who holds a full monopoly of cotton exports- at official procurement prices, than is officially stipulated. This is to the detriment of the farms and agricultural enterprises. In the case of wheat the situation is slightly better. Half of the official quota is sold at -again low- procurement prices, and the other half at a ('negotiated') price, which is 20 - 30 percent higher. Most of the rest can be sold at market prices, which -depending on the season- can be

twice or three times the official procurement price. Nevertheless, also in wheat the planned output has been the norm, and the difference between plan and realized output has been very large in the second half of the decade. Only in 2002, it was decided that procurement quota would be related to actual output.

*Table 3. State Procurement of Agricultural Products (1991-2002)*

Type of Product	1991	1992	1993	1994	1995	1996	1997	1999	2001	2002
Wheat	100	100	80	75	50	50	50	50	50	50*
Cotton	95	85	80	75	60	40	30	30	30	30
Vegetables	100	50	50	-	-	-	-	-	-	-
Fruits	100	100	50	-	-	-	-	-	-	-
Tobacco	100	100	80	-	-	-	-	-	-	-
Meat and Milk	100	100	80	50	-	-	-	-	-	-

*Source: Centre for Economic Research, Tashkent. Report of National Consultant on Agriculture.*

*Note: \*In 2002 it was decided, by the Decree of the Cabinet of Ministers No. 306 dated of 29 August 2002, that this procurement share would be on actual, rather than planned output.*

If one takes the official procurement prices for cotton, and deflate them by the GDP deflator (1992 =100), there is a substantial drop in real price, which can be expected in a period with very high inflation such as 1993-94, after which a slight recovery followed in 1995. However, by the end of the decade, official prices are only around one third of the price level of 1992 (see Figure 1).

In order to come to some kind of reliable measure of how the domestic terms of trade have developed for cotton producers, this indicator is only indicative, as one should then look precisely to prices of inputs (still mostly subsidized) and consumer goods that are being bought by the farmers. In the absence of such calculation one can nevertheless conclude that there was a substantial loss in purchasing power.

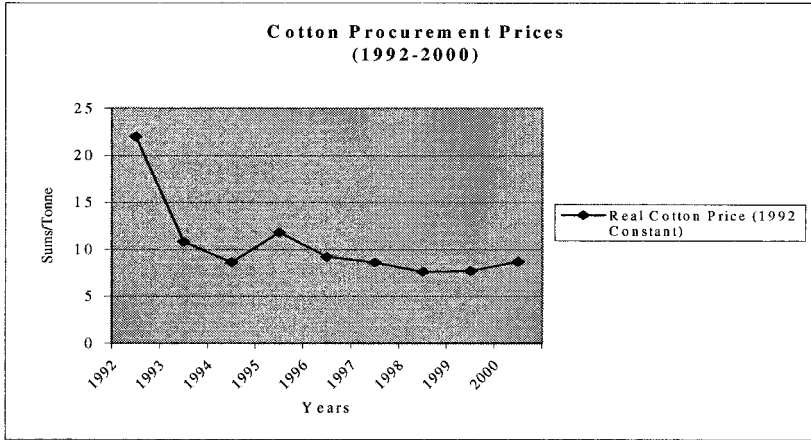


Figure 1. Procurement Prices: Cotton  
Source: Center for Economic Research, Tashkent, 2001.

Table 4. Productive Structure of Cotton and Wheat (1992-2003)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2003
<b>Cotton</b>											
<i>Shirkats</i>	100	100	99	97	95	94	89	86	82	78	..
Private	0	0	1	3	5	6	11	14	18	22	38
<i>Dekhkans</i>	0	0	0	0	0	0	0	0	0	0	..
<b>Wheat</b>											
<i>Shirkats</i>	93	92	90	89	84	79	75	73	68	64	..
Private	0	1	2	4	5	6	8	10	15	19	36
<i>Dekhkans</i>	7	7	8	7	12	16	17	17	18	17	..

Sources: Department of Statistics of the Ministry of Macroeconomics and Statistics, and the Center for Economic Research, Tashkent, 2001; Khan (2005).

In terms of the contribution of different producer types to the output of the two strategic crops, there is a shift, understandably more in wheat than in cotton. Most is still produced by the *shirkats*, but growing shares by the other two types of farm and *dekhkan* enterprises (see Table 4), especially since the current more rapid transformation of *shirkats* into private leasehold farms.

## PERFORMANCE OF THE AGRICULTURAL SECTOR

Four shifts took place in the performance of the agricultural sector of Uzbekistan during the decade of the 1990s. The *first* was part of the import substitution strategy of the government, promoting the growing of wheat, with as ultimate goal to become grain self-sufficient. This was a state-led rather than market-led change, as it took place within the planning system that remained in force for wheat and cotton. It can be shown that the previously quasi-monoculture cotton did diminish by around 15 percent in acreage, while most of the wheat production was substituting for a quickly diminishing fodder production, and complemented with some newly reclaimed and irrigated soils (see Table 5).

The *second* shift was the growth of the already mentioned predominance of a dual agrarian structure until 1997-98, in which it was no commercial peasant farm sector developed apart from the hardly changing collective farms. A substantial growth can be noted in the garden-plot and *dekhkan* farm household production. The latter is partly to be explained by the weakening of the wage sector in agriculture. By the beginning of the 2000s the collectives were heavily indebted, paying only low or even now money wages whatsoever, forcing the workers in subsistence production. In case that they did reasonably well, the *shirkats* paid their workers in kind. High-value products such as fruit, vegetables, meat and eggs, that are produced on the household plot, do find markets, and therefore became important cash commodities for households to complement their meager incomes.

The *third* shift, related to the previous ones, is that livestock production, which was already undertaken in an important share by households on their garden-plots, has now become largely in the hands *dekhkans* and private farms (see Table 8). By the mid-1990s much of the livestock was given, or sold at preferential prices to households, primarily because of the drastic shortage of fodder crops (which by 1997 had dropped in volume to about one third of the 1991 level, and the consequent liquidation of the specialized livestock farms). The *fourth* shift is the most recent one, in which the highly indebted *shirkats* are rapidly being transformed into private commercial (leasehold) farms. This means that the bimodal agrarian structure is transforming again, as next to the remaining *shirkats*, and apart from the household plots and the *dekhkan* farm, there is a new sector of medium-sized private farms, which is becoming the main productive sector.

The first change that was mentioned, was the outcome of an important strategic decision the Uzbek government took in the early 1990s, namely to strive to grain self-sufficiency. There were clearly political-economy considerations behind this policy-stand, as wheat is the principal food staple of the country. From a strict point of view of comparative

advantage, one can argue that foreign exchange is forgone in cotton, which could be used for importing of wheat from neighboring Kazakhstan. However, as said above, the shift only represents a very partial substitution (see Table 5). Wheat was –certainly in the early years– produced with very low and hardly competitive yields. This seems currently to have improved in the private and *dekhkan* farms. There are, however, also interesting side effects, which also need to be taken into account. Wheat is more attractive for the farmer, as part of it can be kept for feeding their families, part can be kept in order to sell in the non-harvest season, and part can be used for feeding animals (although with low or negative conversion rates). It is also a shorter season in which grain is grown, which provides opportunities for another crop, an event, which is not (or hardly) the case with cotton.

Table 5. Cotton and Wheat Acreage, Output and Yield (1991-2003)

Cotton	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>
Area	1,721	1,667	1,695	1,540	1,493	1,487
Output (1,000 tns)	4,646	4,116	4,229	3,938	3,934	3,350
Yield (tn/ha)	2.70	2.47	2.50	2.56	2.64	2.25
Wheat						
Area	488	627	697	959	1,164	1,329
Production	610	964	876	1,363	2,347	2,742
Yield (tn/ha)	1.25	1.54	1.26	1.42	2.02	2.06
Cotton	<b>1997</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Area	1,513	1,517	1,444	1,453	1,421	1,393
Production	3,641	3,600	3,002	3,263	3,122	2,823
Yield (tn/ha)	2.41	2.37	2.08	2.25	2.20	2.03
Wheat						
Area	1,470	1,420	1,355	1,219	1,283	1,507
Production	3,073	3,602	3,532	3,690	4,967	4,682
Yield (tn/ha)	2.31	2.54	2.60	3.03	3.87	3.12

Source: Department of Statistics, Ministry of Macroeconomics and Statistics, Tashkent, 2002; FAOSTAT (2005).

The second change was the increased importance of the household plots and the small-sized (what was later called) *dekhkan* farms, while the newly formed private farms had only taken a limited share of production (Table 6), which since 2003 is rapidly growing.

Table 6. Distribution of Gross Agricultural Output by Categories of Farms (1997-2003)

	1997	1998	1999	2000	2001	2003
Agricultural Enterprise	40.2	35.8	32.9	27.8	26.8	23.3
Private Farms	3.2	3.9	4.6	5.5	6.9	14.1
<i>Dekhkan</i> Farms	56.6	60.3	62.5	66.7	66.3	62.6

Source: Department of Statistics, Ministry of Macroeconomics and Statistics, Tashkent.

The small-scale *Dekhkan* farms represent even larger shares than the above, if it concerns the volumes of certain commodities. They hardly produce cotton, and only a limited share of wheat, and concentrate on fruit, vegetables, potatoes and dairy products. The private farms are an emerging sector, although they are still limited in their operation, by partly being in the planned system and state procurement, and sometimes producing on marginal lands.

The third change is the transfer of livestock production to the household farms and private farm enterprises. As can be seen in Table 7, between 75 – 90 percent of livestock is now held by these categories, and actually in large part by households.

Table 7. Numbers of Livestock (including Household &amp; Private Farms) (1991-2003)

(x1000)	Cattle	%	Cows	%	Horses	%	Sheep Goats	%	Poultry	%
1991	5113	68	2120	79	..	..	1011	..	36000	..
1992	5275	69	2218	80	..	..	10329	..	35200	..
1993	5431	70	2297	80	..	..	10391	..	26200	..
1994	5483	70	2337	--	145	..	10059	..	19620	..
1995	5204	78	2286	84	150	59	9322	55	13373	49
1996	5103	82	2234	87	147	65	8229	62	12669	59
1997	5196	82	2281	86	149	62	8597	63	12279	60
1998	5225	87	2290	90	149	71	8698	76	12935	63
1999	5282	88	2310	91	148	73	8864	68	14521	60
2000	5334	90	2345	92	146	75	8933	70	14419	65
2001	5354	..	2343	..	150	..	8932	..	14696	..
2002	5478	..	..	..	145	..	9234	..	15355	..
2003	5874	..	..	..	145	..	9893	..	17077	..

Source: Uzbek Economic Trends, 2001 (July-September), TACIS, Tashkent; Department of Statistics of the Ministry of Macroeconomics and Statistics, Tashkent; FAOSTAT (2005).

Gross agricultural output has actually recovered its pre-independence level (see Table 5.1), which is substantially better than many other countries in the FSU. However, if one compares these data with the growth in volumes of main products the picture seems to be somewhat overestimated, as there are quite a few which have declined and have not been able to recover at pre-transition levels (see Table 8).

Nevertheless, there is also an increasing difficulty during the decade to get reliable data of output produced by the household economy. For various reasons, this could well be underestimated, such as withholding data to any official who would like to know, but also simply the transaction costs involved in measuring output on more than 3 million garden plots and *Dekhkan* farms.

One of the main limitations in Uzbek agriculture is the availability of water. The arable, irrigated land has only been expanded very marginally, while during the decade (and also before) a substantial share of the land soil quality reduced, because of salinity, and the absence of crop rotation. In this 'zero-sum game' [in which the total sum actually decreases, rather than remaining constant] on access to land, the pressures to produce cotton for foreign exchange, wheat for food self-sufficiency, and providing land to the land hungry peasantry are substantial. Any further land reform that will be undertaken has to take these major limitations into account, although the Uzbek government seems to give less priority to the third issue mentioned above.

Table 8. Output of Other Agricultural Commodities (1994-2003)

(x1,000 tons)	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Rice	498	328	445	386	346	421	155	84	175	293
Potatoes	567	440	490	692	691	658	723	744	777	828
Vegetables	3556	3200	2970	2767	2878	3198	3097	3244	3415	3883
Fruits	555	602	585	548	544	489	691	796	...	...
Grapes	353	621	474	512	336	344	609	574	516	401
Meat	827	853	854	801	809	822	841	854	...	...
Milk	3732	3665	3390	3406	3495	3543	3636	3,667	...	...
Eggs (mln.)	1574	1232	1057	1075	1165	1240	1253	1287	...	...

Source: Department of Statistics of the Ministry of Macroeconomics and Statistics, Tashkent; Uzbek Economic Trends, 2001 (July-September), TACIS, Tashkent.

Water supply is still done through the centrally planned delivery system. Some of the complexities of institutional change are therefore how to redesign the large-scale irrigation systems, to organize the individual farmers



in associative forms regarding water management, and to finance the operation and maintenance of the systems. Much has been written about soil degradation, water inefficiency and environmental problems related to water. It seems, however, that the Uzbek government does not yet give priority to these issues, which are intimately related to the agricultural sector, that is consuming around 90 percent of the water resources. A large part of the current irrigation and drainage infrastructure needs renewal and improved maintenance, and absence of investments simply means further decay.

Finally, the agricultural sector is also the main provider of labor in the country. At the eve of transition, this was mostly wage-labor in the *kolkhozy* and *sovkhozy*, while agricultural incomes were supplemented by the household plots. The large farms also functioned as social protection units, as they provided services in the sphere of kinder-gardens, primary education, health and social transfers.

However, while in the first half of the 1990s the sector clearly functioned as a buffer for unemployment in other sectors (such as industry, which shows a major contraction), during the second half employment diminishes substantially, from a maximum of 44.3 percent (1993), to 33.4 percent (2001). The collective farms and *shirkats* were shedding labor in the past few years, and also some substitution of wheat for cotton, introducing a much less labor-intensive crop, plays a role here. It is expected that the current phase of land reform will cause even more labor expulsion from the newly formed private commercial farms.

Table 9. Agricultural Employment in Uzbekistan (1991-2003)

(x1,000) and %	1991	1993	1995	1996	1999	2001	2003
People Employed	3,456	3,671	3,485	3,505	3,220	3,061	3,030
Share of Total	41.9	44.3	41.1	40.8	36.1	33.4	..

Source: Department of Statistics, Ministry of Macroeconomics and Statistics, Tashkent; Khan (2005).

The increased acreage of *dekhkan* farms has also increased the use of labor per ha. In a recent baseline study of the World Bank (2002: 23), in five districts of various *oblasts* in Uzbekistan, it was found that on irrigated land the labor/land was for *puدراتs* 0.59, for private farms 0.43 and for *dekhkans* 10.34 workers/ha. While the latter farms have been absorbing much of the labor surplus, the private farms use less labor than the *shirkats*, and with the very small plots available for the household farms, it is questionable whether they have not already reached their absorption limits. There is also an outflow of male labor, and a further feminization of labor in the agricultural sector.

Seasonality is already characterizing the sector, with its main peak in the months of August-October when the cotton harvest has to be brought in.

The latter has increased demand for temporary labor, as harvesting by machines, which was already practiced in 30 - 40 percent of the harvest in the early 1990s, has practically vanished. Good for quality, good for the use of the labor surplus, but hiding a main problem in the countryside, namely seasonal unemployment. For example, agricultural employment in the first quarter of 2001 was estimated at 2,961,000, while in the third quarter it was 3,673,000 (TACIS, 2001:97).

Data on wages indicate that there is a rapidly growing gap between industrial and agricultural wages. In 2001, average agricultural wages in the non-cotton harvest season were reported to have fallen from 26 to 15 percent of average industrial wage (World Bank, 1999). During the cotton harvest season they have reported to be around 30 percent, as seasonal wage income is drawn from cotton-picking for around 2 months. There are often long wage arrears, and therefore the *shirkat* farmers are dependent on payment in kind, and the income (and food) derived from the garden-plots, which are very small size and therefore can only partially complement lost wage income. What is clearly on the drawing board of the policy makers, is that the sector which has produced so much surplus for the national economy, and has provided a safety network against widespread unemployment during the first half of the decade of transition, is now under strain.

The sector has seen very low levels of investments (at a level of only 7 percent of the budgetary layout), regression in technological levels, the continuation of the stifling procurement system, and small room of maneuver left for private farmers and leasehold farms. The rapidly decreasing rural incomes have also a medium-term negative effect on the demand for manufactured products, and therefore on the sustainability of growth. While most recently the number of private leasehold farms is rapidly growing, the necessity for to improve their chances for success is even more urgent.

## INEQUALITY AND POVERTY IN RURAL AREAS

In general the incidence of rural poverty in Uzbekistan is more serious than of urban poverty (30.5 versus 22.5 percent, according to a recent World Bank household budget survey). Furthermore, poverty in Uzbekistan is concentrated in some regions that are largely rural, such as Karakalpakstan, Kashkadarya, Khorezm, and the densely populated and largely rural *oblasts* of the Fergana valley, such as Andijan, Namangan and Fergana). The popular measures taken in the early years of independence (and even in the last years of the Soviet period), to distribute land plots to rural households and increase their size, have definitely contributed to avoid a much larger incidence of rural poverty. These household plots (and later on the *dekhkan* farms), have

successfully provided a safety network, complementing income when the wage share was dropping and providing subsistence and food-security to many rural families.

However, access to land has been limited by the simple limitation in terms of the total availability or irrigated land in Uzbekistan and the pressure to keep sufficient land under cotton production for exports. The average size of the plots has dropped after an initial increase in the early 1990s. Currently the average size of *dekhkan* farms is 0.16 ha. Garden plots can be as small as 0.06 ha for new families, while additional plots can only be obtained through tendering, which means that households which have more cash can rent additional land. Therefore access to land seems to be essential in assuring minimal subsistence and avoiding poverty, although the very small size plots cannot substitute completely for lost wage income from the *shirkats*.

The regional concentration of poverty in Kashkadarya, Karakalpakya, and Khorezm can be understood by looking at regional agricultural production figures. Output has suffered substantially in the period 2000-2001 (severe draught), while these regions also have to cope with high incidence of soil salinity and water scarcity. In Namangan and Andijan (in the Fergana valley), which are upstream and have an agricultural sector with higher productivity the problem seems to be much more one of land access. In the densely populated valley there is severe land shortage, and no access to land or to only very small plots is actually at the root cause of rural poverty in these areas.

## CONCLUSIONS

The agricultural sector has been the backbone of the development model that Uzbekistan has followed during its transition. Cotton became the major foreign exchange earner, and agriculture was the largest single provider of employment in the country, even absorbing labor during the first years of economic contraction. Uzbekistan has followed a path in which surplus, produced in particular in the cotton sub-sector, was transferred out and used to finance key energy and industrial projects and development of urban infrastructure. This economic strategy based on resource extraction and import substitution has avoided a major contraction of the economy and led to recovery in the second half of the 1990s, but also has caused a substantial urban bias, and did not result in an 'investment-led' growth path.

The restructuring of the agricultural sector has been slow and gradual, as during most of the 1990s the existing collective and state farms remained largely in tact. The planned system of crop production and procurement remained in force for cotton and wheat, the latter becoming a focal point for

the government in its desire to become food independent. The prices of all other agricultural commodities were soon freed, and much of the livestock transferred into private hands. A dual structure emerged, with the large-scale collectives on the one hand, and the family garden (or subsidiary) plots on the other. Within the latter category a sector of small-holders or *minifundia* was formed, the *dekhkan* farms. Land remains in the hand of the state, and in the late 1990s, land within the *shirkats* was leased to families (*pudrats*) with leases of minimally three years.

The third stratum in the agrarian structure, the so-called 'private farmers', who rent their land with long-term leases (10 - 50 years), was only slowly emerging during the 1990s. These medium-farmers have since 1998, when new land and farm restructuring legislation was passed, grown in numbers and total land in cultivation. However, when they produce cotton or wheat, they remain within the procurement system. Currently there is an increased pace in transforming the *shirkats* into private farms, the insolvent ones being liquidated after a process of financial sanitation, and consequently the number of private leasehold farms is growing rapidly at the moment. It is expected that during the period 2004-2006, most of the *shirkats* will have been sub-divided and transformed into medium-sized private commercial (leasehold) farms.

Private markets for most agricultural output (except cotton and wheat) have emerged, but are often fragmented, with insufficient outlets and asymmetric price information. Although official procurement quotas have been substantially lowered, state agencies still buy most of the cotton and wheat. In the case of cotton the state remains having a full monopoly. Private markets for inputs and credit have poorly developed during the decade, and even the private farmers most often buy their inputs from state agencies. While several subsidies continue to flow to the *shirkats*, in particular through the administrative pricing system on inputs (fertilizers, pesticides and water), the very low official (and above plan) prices for cotton and wheat, continue to cause a substantial net outflow of resources. This is currently less than in the mid-1990s, as world market cotton prices have substantially dropped, but the low prices provide little incentive to the farmers to improve their production.

The agricultural sector saw some major changes during the 1990s. Firstly, the already mentioned shift towards household production, which by 2001 was producing around 66 percent of gross agricultural output. Secondly, a forced shift away from fodder crops towards wheat caused the rapid expansion of this crop (only in part at the expense of cotton). Finally the privatization of livestock production followed, as much of the stock was transferred to the households. The gross agricultural output has recovered since 1997, but a number of commodities have still substantial lower volumes than in 1990. Agricultural data is difficult to assess, as there might well be an overestimation in its value, and an underestimation in the production volumes

from the household plots, as these are difficult to measure and surely underreported.

Unemployment and underemployment are growing in rural areas. In the transformation of the large-scale farms towards individualized private farms, labor is shed, and apart from the cotton harvest peak in labor demand, in most of the year there is a substantial labor surplus. Non-farm and non-agricultural employment is very limited. Wages in the *shirkats* can only be supplemented somewhat in the two-month period of the cotton harvest, when much of the surplus labor is in full demand. Poverty is a growing problem in rural areas, in particular for those who are unemployed, but also for the 'working poor' in the *shirkats*, who receive very low wages, and have minimal household plots to complement income and food intake.

Inequality is increasing between the three types of farmers. The private farms have relatively the highest incomes, followed by the *dekhkan* farms and lastly the *shirkat* farmers [or better farm workers]. Inequality depends very much on the access to land, the size and quality of land in ownership or under leasehold, and finally the availability of water and quality of soil. The latter are the major limitations for farming in Uzbekistan. Water is in short supply, while demand is growing. As a consequence of the inefficient use of water over several decades, an increasing share of land in Uzbekistan (and in general in the Central Asian river basin) is saline to varying degrees, lowering yields, and therefore squeezing incomes.

Finally, it is clear that the Uzbek government has now chosen to modernize the agricultural sector by restructuring the loss-making *shirkats*, and privatizing them into medium-sized (around 50 has) commercial farms. This final phase of land reform is executed in a rather non-transparent manner, and those with good political connections are most likely to become the new owners of the land in Uzbekistan. The reform is defended using the 'efficiency argument', emphasizing that smallholders cannot efficiently produce cotton and other cash crops. This is, however, not shown, and on the contrary, small-scale farmers seem to have higher yields, and are very productive. The latter also are labor-intensive, which –in view of the rural labor surplus and the lack of alternative rural/urban employment opportunities– is crucial to take into account in Uzbekistan. What is probably a more important (but unspoken) argument for the government is a continued belief in the virtues of 'economics of scale', in spite of sufficient evidence against its relevance for agriculture, and the political economy of authoritarian power base on surplus extraction in Uzbekistan. The ruling elite wishes with this type of reform to guarantee continued control over productive resources and the domestic and external value-chains. A further reason is the continued existence of large surface irrigation systems in the country, which are essential for agricultural production. These are still fully state-controlled. A redistributive land reform would seriously hamper the water supply, and would

force a fundamental 'water reform' (parallel to its 'land' counterpart). Lack of investment resources to transform the irrigation system, and the absence of a clear vision how farmers and local institutions can become the managers of such system, are the bottlenecks for such reform. Finally, with the privatization of land (albeit in the form of long-terms leases) to commercial farms, it seems that the Uzbek government has embarked on a market-oriented reform path. This, however, remains to be seen, as many markets are still heavily controlled and intervened. At the moment these new farms are confronted by a 'quasi' market-environment, which still leaves the state with ample opportunities of surplus extraction and rent seeking.

## REFERENCES

- Dukhovny, V.A. 2002, 'Report on Project Inception Phase', roject Integrated Water Resources Management in Fergana Valley', Tashkent.
- Kandiyoti, Deniz 2003, 'Pathways of Farm Restructuring in Uzbekistan: Pressures and Outcomes', in Max Spoor (ed.), *Transition, Institutions and the Rural Sector*, Boston and Maryland: Rowman and Littlefield, Lexington Books
- Khan, Azizar Rahman 2005, 'Land System, Agriculture and Poverty in Uzbekistan', Paper for UNDP-financed Global Project on Land Reform and Land Policies. Mimeo, University of California at Riverside, April.
- Lerman, Zvi, Jorge Garcia-Garcia and Dennis Wichelns. 1996, 'Land and Water Policies in Uzbekistan', in *Post-Soviet Geography and Economics*, Vol 37 (3), pp. 145-74.
- Spoor, Max 1993, 'Transition to Market Economies in Former Soviet Central Asia: Dependency, Cotton and Water', in *The European Journal of Development Research*, Vol. 5 (2), pp. 142-58.
- 1995, 'Agrarian Transition in Former Soviet Central Asia: A Comparative Study of Uzbekistan and Kyrgyzstan', in *The Journal of Peasant Studies*, Vol. 23 (1), pp. 46-63.
- 1998, 'The Aral Sean Basin Crisis: Transition and Environment in Former Soviet Central Asia', *Development and Change*, Vol. 29 (3), pp. 409-35.
- 2004, 'Agricultural Restructuring and Trends in Rural Inequalities in Central Asia: A Socio-Statistical Survey', Programme Paper Nr. 13, Civil Society and Social Moverments Programme. Geneva: UNRISD, November, 45 pp.
- TACIS. 2001, *Economic Trends Uzbekistan July-September*, Quarterly Issue, Tashkent.
- World Bank, The 1994, 'Uzbekistan, Economic Memorandum: Subsidies and Transfers', Report No. 12934-UZ, Washington: The World Bank.
- World Bank, The 1999, 'Uzbekistan Structural Policy Review: An Economic Report', Washington: The World Bank.
- World Bank. 2002, 'Agriculture in Uzbekistan: Priovate, Dehqan, and Shirkat Farms in the Pilot Districts of the Rural Enterprise Support Project', Mike Thurman and Mark Lundell, Tashkent.

## CHAPTER 9

# **POLICY REFORMS AND AGRICULTURE DEVELOPMENT CHALLENGES IN TAJIKISTAN**

T. V. Sampath

*The World Bank, USA*

### **INTRODUCTION**

Since it came out of war and managed the insurgency in the early 1990s Tajikistan has taken serious efforts to reform its economy. The policy reforms are more pronounced in agricultural sector which is responsible for 25 percent of Tajikistan's national income and supports 65 percent of the population. This paper makes an attempt to review the set of policies pursued by the government of Tajikistan in the light of its challenges to reduce poverty through agricultural-led growth strategy.

The paper is organized as follows. The role of agriculture in the Tajik economy is briefly reviewed next along with its immediate challenges. The poverty situation is reviewed next with an objective to identify the role of agriculture in addressing rural poverty. Tajikistan's unique set of challenges with its mountainous landscape is given in section four. Development of rural infrastructure as a key strategy of the Government to address agricultural development is discussed in section five. Land reforms remain a major unfinished business in much of Central Asia. Tajikistan's experience inland reforms is presented in section six. Governance structure and Policy reforms are reviewed in section seven. Concluding remarks form the last section.



## **ROLE OF AGRICULTURE IN TAJIK ECONOMY**

Agriculture plays a vital socio-economic role in the economy and the lives of the majority of the population. More than two-thirds of the labor force is directly employed in agriculture. However, agricultural productivity is very low as a result of deterioration of rural infrastructure, largely inefficient and unsustainable land use with ongoing official state directed cropping plans, and ineffective processing and marketing infrastructure for the most important crops, and a general lack of neither agricultural support services nor credit. Rural poverty is widespread but extreme in remote and largely inaccessible mountainous areas that depend largely on subsistence rainfed agriculture. It is widely accepted that given the abundant water resources and climatic conditions, the agriculture sector could provide significant labor intensive economic growth and be a major contributor to poverty reduction. To come closer to its true potential, however, the following five key issues need to be addressed: (i) improved access to land, which would include provision of a more transparent land use right, more equitable and inclusive distribution of land to all rural dwellers and better information flows including tax policies and land tenure rights; (ii) the introduction of improved technologies and market oriented farming systems with emphasis on efficient crop and livestock management; (iii) the introduction of effective applied research, advisory and extension and other support services for the promotion of effective and sustainable farm management; and (iv) rehabilitation of rural infrastructure where economically feasible; and lastly (vi) improving access to rural finance, including community savings and credit schemes to monetize the rural economy, stimulate local markets, and help in facilitating rural trade.

### **Management of Sloping Land**

Agriculture could greatly benefit from maximizing the productivity of the large tracts of pre-alpine pasture land. While in general, soil conservation is not a major priority for most of the rural communities. Villagers are generally well-aware of the problems from gullying and landslips, and the erosion problems that have arisen from cutting down trees, overgrazing in areas around the villages, loss of carrying capacity of pastures, and dwindling yield levels of crops cultivated on steep slopes. It is considered that the most effective soil conservation methods often include indirect methods such as conserving soil and moisture by providing vegetative covers, contour cultivation, strip cropping, planting woodlots, adoption of farming systems to enhance flora and fauna activities by enhancing the organic matter content of

“A” horizon of the soil profile, and increasing productivity from efficient management of the rainfed and irrigated arable land. Other methods include those that combine some income generation combining soil and moisture conservation benefits, such as planting economically useful trees such as walnuts, cherries or apples around rainfed arable land. Accordingly, the project will not be limited to soil conservation through physical activities *per se*, but rather focus specifically on moisture conservation approach for sustainable income-generating activities that would have indirect long-term benefits on resource preservation and conservation.

### **Improving Tree Cover**

As part of the restoration of the stability of sloped lands, efforts therefore need to be made in the areas which had reportedly good tree coverage in the past, but are now denuded. On steeply sloping agricultural land, tree-planting activities would particularly focus on trees of economic value such as walnuts, pistachios, or almonds with some planting of non-commercial trees to limit further gullying in appropriate areas. Currently, no replanting activities or improved management approach is being considered by State Forestry Committee (SFC) due to budget constraints and because it is understood that the SFC has responsibility primarily for state forest land only and not on community forestry activities. In the future, it will be essential that SFC involve the communities in the forest conservation approach of the SFC. Establishing successful experience of community-based tree replanting outside of official forest lands will hopefully help convince the SFC to adopt more participatory approaches that consider incentive frameworks including usufruct tenure.

### **Poverty Status**

The difficult transition following independence during the 1990s, including a long period of internal civil strife, left Tajikistan among the poorest countries in the world. The GDP in 2000 was estimated to be no more than US\$ 154 per capita, while the UNDP Human Development Index ranked Tajikistan 110 out of 174 countries. According to the Bank's Poverty Assessment, some 83% of the present estimated population of 6.3 m are living in poverty, while about 50% are very poor or extremely poor. Less than half of all households have access to piped water, 75% have no source of hot water, 85% rely on an outside latrine. However, with the cessation of violence and a resumption of economic growth since 1997, there is now a real

possibility to contribute to the alleviation of poverty in the country. Still, even with sustained GDP growth rates of 5%, it is estimated that around 15 years would be required to reach pre-independence levels.

## **Poverty in Mountain Areas**

Poverty is generally considered worse in rural areas than in urban areas. This finding is supported by the results of the Tajikistan Living Standards Survey conducted in spring 1999. An FAO Crop Assessment mission also identified the mountainous districts as some of the worst affected and most vulnerable to drought. In mountainous areas, agriculture plays a vital socio-economic role in the livelihoods of the population and since the collapse of the limited local industry, it has often become the only means for survival. Although, today the agriculture sector makes up only around 24% of GDP (in 2001), more than two-thirds of the labor force remains employed in agriculture. Poverty in mountainous areas is caused by a number of problems including, uneven and inequitable access to land, breakdown of irrigation and drainage systems, lack of rural finance, deteriorating social infrastructure, poor accessibility due to poor road conditions, lack of communications, and sheer remoteness from urban markets. The most important survival strategies of local residents is production on their small household garden plots of an area of approximately 0.15ha, livestock ownership, and in many cases, migration of some family members to Russia in search of work.

## **TAJIKISTAN'S UNIQUE MOUNTAIN ISSUES**

Tajikistan's mountains are relatively recent geological formations. The soil structures are generally loose and highly prone to erosion which is reflected by deep gullies throughout the hill and mountain sides in the areas. Recent surveys of soils, pastures, forests and biodiversity suggest that the lands in the selected watersheds are affected by all types of erosion to a various degree.

## **Changes in Tree Cover**

Under the Soviet Union, some attempts had been made to protect crucial infrastructure such as roads by afforesting a number of hillsides with fast growing tree species and bushes. In the mid-altitude mountains there are

some natural forests remaining, but just as with the planted areas, these small forests have been largely depleted by illegal cutting following the collapse of the former subsidy system and the civil war. Firewood has become an extremely important commodity in mountain areas to replace the former seasonal coal quotas that had been provided to each household for heating and cooking. To some extent electricity has filled this gap, but in winter, electricity production is scarce due to the need to recharge dam reservoirs for the summer irrigation season.

## **Cultivation of Sloping Land**

The advanced agricultural development practices of the Soviet era focused on the irrigated valleys for cotton production, and in the mountain areas on growing of large scale fruit and nut trees orchards, especially apple, peach, apricots, cherries, and walnut, almonds. Viticulture was also widely practiced for table grapes but also for dry raisin that used to be exported to Russia and some local vine production. Since independence, largely as a consequence of the collapse of the Soviet enforced production regimen where Tajikistan was specialized in cotton and orchard fruit production, grain production has gained momentum, and in mountain areas potatoes have become the crop of choice. Unfortunately, there is a lack of information at the farm level especially in the mountain areas in regards of modern crop and land management techniques. In the absence of understanding and knowledge, emerging new dekhkan farmers generally tend to adopt low-risk extensive agricultural practices which force them to use ever greater areas for cultivation while outputs are dwindling. This has led to increased cultivation of cereal crops on steep hillsides leading to erosion and destroying scarce and fragile top soils that are necessary for sustainable agriculture in the mountain areas. Encroachment and cultivation of steep mountain slopes has resulted in increased erosion problems since much of the mountain areas are composed of a very unstable and brittle soil susceptible to collapse following rain and snow. The Ministry of Nature Protection estimates that the cultivated land area has recently increased by 40 to 45 000 ha because of removal of trees and cultivating of steep lands sometimes with devastating results.

## **Changes in Grazing**

Another angle that affects land deterioration is the collapse of the former grazing agreements that were signed between the regions in the valleys and the mountains. Under these agreements, livestock was brought by truck

from the valleys for summer grazing, and then during the winter the livestock farms in the mountains had access to winter pastures in the valley. With the collapse of the state farms, increased transportation cost due to the shortage of vehicles and deteriorating roads, this exchange does not take place anymore. Most livestock is now held in private hands, by almost all households and grazing has become a haphazard affair that sometimes is organized by the Jamoat, sometimes villagers, and often not at all. In spite of smaller livestock numbers, the lack of organized grazing and lack of responsibility for sustaining pasture lands has led to significant overgrazing in areas around settlements, which is compounding the erosion from hillside cultivation. Unsurprisingly, over the past couple springs there have been devastating mudslides during thunderstorms burying several houses of villagers, destroying roads and cutting off drinking water supply lines and irrigation canals.

### **Pasture Maintenance Responsibilities**

An important aspect that needs to be addressed is to tie the responsibility for maintenance of the pastures with its users. In their present unclear ownership situation, where formally the pastures are the ownership of the Jamoat, no reseeding, or fertilizing, or rotation is taking place. Villagers collect the dung mostly for heat, they have little interest in leaving manure for fertilization, or take the pain to go farther away from the village to maintain sustainable grazing patterns, on an asset in which they have little or no stake. The project therefore would provide for issuing to user groups usufruct rights to land that has been managed in accordance with an agreed plan. These rights would be documented by with corresponding land certificates and maps of parcels registered with the State Land Committee as undertaken under the Bank's FPSP.

### **Land Degradation Impacts**

The consequence of this deforestation has been a loss of top soil through landslides and mudflows especially in the spring when the soils defrost and with abundant rains. The loss of topsoil is dramatic since the denuded areas lose most vegetative cover and their use, even for pasture, is lost. In addition, the soils that erode away contribute to very heavy silting of the stream and rivers, filling riverbeds and rendering the course of the stream unpredictable. The Surkhob and the Zarafshan rivers in some areas have eroded away significant portions of highly fertile land plateau at the valley

bottom displacing farmers to cultivate increasingly on hillsides thus further contributing to the problem. The loss of precious arable river bed land is only one aspect of the problem, further down the valley the heavy silt loads clog up waterways and fill up dams, as well as irrigation structures greatly reducing the life of power generation facilities as well as dramatically increasing the costs of maintaining water management structures such as irrigation canals as well as drinking water systems in Tajikistan but also all the neighboring countries in the Aral Sea basin, that are dependent upon Tajikistan's water for irrigation and drinking purposes.

### **Importance of Mountain Biodiversity**

An additional important issue is that these valleys of Tajikistan, are some of the richest in the world for basic genetic material for several types of important food and fodder crops such as wheat and grasses and a number of fruit and nut trees. The poor land use practices currently applied in these areas, represent a serious threat to these species. Although governmental institutions and programs exist to maintain and sample this material, they are in great difficulty due to lack of financial resources that were cut along with the rest of the government's budget. Some collaboration has taken place with the CGIAR in this context, but investments are needed to rehabilitate the facilities of these institutions and programs to permit them to fully assume their role as keepers of Tajikistan's genetic plant wealth.

### **Sustainable Land Use Options**

To ensure the sustainability of mountain farming, as well as to ensure efficient and reliable supply of water for irrigation for agriculture in the valleys, it is crucial that land degradation is stopped, erosion through run-offs, land and mud slides, are reduced, and a vegetative cover be maintained on agricultural land in the mountain areas. This is only possible with the introduction of more modern, efficient, and sustainable cultivation and livestock husbandry models. These will include an intensifying of the use of arable land on the valley floors and foot hills, and a more extensive agriculture in the steep high mountain areas with a diversification of crops and "no-till" cultivation techniques. In addition to providing immediate benefits to the farmers themselves, this will also ensure that the pressure on more sensitive areas is reduced and rarer species affected by the intense cultivation will be able to recover and thrive. In Tajikistan, this link between

improving productivity and thus incomes will be the only way for ensuring economic and environmental sustainability in these mountain areas.

## **RURAL INFRASTRUCTURE**

### **Water Management and Irrigation**

The broad policy objectives of the water and irrigation sector are to manage the country's water resources to ensure efficient, safe, and ecologically sound water usage, and to meet its international obligations regarding the management of water resources of the Central Asia Region. Tajikistan already has a national water strategy, which was developed with the support of the GEF financed Water and Environmental Management Project for Central Asia. The Bank financed Rural Infrastructure Rehabilitation Project (RIRP) is now providing support for the development of a national water code that will encompass all aspects of water use, its extraction, and release back into the system. This code allows formation of Water Users' Associations (WUAs) and the Government is also taking initiatives to increase water charges to recover operation and maintenance costs. However, the detailed rules and regulations for the functioning of the WUAs are still to be adopted hence these reforms will take time to implement. Apart from the introduction of water charges, few changes have taken place at field level. Irrigation is a key input into the agricultural sector and economy, and has been critical in maintaining crop production. The irrigation and drainage systems have seriously deteriorated since the break-up of the Soviet Union, resulting in a good deal of irrigated land lost to production. Highland irrigation systems are generally much smaller, supplemental systems. The project will help irrigation in the lowlands by halting further degradation of the watersheds, and by providing funding under the rural infrastructure subcomponent for cost-effective rehabilitation of small irrigation systems that are of high priority to communities.

### **Rural Water Supplies**

By the end of the 1980s, only about 20 percent of the rural population had been served with clean domestic water supplies, treated with chlorine but many are now in poor condition, exacerbated by erratic electricity supplies. The remainder of the population obtain their water supply from untreated canals, rivers, local streams, or tube-wells, often contaminated by sewage and

agricultural chemicals. Furthermore even the existing soviet systems are no longer being adequately maintained. Considerable damage was caused to water supply systems during the civil war, notably in the mountainous regions of the Surkhob valley.

## **Rural Electricity Supplies**

The energy sector is dominated by hydro-electricity, which accounts for more than 99 per cent of energy production. There is little use of other fuels, and, as a result, Tajikistan is a large net importer of oil and natural gas. Over the summer months there is an electric power surplus of 2,500 GWh (1 Giga Watt hour = 1 Watt hour x  $10^9$ .) and a net deficit of 1,200 GWh during winter months. The current highly subsidized power supplies are unsustainable, and there are plans to substantially raise electricity tariffs in 2005. Transmission networks under 10kV are in generally poor condition. Since 1990 due to poor supply coal and petrochemicals, there has been a major shift to electricity based domestic heating and cooking. The situation is especially critical during the winter months (November to March) when the electricity system becomes severely overloaded (by as much as 150 percent). In order to conserve and regulate supplies, power is rationed to a few hours each day during winter. Most local circuit breakers and fuses are no longer working, and many transformers have been damaged. In remote communities in mountainous areas, there is considerable potential to develop small hydro electric units (4-100 kW).

## **Rural Roads**

Many roads and bridges show signs of deterioration due to the cumulative effect of neglected maintenance over recent years. Mountain roads are frequently blocked by mudflows during the flood season, and the high seismic activity of the region provokes rock falls, and mud-landslides. A considerable proportion of the Ministry of Transport's resources are used to keep roads open in mountain areas. Moreover, spring floods regularly cause extensive damage, especially in mountainous areas. It is estimated that some 25 percent of paved roads require reconstruction, and a further 50 percent require some rehabilitation. The figures are much higher for the lower order rural roads.



## LAND TENURE

### Legal Framework

According to the Constitution of land is the exclusive property of the state. But the right to use the land can be privatized. The land use right can be conferred on individual, men and women equally and are granted for life and are inheritable. Land can be rented by the land use right holder as long as land taxes are paid. However, land use rights cannot be sold or purchased. Although the right to buy and sell land rights is fundamental to a market in land, it is still not allowed. The issue is under debate. The primary focus on land reform programs of the Bank has been on arable farmland, and particularly the land held by sovkhoses and kolkhozes in the soviet period.

### Tenure Reform

Country wide, official land reform information indicates that use rights on as much as 55% of all arable land is now privatized and has been converted into lease farms, joint stock companies and Dekhan (private farms including individual family farms). Most state and collective farms in cotton growing areas, except pedigree seed farms, have been converted into joint stock companies or associations, but without major change in the mode of operation, and in the majority of cases, farmers are still not free to make their own management decisions. It is estimated that there are now some 13 000 Dekhan (private) farms covering some 350,000 ha including some 30,000 of irrigated land throughout the Republic. Highlands have experienced relatively more progress with meaningful farm privatization, but in these areas farmers lack the capacity needed to exploit the productive potential of their land. Furthermore, in hilly and mountain areas, there are large tracts of pasture lands, formerly under control of the state farms, which are now under the control of the Jamoats. This is particularly important since access to these lands can be very arbitrary, mostly at the whim of the local government officials. In general, the adhoc land privatization process adopted without the a transparent process or foreign agencies involvement, has resulted in substantial inequalities among households in the selected project areas. Tackling land privatization requires widespread information dissemination of reform initiatives and rights, the adoption of transparent procedures for land and asset allocation adopting a "bottom up" approach at the raion, Jamoat and village level and comprehensive information services to increase people's awareness in all aspects of the land privatization, user rights and farm

restructuring process. This is especially important since, many households consider that shortage of land other than their household plots as a major contributor to poverty.

## **Farm Privatization**

Farm privatization in Tajikistan has been promoted primarily through Farm Privatization Support Project (FPSP) supported by the World Bank since 1999. The project has supported ten pilot state and collective farms representing different agro-climatic and socio-economic zones of the country, a land distribution which is driven by choice, and is bottom-up in principle. It is putting to effect the government's stated commitment to transparency, fairness, equity and justice in the distribution of land shares to the workers of the state and collective farms, and issue of land use right certificates of the land parcels distributed to them. To bolster this initiative and expand the reach of the privatization drive, under Structural Adjustment Credit II, another 70 farms are being privatized using the methods applied under the FPSP. The World Bank may further engage in future lending operations focused on land reform issues. In the meantime, the Community Agriculture and Watershed Management Project would build on this experience by tackling the tenure issue on highland pasture lands, where common property issues have to be taken into consideration in view of the fact that these lands provide important public environmental services.

## **GOVERNANCE STRUCTURE AND POLICY REFORMS**

### **Formal Administrative Structure**

Tajikistan has a three tier territorial administration that is a mirror image of the Soviet administrative system of Oblasts (provincial level), Raions (district level) and local government called the Jamoat (subdistrict and lowest formal tier). In Tajikistan's case what is unusual is that large cities are not under raions subordination but rather they are directly reporting to central government. Tajikistan's government is pursuing a policy of decentralization, its shape, and the responsibilities of the various levels of government however have so far only been broadly described in the constitution. However, clear legislation describing roles and responsibilities, and funding thereof, at various government levels is only slowly emerging.

## **Line Agencies**

Central government's technical services are de-concentrated down to level of the raion where raion administration is supported by specialists of the various ministries. In the mountain areas, these include mostly the Ministry of Agriculture, State Land Committee, State Committee for Environment Protection, Ministry of Irrigation and Water Resources, and typically, at least in the large raion offices, there are also representatives from the ministries of, Education, Health, Culture, Communications & Transport, Energy, Public order and Security. The various Ministries have all suffered from the dramatic budget cuts that have come along with independence, enough for covering salaries but with little operating budget to fulfill their mandate at the local level.

## **Research Agencies**

Sector or activity specific research activities are typically led by one or more of the various institutes under the Academy of Sciences especially in relation to basic sciences. Applied science is usually guided under a sector specific academy such as the Agricultural academy that has a whole host of institutes that are assigned specific applied sciences such as, the soil sciences institute, or the Horticultural Research Center. The Academies are direct budgeted institutions under the central government. As a consequence of the radical budget cuts that took place since independence, however these institutions in some cases are little more than empty shells apart from some qualified staff. Budgets barely cover salaries of staff and little money is available to undertake any relevant research program.

## **Traditional Local Institutions**

Below the formal government structure, there are older structures at the village and community level, most notably the Mohalla that could be compared to a village council and is often looked at as the most representative local government body. These bodies have significant informal power and in many cases provide the forum in which issues affecting the community are discussed and often decided. Mohallas often take an active role in organizing community contributions towards rehabilitating or introducing a service to the community. The "the council of elders" intervenes to settle disputes affecting the peaceful co-existence of villagers. They may intervene on issues

surrounding water use, pasture access or any other situation where a neutral opinion is needed.

## **Local Government**

The Government also has adopted new policies regarding local government planning and management systems. The stated principles of recent legislations are geared towards (a) introducing mechanisms to enable people to be better informed and to participate more fully in local decision-making processes, and (b) to support the renovation process through the improvement of policies and administrative procedures. However, these government policies do not yet have clear follow up directives that outline the practical actions and steps that should be taken by local authorities to achieve these policies. USAID supported, the Urban Institute, is working with the government on potential next steps. From discussions with some Hukumats and Jamoats, local governments are aware of the new policies but in spite of the local governance policies targeting rural areas, resources remain too small to effectively respond. Some local representatives have begun to address the problems by using consultative mechanisms with the population to try to identify and address problems themselves.

## **Jamoat Development Committees**

The UNDP's past Rural Reconstruction and Development Program have provided, and its ongoing Communities Program provide field level support to local governance in the form of establishing Jamoat Development Committees (JDCs). The role of the JDC is to coordinate resources coming into the Jamoat and to ensure wide distribution between the many groups operating at the village level. Accordingly, JDCs usually have a account management committee (with a paid accountant/bookkeeper) which provides oversight for the JDC expenditures and revolving funds. Some JDCs also have tender committees and women's centers. [The JDC tender committees would not play a major role in the project, since the common interest groups and households would handle most of their own procurement directly.] The JDC interacts with raion officials and the raion development council. The intention is to integrate JDCs into official Jamoat level government structures in due course, thus providing the foundation of well functioning Jamoat councils, although the time frame for this development is not clear at this time. JDCs and similar initiatives are now spreading in the highlands of rural

Tajikistan, and in project areas other than Surkhob, the project will build on these organizations and associated lessons learned.

## **CONCLUDING REMARKS**

Designing development strategies and programs in Central Asian republics require a fuller understanding of the policy reform efforts that has been on going since the independence. This paper presented a quick review of the issues and challenges related to Tankistan in its efforts to spur the economic growth and reduce poverty in rural areas though agricultural development. In spite of concerted efforts by the government in reforming its economy, several policy concerns remain. First, privatization of the agricultural lands including pasture lands and allocate individual land parcel and registration of the land parcels tenure, to promote the land market. Second, adoption of the watercode, and evolving regulations for the WUAs and recognizing these as farmers owned service oriented non government organizations, with the transfer of these infrastructure. Third, providing the rural credit support, through rural financing system development, mortgage loan, pledge loan policies and similar mechanisms. Addressing these concerns would require continued cooperation of the government and the donor community and harmonization of Tajikistan's policies to take advantage of the opportunities that may arise both in the region and at the global level.

## **REFERENCES**

World Bank, The. 2004. FPSP/RIRP Mission reports, Tajikistan

World Bank, The. 2005 Land Registration and Cadastre System for Sustainable Agriculture Project. World Bank Report No. 30512. Washington, DC.

## CHAPTER 10

# AGRARIAN REFORMS IN TURKMENISTAN

Zvi Lerman

*The Hebrew University of Jerusalem, Israel*

Ivan Stanchin

*Institute of Statistics and Information, Ashgabat, Turkmenistan*

## REGIONAL CONTEXT AND GENERAL REFORM EFFORTS

Turkmenistan is a huge Central Asian country of 491,200 km<sup>2</sup>, nearly 50 million hectares – the fourth largest by area in the former Soviet Union (FSU) after Russia, Kazakhstan, and Ukraine. Yet, it has a small (albeit rapidly growing) population of about 6 million people, which puts it in one group with the FSU midgets – Armenia, Georgia, Azerbaijan, the Baltic states. More than half the population (55%) live in rural areas, compared to one-third in FSU, but only 4% of the country's agricultural land (1.8 million hectares) is cultivable, compared to 40% in FSU. The remaining 96% of agricultural land in Turkmenistan is desert pastures – 39 million hectares fit only for flocks of karakul sheep and camels, not for human beings (Goskomstat SNG, 2003). Thus, despite the huge expanses and the small number of people, the effective population density in Turkmenistan is very high: there is less than 0.6 hectares of arable land per rural resident compared to 2.1 hectares in FSU. Land and water are the two scarcest and most precious resources in this country.

Turkmenistan is an agrarian country, as is evident from its high share of rural population, high share of agricultural labor in total labor force, and high share of agriculture in GDP (Table 1). Yet by these characteristics Turkmenistan is generally comparable to its Central Asian neighbors: it can be characterized as highly agrarian only in comparison with Russia and Ukraine

(as well as the FSU average). Turkmenistan's share of arable land in total agricultural land is very small compared with the other Central Asian countries, but all its arable land is irrigated (so is the arable land in Uzbekistan). Turkmenistan's population is the smallest but fastest growing in Central Asia. If the population continues to grow at 3% annually, Turkmenistan will very soon overtake Kyrgyzstan and Tajikistan.

Turkmenistan was part of the Soviet Union for 67 years to the day, from October 27, 1924 until October 27, 1991. Independent Neutral Turkmenistan was declared in October 1991 by Saparmurat Niyazov, who had been the First Secretary of the Communist Party of Turkmen Soviet Socialist Republic since 1985 and was elected the first president of Turkmenistan in 1990 with 98.3% of the votes. According to the post-Soviet constitution adopted in May 1992, the President is both the head of state and the head of government. Turkmenistan has a single-party system of government, and the President, in addition to his role as Prime Minister, is also Chairman of the Democratic Party of Turkmenistan. Saparmurat Niyazov's term was extended beyond the five-year constitutional limit in two referendums (1992 and 1994), and in December 1999 he became President for Life by popular acclaim (legally formalized by a vote of Parliament). He is universally referred to as Turkmenbashi—the Father of the Turkmen. This honorific has evolved into a surrogate surname, and the President of Turkmenistan is generally called Saparmurat Turkmenbashi in the local press and elsewhere. Recently he began to be addressed as Serdar—the Leader, and the adjective “Great” is being added with increasing frequency to his name. His birthday, February 19, is a national holiday coinciding with the Day of the National Flag.

*Table 1. Selected Characteristics of Turkmenistan and Some FSU Countries*

	Country area, thousand km <sup>2</sup>	Ag land, million ha	Population, million	Population density, per km <sup>2</sup>	Population growth rate, % per annum
Turkmenistan	491	40.5	4.8	9.8	3.1
Uzbekistan	449	20.0	24.9	54.6	2.2
Kyrgyzstan	200	4.8	4.9	24.6	1.5
Tajikistan	143	4.1	6.2	42.8	2.3
Kazakhstan	2,725	86.4	14.8	5.5	-0.0
Russia	17,075	197.0	144.8	8.5	0.2
Ukraine	604	38.4	49.0	81.2	-0.2



Table 1 a: Selected Characteristics of FSU Countries.... continued

	Arable land, % of ag land	Irrigated, % of arable <sup>a</sup>	Rural population, %	Share of agriculture in labor, %	Share of arable land per rural resident, ha	Share of agriculture in GDP, %
Turkmenistan	4	106	55	48 <sup>c</sup>	0.6	21 <sup>d</sup>
Uzbekistan	20	100	63 <sup>b</sup>	36 <sup>b</sup>	0.3	32 <sup>d</sup>
Kyrgyzstan	29	79	65	53	0.4	38 <sup>b</sup>
Tajikistan	18	81	73 <sup>c</sup>	64	0.2	29
Kazakhstan	22	7	44	23	3.0	9
Russia	61	5	27	13	3.1	7
Ukraine	82	8	32	23	2.0	14 <sup>b</sup>

Source: Goskomstat SNG (2003). The data are generally for 2000, except where indicated otherwise.<sup>a</sup>1990; <sup>b</sup>1999; <sup>c</sup>1998; <sup>d</sup>1997.

Independent Turkmenistan embraced a model of “gradual, step-by-step transition from an administrative command system to a market economy” (MinEcon, 1999, p. 70). According to the official view, “Saparmurat Turkmenbashi ... chose a socially oriented model of a market economy,” whereby market relations are regarded as a “means to increase the living standard of the people” (MinEcon, 1999.). Despite its reform efforts, Turkmenistan is classified by Freedom House, an international research organization specializing in the analysis of reform processes in transition countries, as a “consolidated autocracy” and a “consolidated statist economy” (Freedom House, 2002). This category is the diametric opposite of “consolidated democracy” and “consolidated market economy”. Alongside Turkmenistan, it includes only two other countries: Uzbekistan and Belarus. Turkmenistan consistently gets very low marks for political and economic reforms. Thus, on a scale of 1 to 7 (where 1 is “best” and 7 is “worst”), Turkmenistan scores 6.94 for democratization and 6.50 for economic liberalization – the worst scores by both measures among all 27 transition countries ranked by Freedom House. Turkmenistan receives a similarly poor evaluation from the World Bank on the agricultural reform scorecard, where Turkmenistan gets a score of 6.60 out of 7 (Csaki and Zuschlag, 2004).

The poor scores that Turkmenistan is awarded for its reform efforts by international organizations probably explain the dim view of this country as expressed in the following statement by Johannes Linn, the World Bank Vice President for Europe and Central Asia Region (made at the Central Asia Donors’ Consultation Meeting in Berlin on March 1, 2002):

*Turkmenistan is an outlier even within the region in its near-total isolation and lack of reforms. There is no indication that its position will change in the foreseeable future and it represents a significant obstacle to any effort to increase regional cooperation in key areas (especially water).*

This statement seems to be fairly representative of the prevailing view of Turkmenistan among Western experts. One of the objectives of this article is to temper this universally negative judgment by providing evidence of developments in agriculture that give some hope for more positive change in the future.

## CHANGING FARM STRUCTURE

Prior to 1991, agriculture in Turkmenistan was organized according to the standard Soviet model: some 600 large collective and state farms controlled the bulk of agricultural land while the rural population cultivated in its spare time tens of thousands of small household plots on 55,000 hectares, or about 3% of irrigated land (Lerman and Brooks, 2001). The structure of the farm sector has changed dramatically since then as independent Turkmenistan began to implement various agrarian reforms consistent with its interpretation of a market-oriented economy.

The main change can be characterized as a shift from collective farming to a more individualized agriculture. The first step (1990-92) involved distribution of irrigated land to rural families, which more than doubled the total size of the household-plot sector to 133,000 hectares. The second step (1993-96) involved a national program for allocation of land to independent private farmers who were allowed to engage in commercial agriculture outside collectivist frameworks. In 2002 there were more than 5,000 such private farms in Turkmenistan (the numbers are very fuzzy) operating on 81,000 hectares. The third, and perhaps the most daring and radical step (1996-97) involved the transformation of former collective and state farms into associations of leaseholders. So-called “peasant associations” (*daikhan berleshik*) were organized by presidential decree in place of the traditional collective and state farms, and each association was instructed to parcel out its large fields to individual leaseholders (typically heads of families). Throughout these changes, however, agricultural land remained predominantly state-owned. For a more detailed discussion of the legal framework for these changes see Lerman and Brooks (2001) and Stanchin and Lerman (2003).

*Table 2. Structure of the Farm Sector in Turkmenistan: 2002*

	Number	Land, ha	Average size, ha
Associations	587	33,900,000 (incl. pastures)	
Leaseholders	357,000	1,500,000 (arable)	4
Peasant farms	5,200	81,000	16
Household plots	616,000	133,000	0.2

*Source: Official Statistics as Summarized in Stanchin and Lerman, 2003.*

We view the creation of leaseholder-based associations as the most radical step of the land reform program because of its scope. The reforms aimed at household plots and private farms, however important, were marginal by the amount of land that they encompassed. The transition to leasehold contracts, on the other hand, involved more than 350,000 rural family units and 1.5 million hectares of arable land, i.e., practically the entire rural population and 90% of arable land in Turkmenistan. The current structure of the farm sector in Turkmenistan is presented schematically in Table 2.

## **THE ROLE OF PEASANT ASSOCIATIONS AND INSTITUTIONAL ARRANGEMENTS FOR LEASEHOLDERS**

Following the establishment of the peasant associations, the situation in Turkmenistan seems to have developed toward a genuine structural change since 1996-97. Although there are still 600 associations and they still legally control most of the agricultural land resources, they have become mere organizational shells, or umbrellas, for the farming operations of individual leaseholders, without significant commercial activity of their own. As of 1997, associations have virtually no “collective” sales: all sales reported to statistical organs through associations derive from the individual activity of their leaseholders. The associations have lost much of their fixed asset base (machinery, equipment, livestock), while inventories, receivables, and payables—standard signs of commercial activity—have shrunk almost to zero (Table 3).

What is the role of the associations today? First, they are the “guardians” or “administrators” of state-owned agricultural land that is distributed to leaseholders for cultivation. All leaseholders interviewed in a large farm-level survey in 2002 report that they have a land-lease contract with the association. Second, they are the municipal authority responsible for maintaining rural infrastructure in the villages—and they receive a certain

payment from the leaseholders (in percent of production revenue) for these services. Third, and most problematic of all, they are the conduit for transmitting state orders to the leaseholders and enforcing compliance.

*Table 3. Characterization of Associations as a Shell for Leaseholders*

	2000
Percentage of sales generated by the association, % of total reported sales	4.6
Fixed assets, change since 1997 in %	-40
Inventories, change since 1997 in %	-86
Accounts receivable, change since 1997 in %	-72
Accounts payable and loans, change since 1997 in %	-90

*Source: Aggregate financial statements of farm associations 1997-2000, Ministry of Agriculture of Turkmenistan. The percentage change 1997-2000 is calculated from the series of balance-sheet data in constant prices (after adjusting the reported nominal figures for inflation). For more details see Zaslaver (2004).*

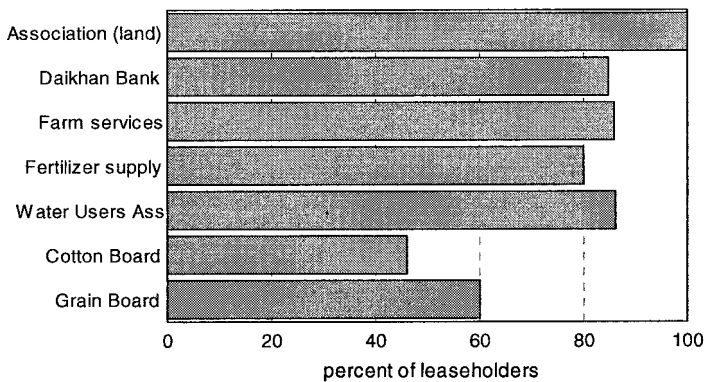
The continuing existence of state orders in Turkmenistan is a legacy of the Soviet centrally planned system. Turkmenistan has liberalized much of its agricultural production and food trade, but the main strategic commodities—cotton and wheat (as well as the much less important rice)—remains subject to state orders. As in the past, production targets for wheat and cotton are assigned to large farming units—peasant associations in this case; and the association manager divides the overall quantities among the leaseholders so that the full target is met (or exceeded). The associations do not sell this wheat and cotton for their leaseholders, as a marketing cooperative would normally do in the West: the sale contract is directly between the leaseholder and the state marketing organization, which sends trucks to collect the harvested crop and sometimes even tractors and combines to help with harvesting. The associations do not act as supply cooperatives either: leaseholders get all the inputs they need from state suppliers on the basis of individual contracts signed according to production targets.

Finally, since the associations are neither marketers nor input suppliers, they cannot act as credit cooperatives for their leaseholders. All financial transactions in this system are handled by a state-owned agricultural bank – Daikhan Bank – which has a branch in every association, serving all the local leaseholders. The system is organized on the basis of “passbooks”, so that very little cash changes hands. Each leaseholder’s production quota is recorded in the “passbook”. The “passbook” shows the total credit for revenue that the leaseholder will eventually receive for deliveries of wheat and cotton and the total debit for inputs that he is entitled to get from the state. The revenue is calculated on the basis of fixed state prices, which are adjusted

every year but are always far below the world market prices. The cost of inputs is also based on fixed state prices net of a hefty 50% subsidy for all inputs used in the production of state orders. The input debits, plus statutory management charges that go to the association, are offset against the revenue and the leaseholder keeps only the “profit”.

This highly bureaucratized system applies only to state orders, i.e., wheat, cotton, and rice, but it is designed in such a way that the leaseholder must deliver the entire output to state marketers: otherwise there will be no credit entry in the bank account to offset the debits for inputs. Commodities not subject to state orders, such as vegetables, milk, or eggs, are generally

Fig. 1. Contracts with State Marketers/Suppliers



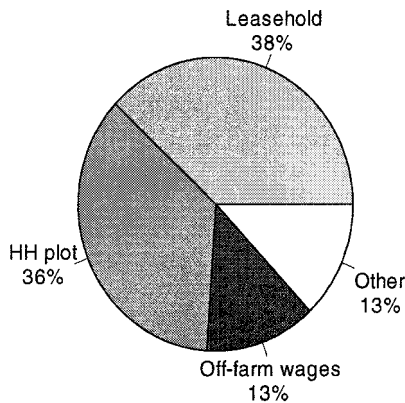
produced under different institutional arrangements on the family’s household plot (not on the leasehold) and are sold in the nearby market or

through occasional private traders: there are no state marketers to deal with these commodities and the association is not geared to provide cooperative marketing services.

The complex system of relationships between leaseholders and various state organizations is reflected in Figure 1, which shows the percent of respondents in the 2002 survey who signed contracts with input suppliers, product marketers, and the bank. Over 80% of respondents are bound to the state by credit and input supply arrangements. The percentages for marketing contracts are deceptively low. As leaseholders generally specialize either in grain or in cotton, the combined frequency of contracts with the Cotton Board and the Grain Board is around 100% (actually slightly more than 100% reflecting the existence of some mixed grain/cotton farming). Thus, all

leaseholders are bound by marketing agreements to the state, with no independent commercial activity in the two strategic commodities.

Fig. 2. Structure of Leaseholder Family Income



Total income 13.5 million manat

## THE ROLE OF THE HOUSEHOLD PLOT

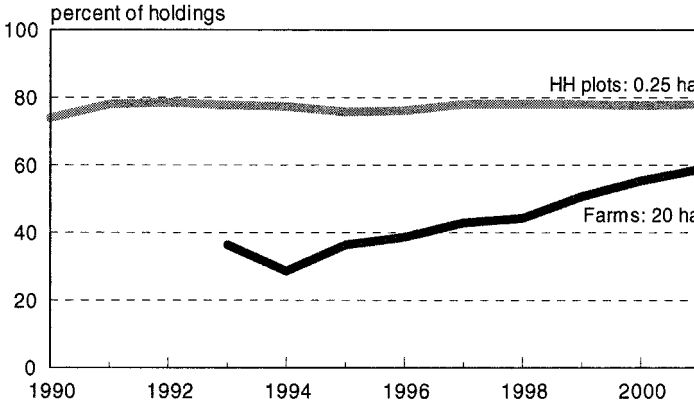
Leaseholders operate in a two-tier farming system. In one tier, they have 5-6 hectares of irrigated land leased from the peasant

associations, where they grow mainly wheat or cotton for delivery to the state. In the second tier, they have a small household plots of about 0.25 hectares on which they grow vegetables and keep some private livestock. The output from the household is in part consumed by the family and in part sold in the open market, without any intervention from the state. The income of most rural families thus includes cash income from the leasehold operation plus cash and in-kind income from the household plot. In the 2002 survey, these two components were evenly balanced and jointly accounted for 75% of family income (Figure 2).

The remaining 30% represent cash income from off-farm salaries of family members working outside the household, pensions, social transfers, etc. The household plot is thus a very important source of income for rural

families, accounting for more than one-third of total income in value of own

Fig. 3. Share of Cultivable Land in Individual Sector



farm products consumed by the family and in cash from product sales. The enlargement of household plots in 1990-92 made a very important contribution to the well-being of the rural population.

### PRIVATE FARMERS AND THEIR LAND

In addition to leaseholders and their household plots, Turkmen agriculture has another relatively new component that began to emerge only in 1993. These are independent private or peasant farms (called *daikhan* farms in Turkmen) that operate outside associations on land grants received directly from the state, and not in the form of a lease from the association. The land in these private farms increased from zero in 1992 to more than 115,000 hectares in 1998-2000, when it approached the total land in household plots (130,000 hectares). In those years, the private sector (household plots and peasant farms combined) controlled almost 10% of all cultivable land in Turkmenistan. There were about 7,000 private farmers in Turkmenistan, so that an average private farm had 16 hectares – four times as much as the average leasehold in associations (4 hectares; see Table 2).

Yet there is a serious problem with the quality of land in private farms. The declared government policy is to give private farms unirrigated, uncultivable land and thus force them to reclaim desert land at their own expense (see, e.g., Lerman and Brooks (2001)). In effect, the government has

relinquished the responsibility for what was traditionally regarded as a public good in the Soviet era and today relies on private individuals to invest in land reclamation. The poor land quality in private farms is clearly illustrated by Figure 3, which shows that in 1993-95 cultivable land was only 30%-40% of the holdings – compared to 80% in household plots. Yet it seems that the private farmers are doing exactly what the government intended them to do: they are actively reclaiming desert land on their farms and the share of cultivable land has steadily increased from the initial 30%-40% to 60% today (Stanchin and Lerman, 2003). The picture that emerges from the 2001 survey of private farms is consistent with these national figures: among the respondent farms, 31% of the land was irrigation-ready from the start, another 37% was reclaimed by the farmers during their new tenure, and 32% is still unused and remains to be “opened” for cultivation in the future. It is largely through the efforts of private farmers that Turkmenistan added 64,000 hectares to its stock of irrigated land, which increased from 1,744,100 hectares in 1994 to 1,808,400 hectares in 2001.

Another difficult issue is the peculiar notion of “private landownership” in Turkmenistan. First, land granted to private farmers allegedly in “private ownership” is totally nontransferable: it is received from the state without the right to sell, give as a gift, or exchange. Another unusual twist is that private ownership in Turkmenistan is granted conditionally, and the state reserves the right to confiscate private land if the farmer’s performance does not meet the expectations of the regional authorities (Decree, 1993). During the early phases of reform (up to 2000), the confiscation option was not enforced, so that both the number of private farms and their land holdings were steadily increasing. In January 2000, there were 7,066 private farms in Turkmenistan with 115,000 hectares in private ownership or long-term lease, up from 750 farms with 28,400 hectares in 1993. Between 2000 and 2002, however, the number of private farms decreased to 5,176 and the land holdings dropped to 81,100 hectares. The downward trend continued and by the beginning of 2003 private farms retained only 64,200 hectares. Within just three years private farms lost a staggering 45% of their land: the state began to enforce the confiscation provision, taking back private land from farmers who had not farmed actively (or satisfactorily) in the past two years. This, of course, is an unthinkable policy in a market economy, yet in Turkmenistan policymakers justify its enforcement by the acute scarcity of cultivable land and the need to ensure that no cultivable land is left idle.



## SOME COMPARISONS OF LEASEHOLDERS AND PRIVATE FARMERS

The most striking difference between leaseholders and private farmers is not in farm size (5-6 hectares in leaseholds, 20 hectares in private farms): it is in the fact that leaseholders are subject to state orders while private farmers are allowed to grow whatever they wish. This is clearly reflected in the specialization of farms in the two groups (Table 4, based on 2001-2002 surveys): leaseholders produce either cotton or wheat, with less than 10% of farms producing both cotton and wheat and only 5% diversifying into other commodities. Among private farmers, on the other hand, 15% produce both cotton and wheat while fully 34% produce commodities other than cotton and wheat. These other commodities are largely livestock products, which are very seldom reported by leaseholders. Nationally, the product mix of leaseholders in associations is 85% crops and only 15% livestock. Livestock production is concentrated mainly in the individual sector – private farms and household plots, where the product mix is diametrically opposite: 25% crops and 75% livestock.

*Table 4. Specialization at the Farm Level (percent of respondents)*

	Leaseholders	Private farms
Cotton only	36	8
Wheat only	50	43
Cotton+wheat	9	15
Other	5	34 (livestock)

*Source: 2001-2002 surveys.*

*Table 5. Sale Channels for Farm Products: Leaseholders and Private Farmers (percent of respondents)*

Channel	Leaseholders	Commodity	Channel	Private farmers
State	88	Cotton	State	100
Association	9	Wheat	State	71
Market	3		Market	21
		Vegetables	Market	80-100
		Meat, milk	Market	80-90

*Source: 2001-2002 surveys.*

The difference in institutional arrangements for leaseholders and private farmers is also reflected in different access to marketing channels (Table 5). Leaseholders sell primarily to the state, which is consistent with their obligation to deliver wheat and cotton under state orders. Private farmers use different channels for different products. Vegetables, meat, and milk – the products for which no state procurement exists – are sold in the open market. Cotton is sold to the state: in principle, private farmers have no obligation to sell to the state, but there are apparently no alternative sale channels for cotton – direct exports are prohibited – and they are obliged to sell to the state cotton board. Wheat is again in a different category: the state takes 70% of the harvest, but a respectable 20% is sold through alternative channels. There is a very clear lesson behind these numbers: if producers are given an opportunity to choose between marketing channels, they will indeed exercise their right of choice, presumably optimizing sales income.

Despite the state orders and the constraints on individual choice, leaseholders appear to be quite happy with the new arrangements (Table 6; unfortunately no such data are available for private farmers). Most of the respondents in the 2002 survey report an increase in their motivation to work (compared with the situation in the former collective) and an improvement in their standard of living. Practically everybody is optimistic about the future prospects under the new system. The enthusiasm reflected in the first column of Table 6 may be exaggerated due to the specific socio-economic environment and local cultural traditions, but given the large size of the sample positive views cannot be dismissed as spurious. In terms of popular attitude the agricultural reforms are a success.

*Table 6. Leaseholders' Evaluation of the Situation under the New Leasehold Arrangements Compared to the Collective Past (percent of respondents)*

	Better than before the reforms	No change	Worse than before the reforms
Motivation to work	85	11	4
Standard of living	72	23	5
Future prospects	90	6	4

*Source: 2002 survey.*

## OUTCOMES OF AGRICULTURAL REFORM

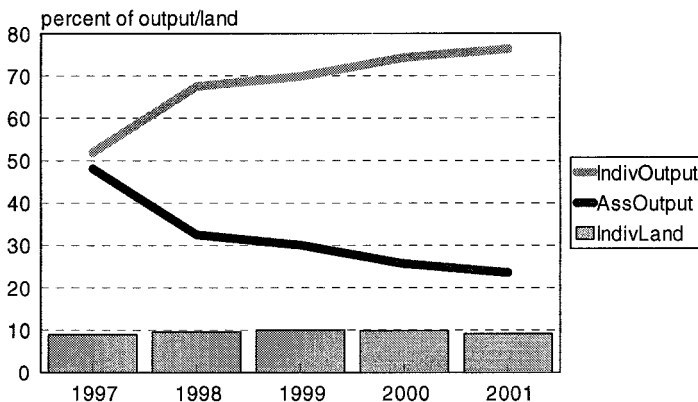
Proper assessment of the impacts of agricultural reforms requires detailed comparisons of the performance of the three institutionally different components of Turkmen agriculture: leasehold farms, household plots, and private farms. Unfortunately, neither national statistics nor our surveys

provide the full information necessary for this kind of analysis. National statistical data only enable us to make a crude performance comparison between the “association sector” (i.e., leasehold farms) and the “individual sector” (mainly household plots, but also private farms). The results of this comparison are presented in Figure 4, where two features are worth noting. First, the share of the individual sector in agricultural output increases over time, while the share of the associations decreases despite the transition to leasehold arrangements after 1996. In 1997, the first year of the main farm-structure reforms, each sector accounted for one-half of gross agricultural output. Five years later, in 2001, the individual sector produces 75% of agricultural output, while the association sector is down to 25%.

Another noteworthy feature is the ratio of output to land in the two sectors. The individual sector (household plots and private farms combined) control about 10% of cultivable land, on which they produce 75% of total output. Association leaseholds account for 90% of cultivable land, and yet they produce only 25% of total output. The relative productivity of land in the individual sector appears to be 27 times higher than in the association sector.

Neither feature is unique to Turkmenistan. Similar trends are consistently observed in all former Soviet republics, where in-line with accepted theoretical considerations we generally attribute the performance

Fig. 4. Associations and Individual Farms: Output and Land



differences to different incentives for individual farmers and workers of former collectives. Yet the institutional setting in Turkmenistan is unique in that the former collectives have shifted to individual leasehold

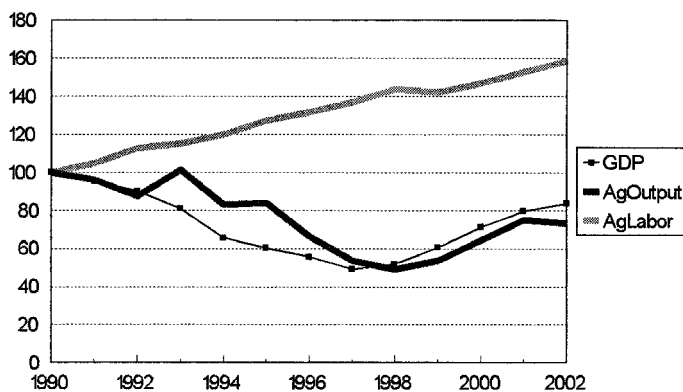
arrangements. As a result, leaseholders presumably face incentives that are

much closer to the incentives of individual producers than the incentives of workers in former collective farms in the rest of the FSU. We would have expected the leaseholders to achieve productivity levels that are much closer to the individual sector and thus give a strong boost to Turkmen agriculture. This obviously has not happened so far.

The only possible explanation, in our view, lies in the sharp differences in the institutional production and marketing arrangements between the individual sector and the leasehold sector. Individuals are free to decide what to produce and how to sell, and individual farming is flourishing thanks to private initiative. Leaseholders are strictly bound by state orders on the relatively large areas that they receive from the association, and there is not much room for private initiative. It is particularly important to note that the second tier of leasehold farming – the household plots – is not subject to these restrictions and household plot production seems to be flourishing (as part of the individual sector statistics) while the association sector is struggling.

Switching to a still broader national view, we see in Figure 5 that both

Fig. 5. GDP, Agricultural Output, and Agricultural Labor 1990-2002



agricultural output and GDP declined sharply after 1990. Some signs of recovery appeared in 1997-98 – coincidentally with the introduction of significant reforms in agriculture. We would like to hope that the incipient recovery is indeed linked with the impact of agricultural reforms, but only the future will show if this is so. Figure 5 incidentally reveals another important feature of rural Turkmenistan: the labor employed in agriculture is steadily increasing over time, both because of high natural increase of the rural

population and because of lack of alternative employment opportunities outside agriculture. The combined effect of increasing labor and decreasing agricultural output of course has had a negative effect on labor productivity of Turkmen agriculture.

## **CONCLUSION**

Turkmenistan has implemented significant reforms in agriculture, increasing the size of the household plot sector, enabling the emergence of independent private farms, and most importantly individualizing to a certain extent the production arrangements in former collective farms through the introduction of leasehold contracts. Yet the policies underlying these reforms are not entirely consistent: state orders are retained for the main cash commodities (cotton and wheat), the producers are generally bound to monopolistic state marketers and input suppliers, and the independent private farmers who are relatively free from these constraints receive land of very poor quality that requires major investment in reclamation. It is not surprising that the performance of the new leasehold sector is far short of its potential and the new independent farmers are struggling to survive. However, despite these political constraints, the reforms are finally beginning to have some positive impact, with agriculture slowly starting to recover from the initial transition-induced decline.

## REFERENCES

- Csaki, C. and A. Zuschlag 2004, *The Agrarian Economies of Central-Eastern Europe and the Commonwealth of Independent States: An Update on Status and Progress in 2003*, ECSSD Working paper No. 38, World Bank, Washington, DC.
- Decree 1993, *Presidential Decree on Right of Possession and Use of Land in Turkmenistan*, February 2.
- Freedom House 2002, *Nations in Transit 2002: Democratization in East Central Europe and Eurasia*, [www.freedomhouse.org](http://www.freedomhouse.org)
- Goskomstat SNG 2003, *Official Statistics of the Countries of the Commonwealth of Independent States*, CD-ROM 2003-8, Moscow: Interstate Statistical Committee of the CIS.
- Lerman, Z. and K. Brooks 2001, *Turkmenistan: An Assessment of Leasehold-Based Farm Restructuring*, Washington, DC: The World Bank, World Bank Technical Paper 500.
- MinEcon. 1999, *Turkmenistan: Eight Years of Independent Development*, Ashgabat: Ministry of Economy and Finance, National Institute of Statistics and Forecasting.
- Stanchin, I. and Z. Lerman 2003, *Agrarnaya reforma v Turkmenistane (Agrarian Reform in Turkmenistan)* [in Russian], Rehovot, Israel: Center for Agricultural Economic Research.
- Zaslaver, D. 2004, *Agrarian Reform in Turkmenistan: Financial Analysis of Peasant Associations and Leaseholders* [in Hebrew with English Abstract], MSc Thesis, Department of Agricultural Economics and Management, The Hebrew University, Rehovot, Israel.

## **PART III**

### ***ESTABLISHING THE SECTORAL LINKAGES IN POLICY REFORMS***

## CHAPTER 11

# IMPACT OF POLICY REFORMS ON FARM PRODUCTION IN UZBEKISTAN

Sandjar Djalalov

*Center for Efficient Economic Policy, Uzbekistan*

Masahiko Gemma

*Waseda University, Japan*

## INTRODUCTION

Agriculture plays an important role in the economy of Uzbekistan. This sector employed about 40% of population and produce one third of its gross domestic product (GDP) in 2002. Currently, the significant share of cotton in agricultural production made Uzbekistan the fifth producer and third exporter in the world. Cotton export is a main source of foreign currency and thus, the state is trying to control production and marketing of this strategic crop. Food security concerns and interruption of grain import in mid-1990 led to the implementation of new government policy of self-sufficiency in grain production. Consequently, together with cotton, wheat became the second strategic crop in the country. After getting independence in 1991, the government policy mainly concentrated on reaching two objectives: 1) permanent development of cotton production to support state hard currency earnings from cotton export and 2) self-sufficiency in wheat production. In order to fulfill these goals, the government prefers to take a slow “step-by-step” way in reforming agriculture based on strong state control in production and marketing of these two “strategic crops”. However, the proposed policy has slowed down agricultural development through cotton production as sown areas have declined while wheat production has increased and in many places replacing cotton.



The proposed study intends to analyze the production efficiency and marketing conditions of different types of farming. In addition, regional differences exist in plant and livestock production. The data is based on results of field studies on different forms of ownership and organizational units in Uzbekistan agriculture. The survey was conducted in 2002 and covered 1200 farms in two regions.

## FARM PRODUCTION

### Types of Farming

Since 1992, several Presidential Decrees and Decrees adopted by the Cabinet of Ministries created favorable legislations for different types of farming. From about ten different organizational units and types of ownership, the government has identified three most appropriate for Uzbekistan conditions. The main condition that limits land reform and farm reorganization is prohibition of private ownership of land. In addition, it is not allowed to use land as collateral for receiving loans from the bank and selling land plots. The government, as a main reformer, assumes that private ownership of land causes fragmentation of sown area, which destroys the irrigation systems. This results to declining cotton and wheat production which is the main source of state budget. In addition, it is presumed that creation of large land ownership could become an destabilizing factor and reason for conflict in the society. Hence, three types of farming namely, agricultural cooperatives (*Shircats*), dehcans farms and private farms are operating in the agricultural sector of Uzbekistan (Thurman, 2001).

1. Agricultural cooperatives (*Shirkat*) continue from the former kolkhoz and sovkhoz dealing mainly with production of strategic crops cotton and wheat. It is the biggest production unit where average size of investigated farms is 1554 ha in Sirdarya region and 896 ha in Bukhara region. The agricultural cooperative consists of smaller units called *oilavii pudrat* or family contractors (previously *brigads*). Land is state ownership and the cooperatives received land for unlimited use solely for agricultural purposes. There are two types of contract agreements *shircats* have with contractors: 1) Production contract with the family contractors for one year. Contract usually includes production of main crops, cotton and wheat. *Shirkat* obliged guaranteed supply of all necessary inputs. 2) Land rent agreement which is usually made for longer term. Land contract does not play a significant role in agricultural production. At the beginning of each year *shirkat* administration receives a state order plan from top-level government organization, which

identify amount of product and sown area. It is prohibited to grow crops different from the state order. Average size of family contractors is 15.9 ha in Bukhara region and 18.2 ha in Sirdarya region. The labor intensity per unit of arable area is also different by regions. In Sirdarya region it is 0.41 labor per ha while in Bukhara region it is 0.23. The main share of employers in *oilabii pudrat* are family members at about 83% for both regions.

2. Private Farm (Former *Khohajaligi*) is considered as new market-oriented production unit. Private farms (averaging about 20 ha nationally) increased rapidly in the late 1990s reaching about 63,000 in 2002. This has accounted for almost 1.2 million ha in 2002. Private farms received land from state for long-term lease until 50 years. However, investigations show that only 2.1% of the farmers can lease land for 20-30 years, 16.9% for 50 years and 80% for 10 years in Syrdarya region. The study shows that private farmers also have to produce state order crops and it is not limited with cotton and wheat, but also related fruits, vegetables and melons.

3. Dehkan Farm is where shirkat employers and private farmers has additional source of income from personal household plots of less than 0.35 ha called *tomorka*. Since independence, the total area under the smallholding has increase significantly and reached 750,000 ha. *Tomorka* is usually located on former shirkat lands and are utilized solely for agricultural production. According to the Law, house construction is prohibited on these types of land. Since 2000, state encouraged farmers to register *tomorka* as *dehkan farms* for long-term (50 years) leasing. The registration helps farmers to receive credit, but it increases state control on income through tax. Thus farmers participate unwillingly in this program. This type of production could be considered as purely private type because farmers can do independent production and marketing. The limiting factors on this type of production are size, location of farm and irrigation.

## Crop Production

Crop patterns and diversity of crops in many cases depends on the level of farming freedom. Shirkat and private farms have the smallest number of crops due to strong state procurement system. In contrast dehkan farms have more diversified production. Moreover, there is difference at the regional level where high diversity of crops in Sirdarya region could be explained by salt tolerances of melons, watermelons and some other crops that are produced in this region (Table 1).

*Table 1. Crop Diversity in Different Types of Farming (average number of crops), 2002.*

Regions	Shirkat Family Contractors	Private Farmers	Dekhkan Farmers
Sirdarya	1.15	1.37	3.24
Bukhara	1.15		1.04

*Source: Farm Survey 2002*

Results from farm survey conducted in Sirdarya and Bukhara regions in 2002 are presented in Figs. 1-2. It has been observed that the main share of crops in private farms and shirkat family contractors are the strategic crops like cotton and grain (mainly wheat). Cotton was not grown in smallholdings. The share of wheat is significant at 68.6% in Bukhara and three times less in Sirdarya. In contrast, the share of grain in private farms and shirkat family contractors are much bigger in Sirdarya than Bukhara. Wheat in smallholdings is not grown in Sirdarya region because producers usually receive grain as salary due to lack of cash or delay in payment, a situation common in the area. In addition, shirkat family contractors in Bukhara region were producing much more diversified crops than the farmers in Sirdarya region who are limited to mainly cotton, wheat and rice. In spite of great demand for animal feed the share of fodder crops was the lowest in both regions. This has negative impacts to livestock productivity and soil fertility.

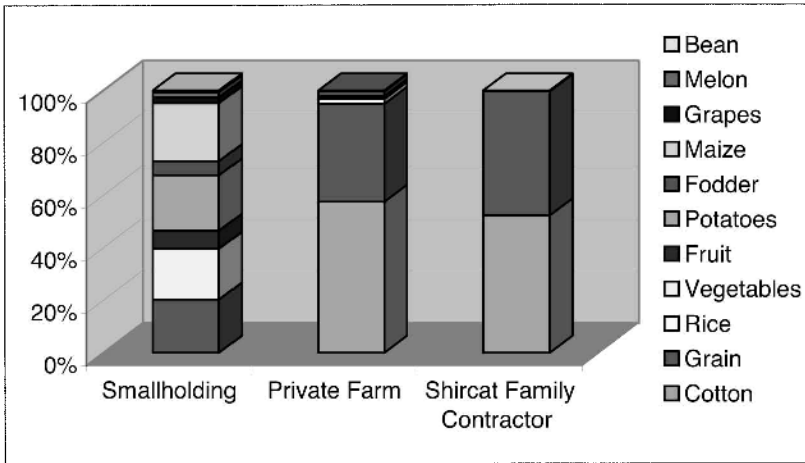


Figure 1. Cropping Pattern (%) Using Different Types of Farming, Syrdarya Region, 2002.

Source: Farm Survey 2002

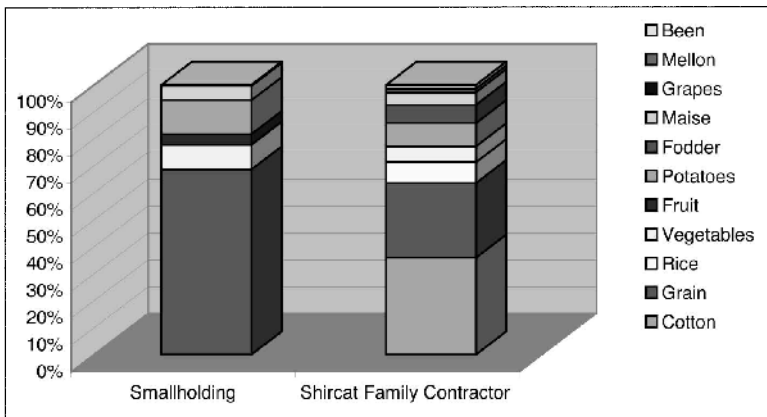


Figure 2: Crop pattern (%) Using Different Types of Farming, Bukhara Region, 2002.

Source: Farm Survey, 2002.

Farmers have limited size of land and land-use intensity such as second or even third cropping is very important in reaching high efficiency. However, only 3% of smallholdings in Bukhara region were used for second crop, mainly wheat, maize and vegetable production. In contrast, 25% of

Sirdarya region smallholders used second cropping to compensate the low income received from work for shirkat and state salaries. The largest share in second cropping is of wheat at 22.8% and greenery at 21.4%. Others include fodder at 10% and vegetables at 5.8%. The smallest percentage of field area was devoted to maize at 2.5 % and potatoes at 1.8%.

Crop rotation has direct impact on soil fertility and yield. Some farms in Uzbekistan grow the same crop year after year for 20-30 years which may lead to persistent plant diseases and also enhances the pest population. Only 16.8% of respondents from family contractors practiced crop rotations. According to recommendations of agricultural research institutions, the share of alfalfa has to be around 30% of cotton crop rotation. However, it occupies less than 7% in reality. Consequently, due to preferences in state order crops such as cotton and wheat, production of alfalfa has been declining significantly since independence. Alfalfa restores nitrogen in the soil and is a good source of nutrition for livestock.

## **FARM PRODUCTIVITY**

Time trend analysis of statistical data of yields during the independence period (1991) indicates that cotton productivity declined in all types of production. Figure 3 shows growth during the first half of 1990s and significant decline in yields during the second half in agricultural enterprises and private farms. The gradual fall of yields is mainly caused by soil infertility and water salinization. This was due to improper crop rotation leading to damages of the drainage scheme on farm and inter-farm levels. Another important factor is low cotton price (about 30% of world prices on the farm gate), which does not stimulate producers to increase productivity. The state agencies controls all inputs supply, give priority in water, seeds, and fertilizer supply to cotton producers compared with other production systems. However, private producers have loses from cotton production and selling it to the state. As a result, private farmers yields was 14.5% lower than shirkat agricultural enterprises in 2000.

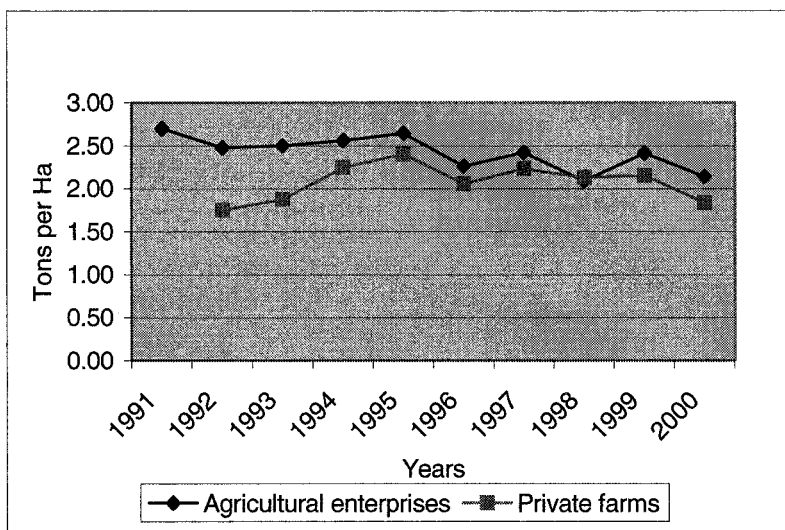


Figure 3. Cotton Yield (tons/ha) in Different Types of Farming, Uzbekistan, 1991-2000.

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics, 2001

Historical analysis of grain yields shows the opposite tendency compared to cotton productivity. The significant efforts provided by the State in getting self-sufficiency in wheat production encouraged wheat producers to increase productivity (Figure 4). Growth in wheat prices was much higher than those for cotton while differences between world prices and farm-gate prices were much smaller. It was also observed the large gap between Dehkan farms and the rest of producers is at 58% (Figure 4). Private “market-oriented” Dehkan farmers are producing 4-6 tons/ha, a biological optimum of wheat production in arid climatic conditions. Another factor that can enhance grain productivity is irrigation because 35% of cotton areas were replaced by wheat.

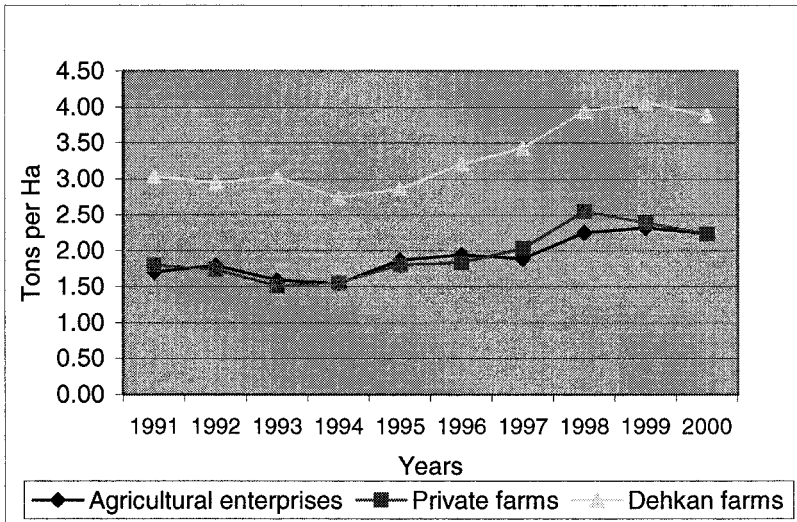


Figure 4. Grain Yield in Different Types of Farming, Uzbekistan, 1991-2000 (Tons/Ha)

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics, 2001

It is stated that the tendencies in yields for “state order” crops are similar for private farmers and agricultural enterprises due to low incentives for producers in marketing. Vegetables and potatoes could be sold in the market. In addition, smallholders and dehkan farms cultivate their own products more intensively producing higher yields (Fig. 5). In many cases output from smallholdings is the only source of income.

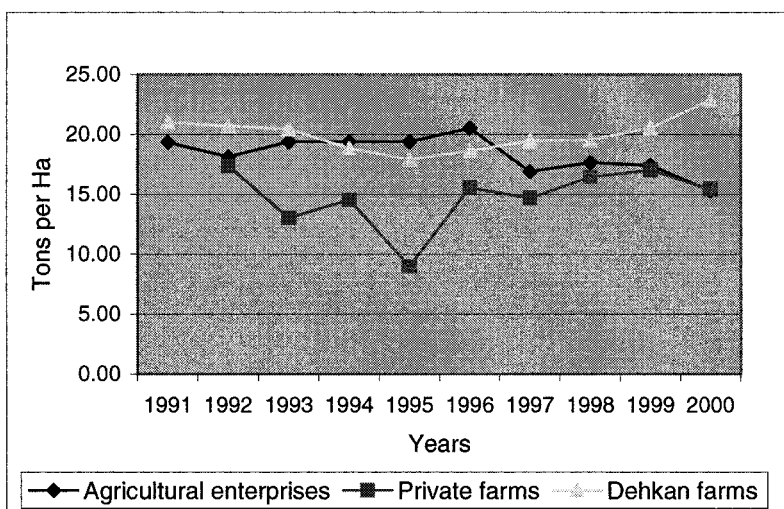


Figure 5. Vegetable Yields (tons/ha) in Different Types of Farming, Uzbekistan, 1991-2000.

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics 2000

Cotton yields in surveyed sites were higher in shirkat family contractors in Bukhara region while it was higher in private farms in Sirdarya region in 2002. Cereals were produced in all types of farming and unexpectedly high in smallholdings. Fruits and vegetables production private producers get lower yields in spite of intensive cultivation (Table 2).

Respondents faced several difficulties in plant production during 2002. In both regions farmers have ranked weeding (66%) and land salinization (68%) as the major problems in crop production. These problems were created due to insufficient crop rotation and lack of incentives for water conservation and maintenance of drainage scheme. Farmers of Bukhara region mentioned poor irrigation (72%) more frequently while Sirdarya counterparts were more satisfied with irrigation (32%). Water deficit exists due to high cost for energy where more than 80% of irrigation water is pumped in Bukhara region. Relatively smaller group of farmers (38% in Bukhara and 45% in Sirdarya regions) reported access to agrochemicals from the state supply network as a problem.



Table 2. Agricultural Yield (tons/ha) Using Different Types of Farming, 2002.

	Sirdarya region			Bukhara Region		
	Private farm	Smallholding	Shircat family contractor	Private farm	Smallholding	Shircat family contractor
Cotton	2.5		1.88	2.64		2.85
Grain	3.09	4.23	2.67	2.81	3.45	3.04
Rice	2.29			3.8	3.13	4.39
Vegetables	20	9.25		12.88	14.4	21.88
Potatoes	15	8.93		20	14.6	21.19
Animal Feed	10.6	11.22		6.83		12
Fruit	16.3	13.25		8	9.01	12
Bean		2.5			5.6	
Maize		8.42			6.65	5.75
Green vegetables		2.35				
Melon		11.42		16		

Source: Farm survey 2002

## LIVESTOCK PRODUCTION

After independence, the cattle population has increased by 5% in all types of farming while sheep and goats were reduced by 12%. The Government policy was mainly directed to maintain number of livestock even with low productive efficiency. In comparison with other Commonwealth of Independent States, Uzbekistan kept livestock number and production at pre-reform levels. However, during the independent period significant institutional changes occurred and this has changed the number of livestock according to farm types. A decline in the population of livestock in big agricultural enterprises and increase in household farms, except pigs and poultry were observed (Figs. 6-10). Poultry production has declined in all types of farming due to lack of specific combined food, medicine and veterinary care. Increase of Islamic tendencies negatively impacted the pig industry in all types of farming. However, since 1998 this indicator shows

signs of recovery due to some difficulties in meat processing for sausage production.

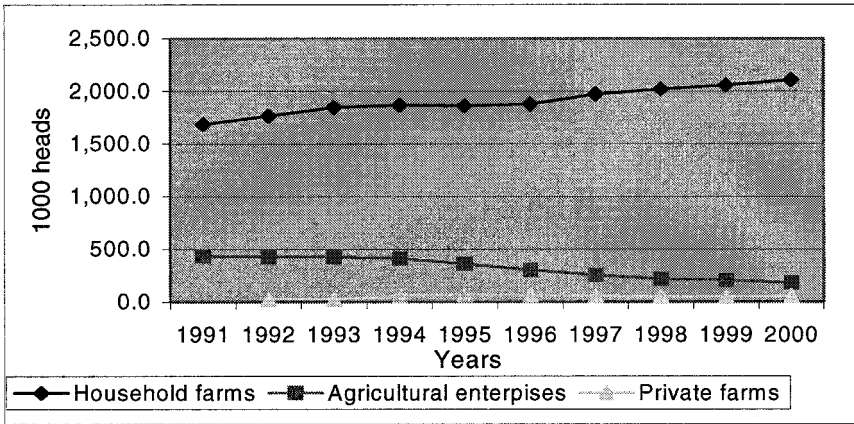


Figure 6. Trend in Cow Population by Types of Farming, Uzbekistan, 1991 - 2000 (1000 heads).

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics, 2001

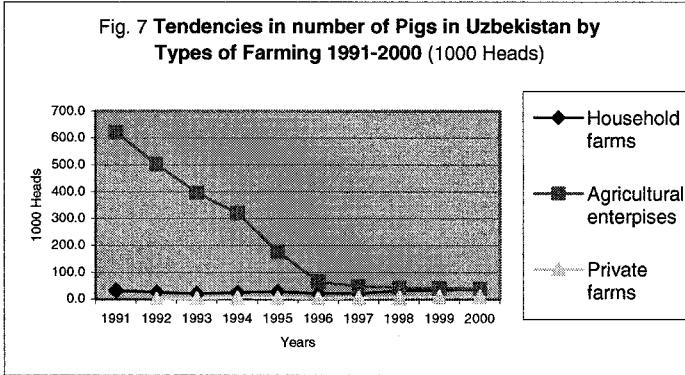


Figure 7. Tendencies in Number of Pigs in Uzbekistan: 1991-2000

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics, 2001.

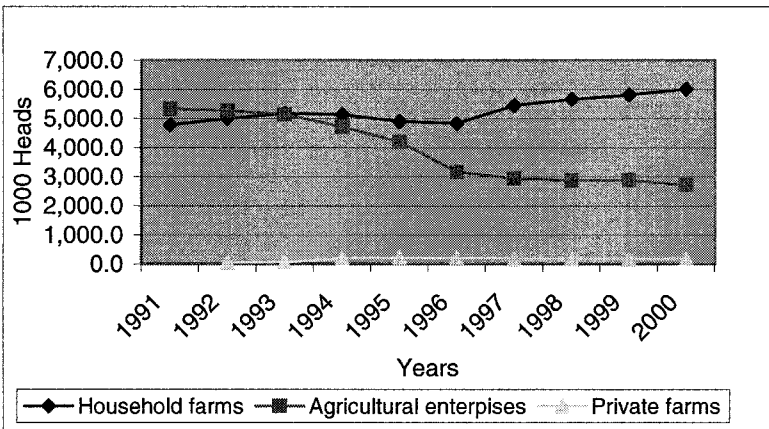


Figure 8. Trend of Sheep and Goat Population by Types of Farming, Uzbekistan, 1991-2000

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics, 2001.

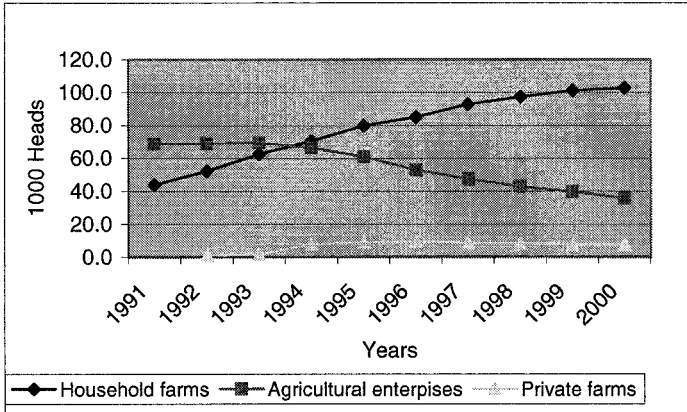


Figure 9. Trend in Population of Horses by Types of Farming, Uzbekistan, 1991-2000

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics 2001.

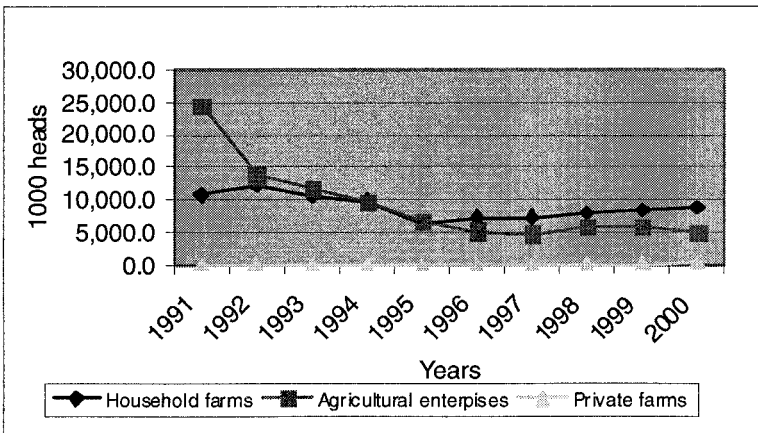


Figure 10. Trend in Population of Poultry by Types of Farming, Uzbekistan, 1991-2000

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics 2001.

Results from the survey in 2002 showed that most of Dehcan and private farms in both regions deal with livestock production. Table 3

demonstrates that cattle, particularly cows are the most common type of livestock. The average number of livestock owned in the private farms is 3-5 times more than that in smallholdings. In addition, this indicator is much higher in Sirdarya region than in Bukhara region due to more available pasture lands. The second most commonly owned type of livestock is sheep and goats, of which private farms raise more than 4 times on average as dehcans farms in both regions. Many smallholdings own horses in Bukhara region while in Sirdarya region this number is small. Negligible number of private farms are involved in piggery.

Livestock productivity in Uzbekistan is very low compared to European levels. Data available for agricultural enterprises indicates sharp decline (more than twice) in milk productivity and eggs per hen (Figs 11-12). However from second half of 1990s, the State measures a serious shortage of protein food while animal vaccination services have been slightly improving. In the surveyed farms, average milk was 9.6 liters per day during the summer months and 6.7 liters per day during the winter months. In addition, milk production was about 20% higher in Sirdarya region. The average number of eggs laid per month was very low at 10 during winter and 13.2 during summer.

Table 3. Number of Livestock in Different Types of Farming, Uzbekistan, 2002.

	Sirdarya Region				Bukhara Region			
	Smallholdings		Private Farms		Smallholdings		Private Farms	
	% owned	Average Owned	% owned	Average Owned	% owned	Average Owned	% owned	Average Owned
Boils	41	2.52	3.5	10.75			26	3.82
Cows	74	1.74	4	22	84	4.2	37	4.82
Young boils	15.5	1.39	2.5	6.4	78	1.67	16.5	3.86
Young cows	33.5	1.16	3.5	9.63	75.5	1.72	25.5	5.36
Sheep	18	8.51	3	35	10.5	6.77	21	26.78
Horse	1.5	5	2	3.6	13	2.3	3.5	3.2
Poultry			1.5	155			3.5	129.6
Pigs			0.5				2	4
Donkey			1				2	3
Bees			1				2.5	4

Source: Farm Survey 2002

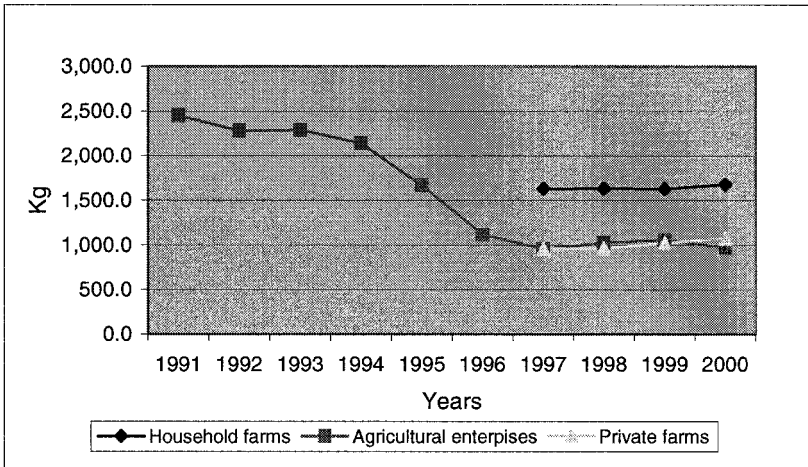


Figure 11. Trend in Livestock Productivity (milk per cow, Kg) by Types of Farming in Uzbekistan, 1991-2000

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics 2001.

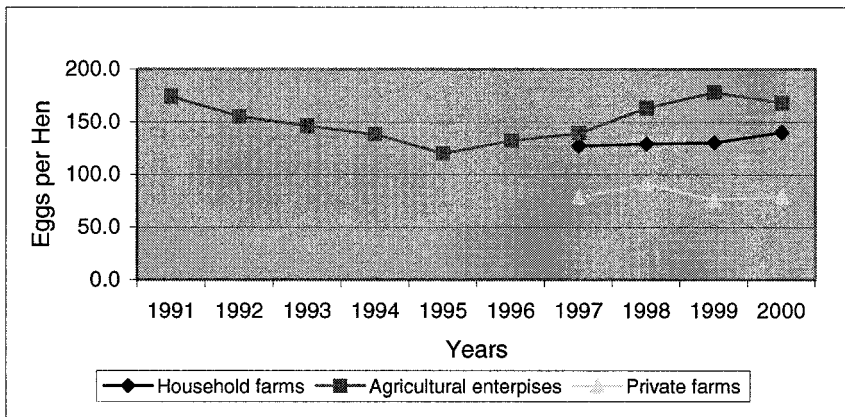


Figure 12. Trend in Livestock Productivity (eggs per hen) by Types of Farming, 1991- 2000

Source: Statistical Department, Uzbekistan Ministry of Macroeconomics and FAO data, 1999

About 45% of farms used different types of fodder to feed livestock . Fodder and pasture survey shows that 37 % of farmers reported that their livestock were pastured in their own plots, 29.5% responded that they were allowed to graze their livestock on shirkat cropland, 9% pastured in the communal pasture and about 12% along the road and canals. However, these numbers are probably underreported because several Government decrees prohibit grazing in shirkat and communal pasture. Results from the survey also showed that the most common difficulty faced by farmers in livestock production is the lack of fodder (49%), followed by low availability of pasture (26%) and the third problem varies amongst different group of farmers: disease among animals is at 21% and bad quality of premises for cattle and low prices for the production is at 19%.

## CONCLUSIONS

During the first years of independence (1990–1996) total farm output declined (Eskender, 2000). However, as land reform and farm restructuring accelerate in middle 1990s, farm output recovered and reached the pre-independence levels at the beginning of third millennium. Falling productivity of state cotton production could be explained by decline in soil fertility, absence of crop rotation and lack of stimulus for farmers. On the contrary, private sector production particularly in Dekhkan farms, which is out of state order, increased significantly. Livestock productivity, however, did not increase significantly due to lack of fodder and poor technology.

Farm survey indicated some difficulties farmers faced due to low efficiency of land and water resources utilization. There are following measures that has to be implemented to increase agricultural production and productivity: a) increase share of animal feeds in current cropping pattern; b) using double and intermediate crops increased intensity of sown areas; and c) creation of new institutional structures like water users associations with farmers and with close participation in water management. This will increase incentives for more efficient utilization water resources.

## **REFERENCES**

Eskender, T. 2000. Uzbekistan: Problems of Development and Reform in the Agrarian Sector. P 259- 291

Thurman, M. 2001. World Bank report: Agriculture in Uzbekistan: private, dehqan and shirkat farms in the pilot districts of the rural enterprise support project. 101pp.

Ministry of Macroeconomics, 2001. Statistical Reports (Various Years). Statistical Department, Uzbekistan.



## CHAPTER 12

# FARMERS' RESPONSE TO LAND PRIVATIZATION IN TAJIKISTAN

T.V. Sampath

*The World Bank, USA*

## INTRODUCTION

Land reforms and privatization of the agricultural lands is seen as one of the essential yet challenging policy reforms in much of Central Asia. However, the current political, institutional and social environment in the region creates a perverse set of incentives and disincentives for land privatization. The case of Tajikistan is typical. This paper attempts to review Tajikistan's efforts towards land privatization as an essential element of its agricultural development strategy. The response of the farmers to land privatization policy is analyzed and specific suggestions for rationalizing the incentive structures for furthering the process of land privatization is made.

## A REVIEW OF FARM PRIVATIZATION

According to Tajikistan's constitution, land is the exclusive property of the state. But user rights to the land can be privatized. The land-use rights can be conferred to individuals, men and women equally, are granted for life and are inheritable. Land use certificates documenting these rights are issued either to a whole household, or to a group of households (generally from an extended family), with all adult members of the household(s) listed individually as right holders on the certificate, or to individuals, in accordance with their preference. The official fee for the initial issuance of certificates is currently \$7.50 per parcel. The Land Law defines the broad parameters of land use rights to individuals with rights for inheritance. The law defines the

types of land use rights, the authority and the role of *Raions* and *Jamoat* for land allocation, collection of land taxes, land use planning, land use rights and mortgaging and settlement of land disputes. It defines the rights of land users and lease holders, and also defines the use of a special land fund for the purpose of land privatization and farm restructuring. However, it does not provide for purchase or sale of allotted land. Although the right to buy and sell land rights is fundamental to a market in land, it is still not allowed and the issue is under debate. The primary focus of the World Bank and Government of Tajikistan on land reform programs has been concentrated on arable farmland, and particularly the land held by sovkhoses and kolkhoses during the Soviet period.

### **Importance of Farm Privatization**

Farm privatization is a central issue in the development of Tajikistan's agriculture. Some two thirds of the population is directly dependent for their living on Tajikistan's 4.6 million ha of agricultural land, of which the greater part is rainfed pasture land. Only about 720,000 ha are arable and irrigated, of which some 503,000 ha in lowlands are under rotation between cotton and cereal crops, with about 320,000 ha under cotton at any one time. Through the Farm Privatization Support Project (FPSP) of the World Bank, Tajikistan privatized land use rights in a way that improves agricultural efficiency and increased the agriculture sector's contribution to economic growth and welfare. Under FPSP, the government privatized a total of 10 Collective/State farms (CSFs), transferring land to farm families with land use certificates that clearly defined the parcel boundaries, coordinates, and which were registered with a Unified Parcel Number (UPN) in a central database. This was done on a pilot scale to establish a transparent, equitable and generally acceptable model of privatization of CSFs which would be applicable for the future. Methodology adopted 10 steps approach for the privatization of the CSFs that is regarded as fair and transparent is presented in box 1.

**Box 1: Ten Steps in Privatization and Registration of Land Parcels.**

*I: Formation of local commission with representatives of farm employees, village administration, community groups to discuss, in the General Body meeting, and resolve to privatize their collective/state farm by farm workers/shareholders participating and informing the raion administration to form the commission for the privatization of the farm;*

*II: Take up and complete the survey of the proposed farm by SLC of the farm to be privatized, and update and prepare a 1: 10,000 scale digitized maps of the farms clearly demarcating the lands within each state/collective farm ownership, cropped area, public arable lands, roads, canals water bodies, building and other features, arable lands, pasture, forest area etc, and also the areas that will remain under state and municipal ownership;*

*III: Determination of list of workers/citizens who would have rights to privatized land as outlined in draft land reform law and qualifying individuals for each farm determined by raion and local agricultural reform commissions;*

*IV: Determination of individual/family land share and non-land shares- based on farm size, land classification and number of citizens within the farm possessing legal rights, determined by the local commissions consisting of worker's representative group leaders and NGOs; with follow-up survey and updating of maps*

*V: Distribution of land shares based on order, size and parcel location determined by a lottery supervised by the raion and local Agricultural Reform Commissions (ARC) and traditional local representatives –*

*VI: Physical demarcation of allocated parcels using stakes and boundary ~ surveys in presence of village public - followed by permanent boundary markings to individual land parcel owners;*

*VII: Preparation of land certificates (akts) with Universal Parcel Number (UPN), and other required documentation for clearance by ARC and for the raion administration and approval of ARC at Dushanbe and;*

*VIII: Appeal to land allocation on the decisions of parcel allocation, to local ARC, raion or federal authorities if found necessary; to be addressed in two weeks,*

*IX: Preparation of land certificates (akts) with coordinates, UPN and other required documentation by ARC and accord approval, and send them to raion administration, and records; and*

*X: Final approval of land allocation by raion administration with supporting documents and akts; and Issuance by raion administration to the land owner.*

**Challenges in Farm Privatization**

Land tenure reform in Tajikistan began immediately after independence under various schemes regulated by various laws and

presidential edicts. However, regulation of the land market remains unclear, and sometimes contradictory, and subject to individual interpretation. The original residents of the lowlands have resisted provision of ownership to hill people who were resettled to the valleys during the 1950s collectivization program. These original residents have always seen themselves as the true custodians of these lands and became the local elite in the collectivization process. Today as farm managers, raion administrators, gin operators, with good ties to the government at all levels, and with monopolistic cotton traders, they have a stronghold on the cotton production chain, and are largely opposed to the break-up of large farms into small family units. They systematically misinform the local population on land use rights and the farm restructuring process. These vested interests have been stronger than originally anticipated, which, together with the lack of complementary support for widespread publicity, has limited spontaneous replication of the FPSP approach in cotton growing areas. These interests together with reluctant local authorities (raion administrators and directors of former CSFs) have made progress of the privatization process very slow.

Except for the farms that have followed the FPSP model, actions taken by vested interests have resulted in substantial inequalities in the government's land distribution process. Due to poor knowledge of their land use rights, local people are not able to pursue the reform process vigorously. In addition to problems associated with cotton areas, some of the delays in replicating the FPSP approach are also due to lack of training and modern technology that is needed to map and register a large number of smaller land parcels on a nation-wide scale. Also, in FPSP areas, local people who have not been part of CSFs (e.g., retired civil servants) now want access to redistributed farmland. This issue is now being debated within Tajikistan government. In addition, in some areas, de facto land redistribution took place during the civil war, and is associated with continuing social tensions that require specialized attention.

## **Status of Farm Privatization**

Country wide, official information indicates that as much as 75% of all arable land is now privatized and converted into private farms. By the end of 2003, there were an estimated 21,000 private farms covering some 350,000 ha of which some 30,000 ha are irrigated land including the 19,000 ha under the FPSP's 10 pilot farms.

Progress in converting rainfed highlands into family farms has been relatively fast, but without appropriate land use right certificates, clear parcel demarcation and UPN numbers. Apart from the FPSP farms, most state and

collective farms in the irrigated cotton growing areas have not been divided into family farms but rather have been converted into “private” joint stock companies or associations, where shareholders or members have little meaningful input in decision making and no power to oppose management decisions. Farmers in cotton growing areas are still not free to make their own decisions on crop types, irrigation frequency, marketing of outputs, etc. In the last few years farm workers who pushed for privatization have been threatened by debt obligations which they have been told they would have to assume along with the land use rights.

### **Donor support for farm privatization**

The World Bank has taken a lead role as a donor in promoting farm privatization in Tajikistan since 1999, beginning with the FPSP. FPSP covered ten CSFs representing different agro-climatic and socio-economic zones of the country. The land use rights registration component of FPSP has been completed– it has developed transparent and fair methods for land distribution to workers on the ten pilot farms, and supported the issuance of the associated land use right certificates for almost 5800 parcels by providing land administration training and equipment to the State Land Committee (SLC). In addition to the land registration component, FPSP also improved access to agricultural and other farm-related information, rehabilitated on-farm irrigation, provided start-up capital (in the form of grants and credit), and established farmer institutions. Some of these supporting investments, especially the tangible ones such as irrigation, helped persuade otherwise reluctant officials to support the conversion of CSFs to family farms. To bolster the pilot project and expand its reach, under Structural Adjustment Credit II of the World Bank, another 40 farms are being privatized using the allocation methods developed under the FPSP, but without the complementary support investments. The Bank has learned that further, concerted project-financed efforts in land registration and farm debt resolutions steps are needed to enable Tajikistan to overcome the vested interests and other difficulties constraining conversion to family farms.

### **Registration of Land Transactions**

The Government's focus to date has been on privatizing the ten pilot farms, the land allocation process, and the issuance of land use right certificates. Little has been done to establish and maintain a registry of these titles that is secure, up-to-date, and capable of recording rights to land and

land transactions (mortgages, liens, leases, sales, inheritance, gifts, etc.). Without immediate action to develop a simple registry system, transactions in land may not be uniformly recorded and the land use right titles that have been issued may become obsolete. Once the process of land share allocation gains speed, the ongoing process of registering land transactions could be conducted at a convenient and easily accessible location. This will help users located in different parts of the country as they will not have to travel to national headquarters in Dushanbe. Presently the land titling process has focused only on the land allocated to individuals as part of the agricultural land privatization program.

### **Allocation of Registration Responsibilities**

Currently the system for registering land share rights is spread between different agencies. For example, rural land is registered at the SLC, urban land is registered at the municipalities and urban buildings are registered at the Bureau of Technical Inventory. Maintaining this disjointed approach leads to a waste of human, financial and technical resources and increases the cost and time of market transactions in land and buildings. The lack of information in one place also impedes smooth and uniform administration of all land administration systems. The Tajikistan government accepts the principle of moving towards a unified land registration system. However, the process involves complex and difficult institutional and legal issues at this stage. To resolve these issues it is necessary to obtain cooperation among the various agencies that are presently administering the existing registry and cadastral data.

## **THE CONTEXT FOR LAND PRIVATIZATION AND REFORM**

Land privatization in Tajikistan is carried out under a Presidential decree which mandates completion of the land privatization project by the end of 2005. Tajikistan has a political system which delegates considerable powers to local governments, and a cultural/social environment which tolerates widespread abuse of these powers. These powers include the *de facto* control of land use for agriculture, and the power to confiscate farm land and/or re-allocate it to other users. Strong vested interests seek to preserve this political/social environment and the rent-seeking opportunities it creates,

particularly in cotton growing areas where the rewards for rent-seeking are highest.

The approach to land privatization in Tajikistan emphasizes the desegregation of large collectives (kholkhoz and solkhoz) into (dehkan) farm associations. This approach perpetuates the soviet-style collective structures (albeit with a new name, and in smaller units), and hence preserves the old order. As the dekhan farm association individual who become association members although are listed as share holders of the Dekhan farm association, the individuals are not provided land use right certificates with a clearly defined location of their land parcel share. This precludes the so called dekhkan farm association share holder's right to exercise the option to exit from the association with his share if the share holder is not happy with the management. Several challenges remain in implementing land privatization in Tajikistan. The implementation of land privatization by Raion Land Committees, is dominated by representatives of pre-reform/independence power structures, which have considerable discretionary power and low levels of transparency and weak, poorly drafted land privatization laws and procedures which give the Raion Land Committees considerable latitude to abuse their authority over the privatization process.

Weak, poorly defined land use rights, also give local government considerable flexibility in their implementation of land law, and provide inadequate protection to new land owners. The inadequate definition and registration of individual land rights for the new owners of collective dekhan farms also fail to provide the new owners with adequate security and limited awareness and understanding of the rights they are entitled to. Weakly developed public institutions for land administration, slow the process of land privatization, increase its costs (official and unofficial) to new owners, and reduce the transparency and "certainty" of land ownership. There exists considerable uncertainty in cotton growing areas as to how the current cotton debt will be allocated to new dekhan farms.

Furthermore, politically well-placed actors have a strong incentive to establish individual dekhan farms, taking as much of the best quality land as they can get. Not only are they well placed to influence the District Land Committees responsible for land privatization, they can also resist the power of the local government to control land use and/or confiscate their newly privatized land.

In cotton-growing areas, majority farmers who are not politically well-placed have low incentives to create collective dekhan farms. However, due to the political decree the process takes place anyhow. This is because there is a strong chance they will be worse off in the long run. In addition to the high costs incurred, they are likely to be given the poorest land since their ability to negotiate cotton debt allocation/resolution is minimal and their

ability to control land use is negligible. Thus, there is a strong, continued risk that they could lose their land altogether through confiscation.

In non-cotton growing areas there is more incentive to privatize land for all farmers. Local government and vested interests have less reason to interfere in land use decisions (unless there are very profitable crops) or confiscate land; and cotton debts are not an issue. A more diverse range of dekhans have emerged as a result, small and large individual and the decision to organize the individually owned farms into larger size cooperative farms is conditioned by the need for farm power (machinery), for specialization, where the markets for commodities (farm outputs and inputs), credit and insurance are weak, and/or transactions costs are high, cooperative activity has many advantages. Kinship (family, tribe, ethnicity) enhances the conditions that benefits from joint activities and also influences the size of the individually owned but jointly organized farms (family based, clan based, etc).

## **RATIONALIZATION OF THE INCENTIVE STRUCTURE FOR LAND PRIVATIZATION**

Effective design and implementation of land privatization in Central Asia and particularly in Tajikistan requires rationalizing the existing incentive structure. Some of the action areas are highlighted here.

Increase the transparency and accountability of District Land Committees by changing their composition (increased participation of independent agencies). Increased monitoring of the privatization process and publicly available information and monitoring reports.

Insist on issuing to every individual land use right certificates with a clearly defined location (coordinates) of their land parcel share such that the association's share holder can exercise his right to exit from the association with his designated land share if he/she is not happy with the management of the association. This would increase the accountability of the management to improve farm efficiency.

Terminate the discretionary authority of local government to control land use, particularly in cotton areas.

Transfer the authority of local government to confiscate land to the central government, and limit and clarify the legal basis for confiscation.

Resolve the cotton debt crisis, and allocate debts to farmers in an equitable manner (after review of an independent commission/agency to rationalize the stated outstanding bad debts).



Strengthen the public institutions responsible for land administration, including the cadastre and the establishment of a central state-level registry of land transactions.

Enhance transparency in issuance of land certificates both at the raion and state level by clearly printing and publicizing for the general knowledge of the public about the procedures for land allocation and issue of land certificates. Reduce the layers, convolutions and costs and difficulty of obtaining land certificates.

Strengthen the definition of individual land use rights for collective dekhkan farms, to define the share of an individual shareholder to facilitate accountability and gradual transition to individual ownership and land market.

Strengthen the capacity of individual farmers and communities to understand their rights and redress the abuse of power by local government, through awareness programs, support for community organization etc.

Support the establishment of additional forms of real cooperative activity (based on marketing, input supply, machinery use, credit etc), as alternatives to collective activity based on land ownership. This facilitates individual farm ownership for those who seek it, without foregoing the advantages of cooperative activity.

## **CONCLUDING REMARKS**

This chapter was a review of farmers' response to land privatization in Tajikistan with a specific set of suggestions that would increase the efficiency of the land reform process. While land reforms and privatization is seen as a key element of the overall economic reforms process, much needs to be done in translating the full benefits of such reform efforts for the rural population. Moving away from approaches that perpetuate the Soviet style land ownership to provisioning clear individual land titles that are transferable would form the strong foundation for agricultural development in Central Asia.

## **REFERENCES:**

World Bank, The. 2004. FPSP/RIRP Mission reports, Tajikistan

World Bank, The. 2005. Land Registration and Cadastre System for Sustainable Agriculture Project. World Bank Report No. 30512. Washington, DC.

## CHAPTER 13

# MARKET REFORM AND PRODUCER RESPONSES IN CENTRAL ASIA

Sandjar Djalalov,  
*Center for Effective Economic Policy, Uzbekistan*

Masahiko Gemma,  
*Waseda University, Japan*

## INTRODUCTION

Central Asian countries have been undergoing a series of transformations from central planning to market economy since their breakup from the Soviet Union. Market reforms formed a major method of intervention in these countries over the past decade in order to liberalize the markets and allow farmers to market their commodities directly to regional and consumer markets (Eskender, 2000). This chapter, using Uzbekistan as a case study, discusses some of the key policy issues that relate to market reforms and the farmers' response to such reform efforts. Farm marketing behavior in response to market reforms is described along with the marketing channels for input and output marketing in the private farm production. Future challenges in further reforming the marketing system in Central Asia are presented using Uzbekistan case studies.

## FARM MARKETING BEHAVIORS

There are two different systems of pricing and marketing policies functioning in Uzbekistan. One system is for state order crops - cotton and wheat, in which marketing is strongly regulated by the government. In

practice, state order procurement remains because it is by far the largest marketing channel for wheat and the only marketing channel for cotton. For other products, such as rice, strict controls on marketing, enforced mainly by the local authorities, are practiced at different levels. In contrast, for the fruit and vegetable sub- sectors, marketing and pricing are liberalized and production of those products is only constrained by the lack of suitable land or availability of inputs. The trade of these commodities is the most important source of income for producers (Thurman, 2001).

Most commodities go through government channel pricing based on “cost-plus” formulas. Aside from cotton and wheat, the price of remaining agricultural products depend on the forces evident in the two parallel markets: selling in the bazaar, where prices are negotiated between the seller and consumer and payment is immediate and in cash; or else contract for production with the process enterprises controlled by a commodity association (quasi- government organizations). Quite often contracts are determined by agricultural cooperatives and consequently, commodity associations that manage these enterprises regulate the prices. A lack of market information for the producers and lack of equipped storage facilities caused price instability for food products during the year. Although the contract system is an essential market instrument to avoid market instability, private farmers try to escape the contract system because of the lack of benefits and their low guarantee for payment.

The amount of crops that farmers have for their own disposal depends on type of farming. The *Dekhkan* farms that were surveyed have all output sold on the market or used for own consumption, because they are not subjected to state order. According to the “Law on *Dekhkan* (private) farm” (1992) farmers are able to keep most of the produced crops for sale, consumption and storage. In Bukhara region, 82% of private farmers deliver grain harvest to the state and only 15 % sold it in the market. The only crop that private farmers sold in the market were vegetables and bean. *Dekhkan* farms production is primarily for consumption needs. The crops that *dekhkan* farms sell most frequently are potatoes (75%), grain (56%) and vegetables (52%), directly in the market or to the middlemen. Private farmers sell the smallest portion of crops from plots, mainly because they are better off than shircat family contractor. According to the survey results, the share of crops that agricultural enterprises (shircats) leave for own disposal is various rice (71%) and grain (23%). Almost all vegetables, potatoes and fodder are marketed in the bazaars or sold directly to the consumers based on signed contracts.

Relatively low proportion of farmers (65 %) mentioned about positive changes in marketing products. Private producers faced difficulties in marketing their own products. Storage is the most commonly faced problem

among respondents. The second most common problem is transportation to the cities bazaars. The third in the farmers ranking of difficulties is low prices.

The current domination by State marketing channels allows private farmers only limited market opportunities for most products. The problem that private farmers encounter is that selling through government marketing channels is not commercially viable, however, at the same time, bazaars create market opportunities for only a very limited numbers of farmers. The output price analysis shows the differences between state marketing channels and private selling through the bazaar. The State Marketing Board is a monopsonic buyer of cotton and the only channel for cotton sales to the world market. Average purchasing prices for cotton are at least two times higher compared to wheat's state purchasing prices, but farmers prefer to grow wheat instead of cotton for two reasons: Firstly, for food security reasons and also for the possibility of receiving cash payment at the bazaar. Secondly, high prices for cotton usually are accompanied by high production costs.

In order to achieve high revenue from sown area, on- time supply with reasonable prices is critical. Several factors, including delivery input on time, input - output price correlation, impact on-farm output levels and profitability. There are three main input suppliers for private producers: quasi – state institutions in charge of input delivery and distribution; agricultural cooperatives (former *kolkhozes* and *sovkhozes*); and private channels (shops, companies and firms) (Fig. 16). Agricultural cooperatives receive the input as partial payment for products produced by state order. Private farmers input comes mainly from agricultural cooperatives to partially fill the state order of cooperatives, because the land allocated to the farmer is still under state control. For the crops, which are not under state control, private farmers usually buy input from shops, agricultural cooperatives or state supply agencies.

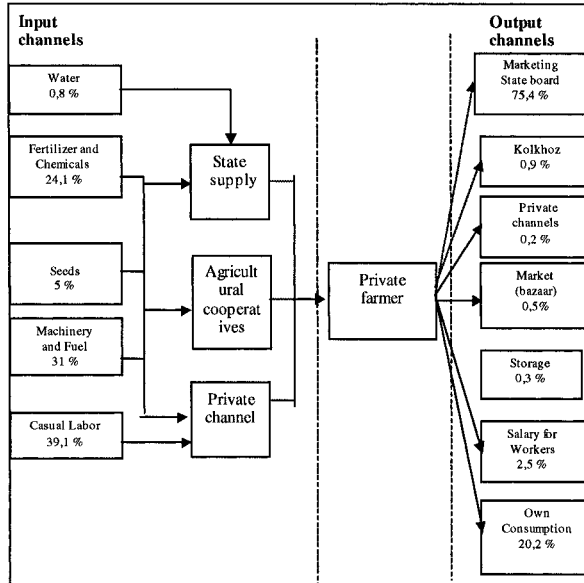


Figure 1. Marketing Channels for Input and Output in Private Farm Production

The main source of short-term support from outside the farm reflects the advance payment systems for cotton and wheat. Most bank advances, under the advance payment schemes, seem to stop at the agricultural cooperatives level while the benefits, which are passed on to the private farmers, are made in “kind”. It is noticeable that these deferred payments were for inputs like cotton and cereal seeds, machinery hire and fertilizers, all of which are associated with crop farming. The only exception is water (Table 1).

The recent tendency toward increasing the share of state regulated crop allocation patterns in private farm production has aggravated the economic condition of the private sector. As a consequence, according to the survey data, 75.1% of farmers lacked the ability to pay for inputs and were required to produce state order crops in exchange for advance payments that are processed through State financial channels. However, as it was stated before, the production of cotton and wheat, in many cases was unprofitable due to high production costs and the delay in output payment in relation to delivery to the State (Figure. 2). There are several cases in which the delay in payment for wheat continued for two years; for 3.5 % of cotton cases a delay of approximately one year was experienced. The average delays in payments

were 5.5 months for cotton and 3.5 months for wheat. The artificial delay in payment for output and request for advanced payment for input put agricultural producers in a vulnerable position with a chronic lack of cash. The processing enterprises, input producers and suppliers have advantages, because the state guarantees payment for state order crops.

*Table 1: The Frequency of Input Payments in Relation to Delivery*

Input	Source	Payment in relation to delivery (%)			
		Before delivery	At time of delivery	After delivery	End season
Wheat Seed	Kolkhoz	64.4	4.6	27.6	3.4
	State Supplier	63.8	13.8	10.1	12.3
Cotton Seed	Kolkhoz	71.6	0.24	27.1	1.2
	State Supplier	74.5	3	17.3	5.2
Fertilizer	Kolkhoz	62.4	4.5	17.7	15.4
	State Supplier	76.3	0.4	22.5	0.8
Insecticides	Kolkhoz	80	10	10	0
Machine Hire	Kolkhoz	19	11.8	61.1	8.1
	Private	5.7	73.3	15.7	5.3
Casual Labor	Private	21.7	33.3	43.5	1.5
Irrigation Water	State	0.5	2.4	1.8	95.2

*Source: Djizak Farm Survey, 1999*

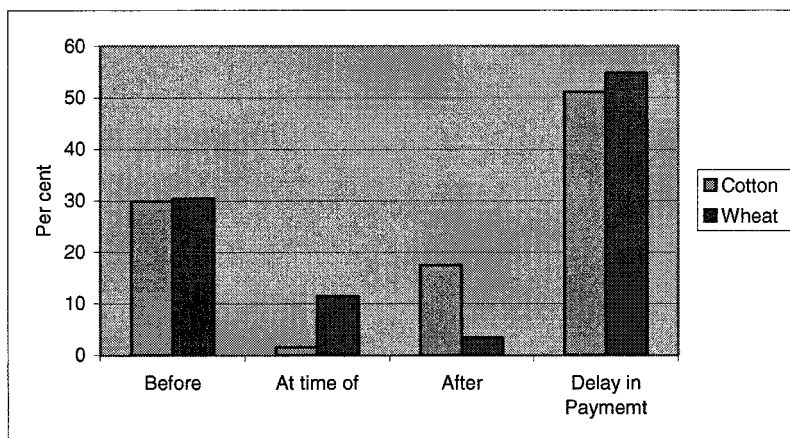


Figure 2. Frequency in Output Payment in Relation to Delivery for State Organizations

Source: Djizak Farm Survey, 1999

More than half of the respondents in a private farm survey in Jizzakh region in 1999 ranked fuel as the most limited resources (See Table 2). In spite of the fact that Uzbekistan is self sufficient in oil and gas, oil products are generally scarce, except for the production of state order crops. This condition is observed for all inputs. Most fertilizers used in agriculture, except potassium, are produced domestically. However, 62.4 % of farmers ranked fertilizers as the second most limited resource. Land and water in the near future will be the most limited factor of agricultural development, and were ranked third and fourth in survey. The least limited resource is electricity, with water inputs subsidized by the government.



Table 2. Farmer Responses Ranking for Most Limited Resources Among Inputs in %.

Ranks Share %	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	No response
1. Fertilizer	26.7 2	62.4 1	6.2 4	1.8 7	1.6 7	0.1 7	0.3 7	0.9
2. Electricity	0.4 7	2.1 4	1.1 7	2.5 6	10.5 4	10.8 4	62.9 1	9.0
3. Fuel	55.4 1	23.4 2	13.2 3	3.8 5	1.9 6	0.5 6	0.9 6	0.9
4. Land	10.7 3	7.1 3	34.9 1	13.9 3	8.5 5	22.7 2	1.4 5	0.8
5. Water	5.7 5	1.8 6	33.8 2	27.2 2	11.5 3	7.5 5	5.7 4	6.8
6. Pesticide	8 4	0.1 7	4.2 6	10.4 4	31.9 1	34.5 1	10.8 2	0.1
7 Seeds.	0.5 6	2 5	6.1 5	38.2 1	28.7 2	15.3 3	7.9 3	1.3

Source: Djizak Farm Survey, 1999

The principles of the current mechanism of the state order operation (at the farm level) consist of two main points. Firstly, the areas sown and production output of cotton and wheat has to be completed by each farm. The implementation procedure has a hierarchical structure: state order allocated to the region level as a share of the National total; allocated to a district level as a share of the fulfilled region total; allocated to farm as a share of the designated district total. Secondly, in case where state order production is fulfilled, 50% of wheat (30 % of cotton) must be sold to purchasing agencies at state-determined prices. The balance of the production can be sold to any buyer. However, if state order production is not fulfilled, the total production must be sold to the State at state determined prices. In practice, commonly the purchase through state order has been reported to be higher, at 60-70 percent of the crop, because many producers have not met ambitious production targets and therefore have been required to sell all the output at state order prices.

## CONCLUSIONS

During the first years of independence (1990 – 1996) total farm output declined. However, from the mid 1990s, as land reform and farm restructuring accelerated, farm output recovered and reached the pre-independence levels at the beginning of 2000. Falling productivity of state cotton production could be explained by decline in soil fertility, absence of crop rotation and lack of stimulus for farmers (World Bank, 2000). In the opposite side, private sector production particularly in *Dekhkan* farms, which is out of state order, increased significantly. Livestock productivity, however, does not increase significantly due to lack of fodder and old technology.

A few important elements of the current marketing system in Uzbekistan for primary crops need to be highlighted. Firstly, the State maintains a monopoly in the production and monopsony in marketing cotton and wheat, which means that farmers have limited options other than selling to the State at State determined prices. Secondly, state farms and agricultural cooperatives, which allocate private farms lands, have been able to force private farmers to produce quantities of state order crops and surrender them as part of the agricultural enterprise production requirement. The system of advance payment that is practiced widely and advancing credit for the purchase of farm inputs to produce cotton and grain is also part of the state order. During the independent period, the sown area under two strategic crops has not been reduced; in fact, the areas sown for wheat have been increased.

**REFERENCES:**

- Eskender, Trushin. 2000 *Uzbekistan: Problems of Development and Reform in the Agrarian Sector*. P 259- 291
- Thurman, Mike. 2001 World Bank report: *Agriculture in Uzbekistan: private, dehqan and shirkat farms in the pilot districts of the rural enterprise support project*. 101pp.
- World Bank. 2000. *Social Assessment and Agricultural Reform in Central Asia and Turkey*. technical paper # 461. 301 pp. (February 2000):

## CHAPTER 14

# **POLICY REFORMS AND LIVESTOCK DEVELOPMENT IN CENTRAL ASIA**

**Mekhlis Suleimenov**

*International Center for Agricultural Research in Dry Areas- Central Asia and Caucasus Program, Tashkent*

**Luis Iniguez,**

*International Center for Agricultural Research in Dry Areas, Syria*

**Madina Musayeva,**

*International Center for Agricultural Research in Dry Areas- Central Asia and Caucasus Program, Tashkent*

## **INTRODUCTION**

Before obtaining independence in 1991, the five Central Asian (CA) countries were part of the former Soviet Union (FSU) and shared an unique political and economic system in the world. Agricultural production was organized mainly in the large *sovkhoses* (Soviet economy-State enterprises) and *kolkhoses* (collective economy-Cooperative enterprises). The director of a sovkhoz was appointed by the National Minister of Agriculture in coordination with the Regional Committee of Communist Party (CP). Kolkhozes were democratically organized enterprises with their chairmen elected by the General Meeting (GM) of kolkhoz members and reported to the GM. But this election was also coordinated by the CP. The CP also coordinated plans for agricultural production through its national, regional and district committees.

Livestock production as part of agriculture was planned by departments of agriculture in coordination with the CP. It was based on historical production data requesting increase of production every five year by a certain percentage in accordance with approved CP National Congress targets. The departments of agriculture tried to develop livestock production plans in accordance with planned crop production and rangeland area, where available. As crop production depends on weather fluctuations it didn't meet the expected plans in dry years which occurred every other year. In such cases the livestock sub-sector suffered the most, in fact in dry years forage production was lower than planned whereas feed grain produced in lower quantities was also delivered to the state as part of grain production delivery plan.

Despite their many commonalities the CA countries differed in their agricultural development during the FSU. Each country was specialized on certain crops and livestock, coordinated from the centrally planned system. Kazakhstan had FSU mandate for production of high quality hard red spring wheat and meat, Kyrgyzstan was responsible for sugar beet, alfalfa and maize seeds as well as for lamb production while other three countries including Tajikistan, Turkmenistan and Uzbekistan had mandate for cotton production. This breakdown of mandates indicates that except in Kazakhstan, and partly Kyrgyzstan, livestock production for other CA countries was not a priority.

After the breakup of the FSU, the CA republics started to restructure their agriculture, targeting two major goals: achieving food security and adjusting to market economy requirements. Again, with a food security focus policy makers focused on primarily crops like wheat, placing the livestock sub-sector even in a more difficult situation than in the past. Kazakhstan and Kyrgyzstan are recognized to be more oriented to a free economy with less involvement of the governments in production matters while in the other countries with more gradual reforms there is a clear governmental control not only on the restructured large agricultural enterprises but also on small farmers.

This paper gives first an overview of the characteristics of livestock production and different approaches to agricultural reforms during the transition period in the five countries. In a second section it covers the changes in range management and forage production. The third section accounts for trends in livestock numbers and production since independence and a discussion of causative factors. The fourth section includes a discussion of how different approaches to policy reforms in the five countries remarkably led to different results in livestock production. The last section puts forth some suggestions for policy makers to develop new approaches to support emerging small livestock producers under the new production context.

## METHODOLOGY AND TERMINOLOGY

All statistics on crop area, livestock numbers and production were taken from FAO published materials although these data sometimes differs from National Statistics which usually provides more optimistic numbers. In some cases we will show also some data from National Statistics if they differ remarkably. When some data is given about economics it involves only the organized sector at a macroeconomic level, but not small household farms. Material obtained during the application of a feed and livestock production research project conducted by ICARDA in collaboration with NARS and farmers of Central Asia on (ICARDA, 2000; 2001; 2002; Iñiguez et. al.,2004) was also used.

There are three types of agricultural production units emerging in CA during transition, which received different names, often misleading. The first includes reorganized large *sovkhoses* and *kolkhoses* under the names of Joint Stock Company (JSC), or *Daykhan Amalgamation* in Turkmenistan and *Shirkat* in Uzbekistan. We will use term Reorganized Agricultural Enterprise (RAE). RAEs usually are large in size, have a top down management feature and hire labor for work done or on a family contract basis. The point is that major decisions are taken at the top. The second type, known as Peasant (Farmer) Economy or as *Dekhkan* Farm in Kyrgyzstan is the closest to what is known as a farm. We will use the word "farm" to address this production unit. The third type include the household plot farms (HPF) known as *Dekhkan* Farms in Uzbekistan. The word *dekhkan* (in Uzbek) means literally farmer but it is used in Uzbekistan only for small size farm units developed as expanded subsistence operation while in Kyrgyzstan it is used for regular farms. Of these farms RAE existed in the past and has been reorganized in different forms. HPF also existed in the FSU but its area and flock/herd size was limited and was not market oriented, although part of the product always was marketed to neighbors and friends and the surplus in the market. Sometimes the *sovkhoses* collected milk from HPF to meet production plans. Farms per se didn't exist during seventy years of the Soviet system.

## CHARACTERISTICS OF REFORMS AND STRUCTURAL CHANGES IN AGRICULTURE

### Radical Reforms in Kazakhstan

Before 1991, agricultural production in Kazakhstan was conducted primarily by large *sovkhozes* (with about 30-40,000 ha of cropland) distributed over the northern semiarid steppe area and established about fifty years ago by N. Khrushov who led the CP of FSU during the 1954-1957 campaign breaking up grasslands to produce grain. In addition to grain production, the *sovkhozes* had large stocks of animals. The fodder to feed these animals was produced largely on marginal lands and/or collected from the rangelands. Grown on marginal lands, forage production never met demands of livestock herds and the feed grain (barley) produced on cropland never reached livestock because of the delivery to meet State projection plans. Large *sovkhozes* in the north were major producers of pork, while the southern regions focused on small ruminants. This distribution was associated not only with climatic but cultural differences between the north (mostly populated by Russians, Germans and Ukrainians) and south (Kazakh people). Cattle were distributed everywhere but more in the north than in the south. Livestock industry in Kazakhstan was much more developed than in other CA countries and exported meat, particularly pork, to Russia.

Each *sovkhoz* also had outreach rangelands used for the seasonal grazing and very often for cutting short grass to be converted into hay for winter feeding. In emergency cases and depending on the scale of disaster, the CP leadership would transfer fodder (hay, silage, straw) from one *sovkhoz* to another, one district to another, one region to another and sometimes even from one Republic to another. Similarly, during natural disasters (e.g. heavy snowfalls) the CP leaders could summon airplanes, helicopters, trucks, sometimes even tanks, and labor from other regions, from industrial enterprises and military units to help solve contingent problems. These factors are important to keep in mind while discussing reasons for the dramatic fall of the livestock sub-sector in Kazakhstan and other countries.

At the beginning of reforms the *sovkhozes'* land and assets were subdivided on shares and distributed to *sovkhoz* members and people providing services including teachers and doctors and retired staff based on input to development of the *sovkhoz* calculated considering years of service and salary earned. Then all shareholders were given opportunity to decide whether they would like to take their landshare and run the farm individually. Landowners were given legal right to use the land, sell it or give right to another person or legal entity to use the land. Those who decided to get

separated and run their own farm right away proved to be most successful because the *sovkhozes* had good assets and the government initially encouraged establishment of individual farms and provided privileged credit. Those who made up their minds later were not so lucky because the *sovkozoes* started getting bankrupted and the state economy was also in difficult situation.

In general the transition period hit hard the national economy and agriculture in particular. During 1992-1998, the Gross Agricultural Output (GAO) as compared to previous year dropped down on average by 20%. A recovery started from 1999 which was slow but progressive, both in the crop and livestock sub-sectors. During the transition period the share of agriculture in GDP went down from 12.3 % in 1995 to 7.3% in 2003 (Kazakhstan Agricultural Statistics, 2004).

As a result of the reforms, at the beginning of the process most farmland remained in large RAEs, with considerable share of it abandoned as a weedy fallow. Most of the RAE were reorganized as JSC. After almost all the RAE got bankrupted in the mid-1990s large grain marketing companies who benefited mostly on grain business started buying the management rights for using cropland from landowners. And they succeeded in this collecting control on large areas amounting to several hundred thousands hectares of cropland. The companies provide inputs, pay salaries to RAE labor and take all grain produced marketing it to the open market with highest profit margins. Total cropland area under RAEs by 2003 reduced to 50%. Individual farms gradually took control on 36.9% of cropland (Kazakhstan Agricultural Statistics, 2004). Interestingly, large RAEs and individual farms are not playing significant role in livestock production whereas households with just 1% of cropland produced most meat and milk, as they had more than 80% of the livestock (Iñiguez et. al. 2004). Large RAEs eliminated their animal stocks during years of recession as soon they realized that grain production was most profitable.

Even in the Soviet era, AEs were largely involved in production of strategic crops such as grains letting HPFs produce significant amount of fruits and vegetables, as well as milk and some meat for family-consumption. In 1993, at the beginning of the transition, only 60.6% of GAO was produced by the Government controlled sector while 37.7% was produced on households and 1.7% on emerging farms. After ten years in 2003, the contribution of HPFs to GAO increased to 50.4%, the second largest producer became the farms (27.0%) leaving behind the RAEs with 22.6% produced (Kazakhstan Agricultural Statistics, 2004). The statistics look somehow strange: households on small plots produce half of the GAO. This can only be interpreted and understood by factoring in the legacy of the Soviet system. The household plots and the agricultural enterprises are very much interlinked (as in the past), as owners of the HPFs people remained in the RAEs territory



and many of them work as staff or hired labor within these farms including district administrators, managers, specialists and tractor drivers. Feed and forage for cattle, pigs and chicken is supplied by the management of RAE as payment in kind while some grain, hay and straw may be just taken away (stolen) from the field. Actually taken away (stolen) fodder is also interpreted by people as sort of payment in kind by the RAE management to labor. There are also community pastures used by herds of private livestock. Also vast areas of rangelands controlled by government, municipality or the RAE are available for livestock herders often without restriction. The livestock herders taking care of some flocks belonging to the RAEs use rangelands also to grazing their flocks composed of animals belonging to them and to any other people (Iñiguez et. al. 2004).

Interestingly, before the reforms, international advisers and policy makers looking at the statistical data were amazed by efficiency of household plot management and came forward with the assumption that providing land to the private sector will produce a radical increase of crop and livestock productivity. As a result of this generalization during the reforms private farmers now own 37% of the cropland and quite large rangeland areas. However, the emerging private farmers endowed with cropland focused on production of grain and some oilseed cash crops ignoring livestock. Therefore the situation changed for the crop sub-sector but not for the livestock sub-sector. The breakdown of sub-sectorial production activities shows that RAEs contributed with only 15.1% to the total agricultural output in 2003, the contribution of farms to that total was even lower (8.3%) (Kazakhstan Agricultural Statistics, 2004). During 1995-2003, the share of farms in crop production in the total agricultural product increased from 3.6% to 43.1% while that of livestock production marginally, from 2.3% to 5.3%.

After the recovery of the national economy including the agricultural sector a triennial (2003-2005) Governmental Rural Development Program was developed and approved by the President. In accordance with this Program, funding for agriculture development compared to 2002 increased by 35% in 2003, 60% by 2004 and 88% by 2005. The selected stocks for breeding (generally termed as pedigree during the SU) in 2004 increased by 53.5%, amounting to US\$ 10 million. This allowed improving significantly the pedigree animal farms, subsidizing semen price and expanding artificial insemination programs. The program also provided US\$ 22 million and US\$ 27 million for animal health in 2003 and 2004, respectively. The funds to support diagnostics of dangerous diseases were doubled in 2003. The fund allocation made it possible to improve staffing of all rural animal health organizations with veterinary doctors. These conditions contrast tremendously with the transition period when productivity levels declined and the epidemiological profiles deteriorated (Iñiguez et. al., 2005). These developments are beginning to show improvements in livestock productivity.

The policy decision of supporting agriculture has made remarkable effect on the economical recovery of the sector. If in the mid-1990s agricultural enterprises were running losses with especial large losses in livestock production leading to unprecedented cutback of livestock numbers, the situation stabilized by the end of the 1990s bringing profitability to the whole sector. In fact, the net profit from agriculture in agricultural enterprises in 2003 tripled as compared to the previous three years (Kazakhstan Agricultural Statistics, 2004). This improved rural livelihoods noticeably which is reflected in the increase in average salary in the sector by 69% in 2003 as compared to 2000.

In 2004, the Parliament passed a legislation regarding private ownership on land, this applied directly to all HPFs that are already privately owned. The implementation of this legislation for the rest of the sector is expected to take some time.

## **Radical Reforms in Kyrgyzstan**

Kyrgyzstan is a rather small mountain country neighboring Kazakhstan with a total territory of about 20 million hectares, including 10.8 million ha of agricultural land, of which 1,345,000 ha of cropland. The total area under rangelands amounts to 9,188,000 ha of which only 61% has been distributed to people or enterprises for use while the rest which represent mostly least attractive rangelands are kept as reserved government land. Also rangelands under forestry areas used by agricultural enterprises in the past have now been given back to the forestry agencies. Agricultural land that has not yet been distributed involves mostly marginal cropland and rangeland not suitable for productive use. There are also 169,500 ha of haymaking leased to people. Interestingly, again owners of household plots became major players in the livestock sub-sector occupying a rather small area of 162,800 ha including 103,700 ha of cropland (7.7%) (Land resources, 2004). The share of cropland owned by HFPs in this country is very much higher than in Kazakhstan because scale of crop production is significantly lower.

The intensity of agricultural policy reforms in Kyrgyzstan was initially similar as in Kazakhstan. It started from distributing land shares and providing rights to use this land to private farms. As a result, land is owned by various types of producers: state farms, agricultural cooperatives, farms, collective farms and JSC. The number of state agricultural enterprises remaining under governmental organizations dedicated to research, seed production and animal pedigree management reduced seven times to own only about 3% of irrigated cropland. The Collective Farms are reorganized *sovkhozes* and *kolkhozes* in which their members decided to continue business

together becoming shareholders covering 5% of the irrigated cropland. The leading role in crop production is due to farms owning 15.7% of agricultural land and 64% of irrigated cropland. Some groups of farmers are organizing in cooperatives for sharing use of tractors, combines and equipment because individual land areas are small to run tractors and equipment and resources are limited to buy them. These cooperatives manage 5% of irrigated cropland while JSCs cover only less than 1% of irrigated cropland. Thus, totally, the private sector controls 75% of irrigated cropland (Land resources, 2004).

Since 2000, the land market started its development. During 2000-2002 about half million ha of agricultural land was provided for rent but only 2,000 ha were sold, which indicates that agriculture is not attractive business for investors. Kyrgyzstan was the first country in Central Asia to introduce private ownership on land. Over half million of families, constituting 54% of population, received the land shares in private ownership which amounts to 18.6% of agricultural land (Land resources, 2004).

Some official publications and mass media during 2004 broadcasted the stability of agricultural development (Zhumabayev, 2005) pointed out that by 2003 GAO was 3.4% higher than in 1990, although the value of agricultural production per capita was still lower than in 1990 and amounted to 90.9%. The same 2004 publication by Kostiuk reported that in accordance with a Concept of Agricultural Policy of Kyrgyz Republic till 2010 the centers of Land and Agricultural Reforms in Bishkek and in the regions have been transformed into a Management of Agricultural Development. According to Isayev (2005) a new strategy was also developed based on President A. Akayev's request "to prepare a scientifically based strategic modeling for the development of production potentials in the country".

The small size farms established during disintegration of sovkhoses and kolkhozes were found uneconomical. The first decade of reforms resulted in the elimination of large enterprises and the creation of small individual farms. The new challenge of the reforms is now to somehow reassemble these entities in the form of cooperatives. It was suggested that grain area will be gradually reduced down to 500,000 ha with a yield increase up to 3.5 t/ha which will be further improved to reach 5.0 t/ha. Though it looks nice on paper, the reality happened to be different. The majority of farms have no tractors and no machinery, they have no resources to buy new machinery not to talk that small size tractors and equipment are not available as they were manufactured during SU for large enterprises and became obsolete during the transition decade. The Government has been trying to help farmers with small privilege credits but because of corruption among Government officers the farmers had limited access to them (Urdavletov, 2005).

Meanwhile the situation in the livestock sub-sector is gradually aggravating because of increasing livestock population in households with deteriorated feed supply, reduced funds for maintenance of animal health

service, low quality of veterinary medication, establishment of unaccountable small livestock herds with no facilities for their maintenance, dramatically increased number of livestock markets many of them unorganized, reduced forage production, range degradation, reduced access to remote productive rangelands (Zhusupbekov, 2005 and Iñiguez et. al. 2004 ). All valuable agricultural assets were sold out at low price while newly emerging farmers got left with obsolete machinery. The summer rangelands in mountain areas became inaccessible for livestock grazing because herders can not afford long-distance transportation of small herds. Livestock herders also complain that the best rangelands were leased to foreign hunters and are not allowed for grazing (Shaydullayeva, 2004). All these shortsighted policies over the last decade with laudatory reports about grain production and neglecting livestock sub-sector development invariably are the ingredients for further deterioration of the livestock sector and its decline. And this happened in 2004 when livestock numbers were declined precipitously. The international assistance for the livestock industry development was by and large provided through a World Bank Sheep Project of US\$ 11 million of which US\$ 8.4 million were used mainly for bringing 290 rams and 400 ewes of merino sheep from Australia (Agricultural Policy and Investment, 2004) which could not improve situation in dramatically dwindled merino sheep production.

## **GRADUAL REFORMS (TAJIKISTAN, TURKMENISTAN AND UZBEKISTAN)**

### **Uzbekistan**

Uzbekistan is a largely populated country of CA with well developed irrigated agriculture oriented in the past to cotton production. During decades of Soviet system, agriculture development targeted the expansion of cotton production through the involvement of large new dry areas under irrigation. Grain production wasn't important and it was organized only around rainfed programs. After the breakdown of the FSU in 1991, major emphasis of agricultural policy was on achieving food security. This was done by dedicating one million ha of irrigated land to wheat cropping at the expense of reduced cotton and forage sown area. Therefore the crop sub-sector was reoriented to suit the production of strategic crops: wheat and cotton, under irrigation. Uzbek livestock production during the SU did not have a significant role in the local economy, and focused mainly on producing Karakul sheep to produce pelts on the basis of using rangelands in desert areas.

The application of reforms in Uzbekistan was more gradual, however, leading to different farm typologies. These included:

1) *Shirkats*, created at the beginning as AEs reorganized without differing much from the SU system, with governmental control crop production through the *shirkats*' managers, providing subsidized inputs and purchasing the crops at government-fixed prices. All co-op members were given the opportunity to lease land or livestock and work either on their own as farmers or on a family basis to produce crops under share contracts with the *shirkat* management. After the bankruptcy of the *shirkats* and the new set of reforms most of the *shirkats* turned to cropping strategic crops. Only very few livestock *shirkats* can be counted in the country, the most remarkable ones are those associated with Karakul production and those producing dairy cattle particularly in periurban areas. To be registered as a livestock farmer the farmer would need 300 small ruminants or 30 cattle. Livestock farmers can get 2 ha of rangeland per one cattle or per ten small ruminants.

2) Farms, at the beginning of the reforms consisted of a few AE's members that decided to run individual farms because of the many constraints to obtain key inputs, equipment and marketing products. The majority of coop members decided to keep working with the *shirkat*. As it will be explained later this sector increased in numbers as a consequence of the disintegration of bankrupted *shirkats*.

Farms differ from the typical family farms known in Western countries. These are more likely small *kolkhozes* established on rather a small area (24.5 ha in average) with a head and seven (on average) hired workers. The private farms like RAE mainly focus on Government planned cotton and wheat production delivering a little more than one third of both strategic crops. They also produce significant amount of melons (30.3%) and some vegetables (10.6%) but show almost no interest in livestock.

3) HPFs, in contrast to the second category, own a few animals using any available range or even city and highway lawns for grazing and feeding animals with any forage and roughage available. There are interactions between *shirkats* and households in Karakul sheep breeding: the *shirkats* maintain ewe flocks and market male lambs to householders who fatten and market the fattened lambs.

Because of more gradual application of reforms, during the transition the GDP and agricultural production did not suffer dramatic fluctuations and rather showed a marginal growth of 3-6% per year. The share of agriculture in the GDP did not change significantly amounting to 28.1% in 1995 and 28.8% in 2003. However the different typologies changed.

During several years after these first set of reforms, the *shirkats* started to operate in bankruptcy. At this turning point a second set of reforms were applied aiming at the gradual disintegration of the bankrupted *shirkats*

by providing land shares to those who applied to run individual farms, with preference to *shirkat* staff. For this, however, farmers had to sign a contract with a District Government that obliges them to grow strategic crops in accordance with Governmental plans and deliver grain and cotton lint to the Government procurement agencies.

Interestingly, under this approach, by 2003 the major players in agricultural production were not the *Shirkats* nor the farms but the household plots (*Dekhkan* Farms in Uzbekistan). In fact they produced 62.4% of GAO on 11.1% of cropland as opposed to 23.5% produced by RAE on 51.9% of cropland and 14.1% by the farms on 37% of cropland (Uzbekistan Economy, 2004). The share of HPF in total crop production turned to be almost the same (36.9%) as that of RAE (37.8%) leaving farms behind (25.3%). The low share of *shirkats* is because they are tied up with Governmental procurement schemes, so that obtain prices much lower than market prices. On the contrary small farmers market at market prices.

The focus on strategic crops caused that most large agricultural enterprises abandoned livestock production and by 2003 accounted for only 8.1% of the total livestock product. In addition newly emerging farmers do not engage in livestock production (2.2%) because livestock operations are not as profitable as crops, and do not receive the benefits available only for strategic crops. Therefore the possibilities to enhance forage production declined severely, although they could be part of and integrated to the cropping system.

In 2003, the *shirkats* were the main producers of raw cotton (62.2%) and wheat (49.8%). They also played important role in producing eggs (42.1%), grapes (39.9%) and fruits (30.1%). In 2002-2003 the number of farms increased by 21%, amounting to 87,552 units, occupying 2,148,100 ha of land.

In 2003, over 1% of farms were found unprofitable and the Government provided readjustment assistance. The new government policy encouraged the establishment of farm supply services including mini-banks, warehouses for inputs and tractor and machine service. The mechanism of direct preferential crediting of farms to grow wheat and cotton was introduced on experimental basis in 2003 involving 20% of the farm units. The HPFs with almost no Government support specialized on livestock sub-sector producing 93.9% of the total cattle and poultry production, 95% of the total milk production and 54.2% of the total production of eggs. They became also main producers of potatoes (90.3%), vegetables (70.6%), fresh fruits (62.7%) and grapes (54.3%) (Uzbekistan Economy, 2004). This data shows that it is not easy to organize efficient large scale production of livestock, potatoes and vegetables in existing environment.

## **Turkmenistan**

Turkmenistan is a sheep producing country with two major breeds the Karakul and Sarajin, the latter known for its wool quality for carpet making. During transition, livestock have been transferred to private operators either to households or to herders working part time for the RAE and taking care of their own flocks on the same rangelands. During 1991-2004, according to Statistics of Turkmen Mallery (Turkmen Livestock) Association (2005) responsible for National livestock industry the share of privately owned livestock increased in cattle from 25 to 94%, in sheep and goats from 19 to 78%, in poultry from 30 to 95%, in camels from 26 to 86% and in horses from 13 to 69%.

By Presidential decree, livestock producers do not pay any tax and access credit both short-term and long-term with interest rate as high as 1%. Rangeland has been used free for grazing while veterinary service is paid. The herders taking care of RAE sheep and goat flocks are getting half of the offspring as payment in-kind. This policy aims at gradual transferring of all livestock to private ownership. There is a Presidential decree providing subsidized inputs to all agricultural producers who pay only half price of any input required. This policy facilitated not only the transfer of livestock to the private sector but led to a remarkable increase of livestock numbers in recent years, which will be discussed below. In addition, a ban to the slaughtering of Karakul lambs was implemented contributing to an increase of sheep stocks.

## **Tajikistan**

Tajikistan is a mountainous country with poor resources and agriculture oriented to cotton production under more constraining conditions for agriculture development. The economic development was badly affected by a civil war during 1992-1997. The policies in agricultural reforms at initial stages were also gradual keeping the Government control on production of strategic crops cotton and wheat. However in recent years the process of privatization has been accelerated with more freedom for farmers to crop and market their products. Livestock production as in all other countries mainly is concentrated in the hands of householders.

## CHANGES IN RANGE MANAGEMENT AND FODDER PRODUCTION

Kazakhstan has huge rangeland resources of 180 million ha which, however, provided just half of forage supply for livestock industry in the past because of harsh climate not allowing range grazing in winter time lasting almost half a year in most of the country land.

Desert and semi-desert rangelands occupy large territories covering about 122 million ha. Even in the Soviet era one third of rangelands were considered under degradation. During transition, livestock population reduced dramatically but it didn't give opportunity to halt rangeland degradation. Major problem is associated with the fact that most livestock is now in small size flocks kept around the villages all the year round. Moreover shortage of forage for winter feeding led to longer period of grazing including cold season. In addition, small livestock owners are not organized to arrange transfer of larger flocks for grazing in remote rangelands.

During transition, in addition to dramatic reduction of arable land abandoning marginal land involved in grain production in the past, there was considerable change in cropping structure (Table 1).

*Table 1. Change in Cropping Structure in Kazakhstan from 1990-2003*

Crop	1990		2003		%, to 1990
	Area, '000 ha	%	Area, '000 ha	%	
All crops	35,182	100	17,454	100	49.6
All grains	23,355	66.9	13,873	79.5	59.4
Wheat	14,070	40.0	11,362	65.1	80.7
Barley	6,660	18.9	1,909	10.9	28.7
All fodder crops	11,065	31.4	2,393	13.7	21.6
Maize for silage	2,282	6.5	63	0.4	2.8
Annual forages	3,498	9.9	196	1.1	5.6
Perennial forages	4,568	13.0	2,134	12.2	46.7

*Source: Kazakhstan Agricultural Statistics, 2004.*

Since 13 years of transition, half of cropland was abandoned because grain growing was found unprofitable on marginal lands involved in production during N. Khrushov started campaign to increase rapidly grain production through development of grasslands. But dramatic reduction of sown area was completed alongside with liberalization of agricultural policy leaving decision-making rights to producers. Under financial constraints,



producers were keen to grow only wheat as prices in the mid-nineties were going up very quickly making grain industry very attractive. After adjustment, the share of grains in crop-sown area increased from 67% to 80%. But increase of grain area share was observed only in wheat which in 2003 occupied already 65% of crop area against 40% in Soviet era while barley area reduced three times occupying only 11% of crop area against 19% in the past. Barley grown in Kazakhstan is entirely feed barley and gives one more explaining factor to understand the unprecedented drop of livestock production in the mid-nineties, which occurred in this country.

Even more dramatic decrease occurred in fodder crop area, which was reduced almost five times. This happened first with annual crops maize and annual grasses, which almost stopped from being planted. Economically it is clear because maize growing for green forage and silage on marginal lands could be done only under Soviet centrally planned system when economics were not priority in decision-making. Otherwise large dairy cattle population would have died from starvation. Annual grasses indicated in statistics were essentially barley and oats sown for hay and haylage but by and large harvested for grain. To recognize the right action of producers to abandon marginal lands one has to realize that unbelievable cutback of fodder production would end up with high mortality of animals in the large AEs.

The only source of fodder, which occupies quite large area are perennial forages. It happened not because producers paid attention to these crops. This area has been under perennial grasses during fifteen years ever since the days of the Soviet Union. Newly sown perennial forages cover very limited areas. In the north perennial grasses like Crested wheat grass were sown on light textured soils for strip cropping to protect soil against wind erosion. Therefore large areas under perennial forages in statistics shouldn't mislead anybody giving wrong impression on availability of good forage. It is only in recent years, with increased livestock population which radically increased demand for forage that some farms especially in the south got interested in going back to forage-growing including alfalfa in the south.

Rangeland territory of Kyrgyzstan covers over 9 million hectares including three seasonal types: over 4 million ha of summer, 3 million ha of spring and autumn, 2 million ha of winter rangelands. During transition, small ruminant population decreased four times which could be used for productive rangeland management but it didn't happen. On the contrary only 2,741,000 ha (29.8%) are managed as relatively productive while the rest area is considered as low productive subjected to degradation, covered with bushes and uneatable by livestock plants. Productivity of rangelands reduced because of various factors by 20% (Abdyrasulov, 2005). From total area only 470,000 ha (5%) are been rented while the rest are used with free access or not used at all (Rangelands, 2004). The livestock producers don't want to rent rangeland because they don't want to pay for rent. Moreover, there are cases when

livestock herders complain that rented rangelands are not protected against grazing by any livestock (Shaydullayeva, 2004). In spite of three times reduced livestock numbers its pressure on the rangeland in 2003 was 2.74 sheep units (all livestock considered) per ha which was 3.2 times higher than recommended rate and 1.4 times higher than back in 1990 (Rangelands, 2004).

During the transition period, cropping structures have changed dramatically affected by liberalization of input and output prices and removal of state orders and procurement of agricultural products (Table 2).

Table 2. Change in Cropping Structure in Kyrgyzstan from 1991-2003

Crop	1991		2003		%, to 1990
	Area, '000 ha	%	Area, '000 ha	%	
All crops	1297.3	100	1116.3	100	86
All grains	556.5	42.9	606.5	54.3	109
Wheat	193.6	14.9	428.2	38.3	221
All fodder crops	620.0	47.8	202.2	18.1	33
Perennial forages	185.5	14.3	164.9	14.8	89

Source: Crop Production, 2004.

Major changes were associated with increase of wheat area and reduction of area occupied by fodder crops. In the past Kyrgyzstan was not considered as important producer of wheat as was Kazakhstan. This is why the largest area was devoted to fodder crops including maize for green fodder and silage and annual and perennial forages. In Soviet practice, this allowed to state AE managers not only to organize production of more fodder for livestock feeding but also for using this area for grain production instead of forage to increase total grain production from area reported.

During transition, wheat area more than doubled and its share in crop area increased from 15 to 38%. The area under maize grown for grain remained unchanged while barley area reduced. Market oriented farming caused remarkable increase of such crops as potatoes, oilseeds, vegetables, sugar beet, cotton and fruits neglected in the centrally controlled system. Fodder crops as maize for silage and annual grains for hay and haylage were removed very fast as they were uneconomical. Noticeably, perennial forages namely alfalfa under irrigation remained as significant part of the cropping programs although in most cases alfalfa stands are ten-fifteen years old. This is explained by the fact that livestock remained in the hands of private sector increasing demand on quality forages and good prices consequently.

In Uzbekistan, 50% of the territory is classified as rangelands located in desert and semi-desert areas (Suleimenov and Oram, 2000). As compared to countries with more liberal economies, rangeland are in the hands of the Government controlled shirkats and are used relatively more adequately although the problem of overgrazing near village rangelands takes place as well. The shirkats, however, in desert and semi-desert areas provide rangeland for livestock grazing also to private sector which is represented by various social groups: shepherds raising the shirkat's animals, their own ones and belonging to the other owners, other shirkat staff and other people staying on the territory of the shirkat but working elsewhere. This results in conflicts between various people groups. On the other hand, keeping rangelands managed in the shirkats is leading to further land degradation as managers of shirkats are not worried about better range management as they are appointed and can be removed any time. In the shirkats, rangeland can be used for crop growing to produce some feed grain which no private farm would do because of economical reasons.

During transition, with partly liberalized economy, changes in cropping program has been mostly affected by the Government policy supporting only production of strategic crops. Although the Government doesn't control livestock production as well as production of alternative crops, it is difficult to expect that farmers would grow forages. This is reflected in dramatic increase of grain growing area occupying 24.4% of crop sown in 1990, 39.5% in 1998 and 45.1% in 2003. One should take into consideration that grain grown area in 1990 was almost all rainfed while since independence major wheat areas are under irrigation. During the same time cotton area was reduced from 46.5% of crop sown in 1990 to 36.5% in 1998 increasing up to 39.5% in 2003. The forage production was damaged during restructuring most remarkably reducing its share in crop area from 24.0% in 1990 to 12.3% in 1998 and down to 7.6% in 2003.

In Turkmenistan, rangelands occupy 64% of total territory located mostly in deserts. All the land belongs to the state. During transition, there were two major contradicting policies as far as rangeland management is concerned: on one hand providing free access to natural gas to all population including remote rural area resulting in halting the eradication of shrubs which were used for fuel in the past; on the other hand promoting fast increase of small ruminant numbers may result in dangerous overstocking and invariably to increased land degradation.

During transition, major change in cropping system was the increase of grain sown area from 240,000 ha in 1991 to 614,330 ha in 2004 including wheat from 115-410,000 ha respectively. This was done at the expense of reduced cotton and alfalfa area as well as through increase of cropland area. All fodder crops occupied in 1991 an area of 322,000 ha including 230,000 ha under perennial forages. This reduced to 208,500 ha including 202,300 ha of

perennial forages. Expanding of grain production allowed increasing use of feed grain, wheat bran and screenings for livestock feeding.

In Tajikistan, rangelands occupy rather small area of 3.5 million hectares located in mountain landscapes. As in other countries, agriculture policy favored increase of grain production providing all irrigated cropland for cotton and wheat growing.

## CHANGES IN LIVESTOCK POPULATION

### Countries with Radical Reforms

During transition period in Kazakhstan, one can see definitely three stages of development: at first livestock population was cutback dramatically followed by a few years of plateau and ensuing growth (Table 3).

Table 3. Livestock Population Change During Transition in Kazakhstan

Livestock type	Lowest number			Radical fall		2004			Year of max increase
	year	% to 1992	% per year	year	%	% to 1992	% to lowest	% per year	
Cattle	1999	67	5.5	1996	15	79	120	4	2004
Sheep	1999	26	10.6	1995	27	32	123	4.6	2004
Goats	1997	98	0.4	1996	15	210	215	16.4	2004
Pigs	1998	32	10.7	1997	36	38	121	3.5	2000
Poultry	1998	16	14	1994	30	21	130	5	2000
Horses	2000	58	5.2	1998	17	64	110	2.5	2004
Camel	1999	67	5.5	1996	15	79	120	4	2004

Source: Kazakhstan Agricultural Statistics, 2004.

After transition started in 1992, livestock population was maintained for a few years thanks to some resources left from the FSU times in the *sovkhoses*. Radical decimation of animals occurred in 1994-1996 when several negative factors were merging and interacting causing unprecedented cutback of livestock numbers: bankrupted RAEs used animals to pay for inputs to plant and harvest grain, the only profitable commodity. Animals were used as payment in kind to labor and many animals died because of shortage in feed and forage. The most dramatic fall in one year (30%) was observed first in poultry industry in 1994 followed by 36% drop in 1997 in

pig industry because large pig and poultry operations failed faster as they were supplied by imported corn and soybean feed in FSU which stopped during transition years. In addition, many chicken and pigs died because of shortage in power supply in those years. Thus by 1998 poultry and pig industries lost 84 and 68% of the stock at the annual rate of

14.0-10.7%, respectively. The sheep numbers also dwindled at the rate of 10.6% every year until 1999 finally the industry lost 74% of the stock (Figure. 1). The herds of horses and camel were also cut but not so precipitously. The only livestock which was almost not affected were goats. The goats are good indicator of what kind of changes occurred in small ruminant breeding. They proved to better adjust to poor maintenance of meager forage and feed.

After dramatic shock to the livestock industry, the situation started to improve at the end of the century when, for a couple of years, animal numbers were kept on plateau. Then it started recovering with annual growth rate of about 4-5% except goats which have been increasing 16% a year. But still livestock industry didn't recover completely by 2004 and for many animals the gap is very big. Beside goats good rate of recovery is noted with cattle and camels. Camels are not essential livestock but cattle are the most important for rural livelihoods. Remarkably, cattle numbers were not cutback seriously as other livestock because most cows have been kept with rural families as very important source of daily diets. Pigs are recovering faster than poultry and small ruminants because pigs are managed mostly by households in small numbers.

Sheep population has been increasing by 4% a year but last events are very encouraging. During the last year of observation the growth rate was the best amounting to 7%. Moreover preliminary national statistics reported a 23% increase by 1.01.2005 which looks true considering substantial support to agriculture for 2003-2005. In Kyrgyzstan, the livestock industry development during transition looked almost similar: dramatic decimation of animals was followed by gradual recovery but not for all livestock (Table 4).

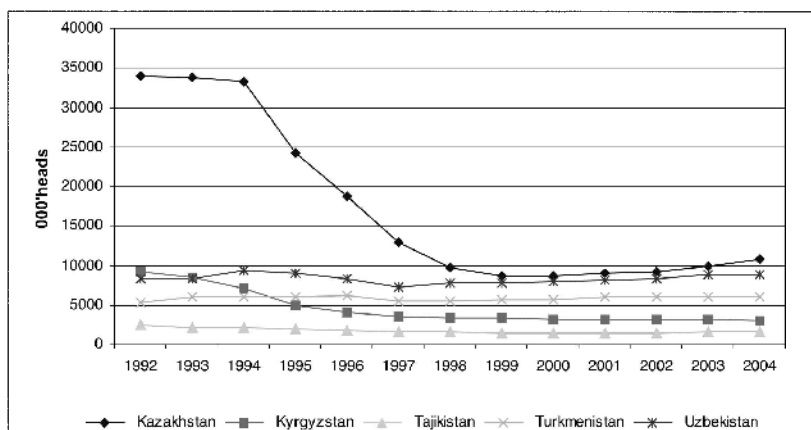


Figure 1: Sheep Population Changes in Central Asian Countries - 1992-2004

Source: FAO, 2004

Table 4: Livestock Population Change during Transition in Kyrgyzstan

Livestock type	Lowest number	Decrease	Radical fall	2004	Increase as	Increase as	Year of max increase		
	year							% to 1992	% per year
Cattle	1999	67	5.5	1996	15	79	120	4	2004
Sheep	1999	26	10.6	1995	27	32	123	4.6	2004
Goats	1997	98	0.4	1996	15	210	215	16.4	2004
Pigs	1998	32	10.7	1997	36	38	121	3.5	2000
Poultry	1998	16	14	1994	30	21	130	5	2000
Horses	2000	58	5.2	1998	17	64	110	2.5	2004
Camel	1999	67	5.5	1996	15	79	120	4	2004

Source: FAO, 2004

As in Kazakhstan, poultry industry was the most suffering from reforms having cut in one year of 1993 by 63% of stock and 90% in three years accompanied by abundant supply of American low-price chicken. In the same order pig industry was the second worst affected during transition having lost 75% of the stock. The story of the sheep during incipient part of reforms was very much the same as in the neighboring country and can be accounted for by the same arguments. Strangely, goats numbers had been

reduced during incipient three years of transition even more dramatically than sheep. Cattle population was following the same scenario as in Kazakhstan. Number of camel and horses was not big but both Kazakh and Kyrgyz people traditionally eat horse and camel meat and drink their fermented milk, which is essential part of people's diet in some areas.

The end of recession in livestock sub-sector started in this small mountain country in 1995-1997, a little earlier than in the neighboring large steppe country with many similarities but there were also some important differences. No difference was noticed in development of the cattle population which indicates that in both countries the cow and calf operations are widely used for subsistence farming and can not be seriously affected by any reforms. The sheep plays important role in people's nutrition being traditional national diet in both countries. After the end of dramatic decimation of sheep flocks from 1992-1997, the following period was characterized by a sheep inventory on plateau at best with slight decrease every year with the lowest number in 2004. Even though the final inventory in both countries looks the same (32-33% of initial stocks) trends are very much better in Kazakhstan. Pigs and poultry industries both did not show signs of recovery. In pig numbers there were some increase noticed from 1999-2001 but it rolled back soon afterwards. The only animals which were increasing in spite of all difficulties in economy are horses which are giving to herders good source of meat and milk grazing all year round on mountain rangelands. For most livestock industries the best year was 1998 which is a good indicator of stagnation.

## **COUNTRIES WITH GRADUAL REFORMS**

In Uzbekistan, except for poultry and pigs, the changes in livestock population during transition were not dramatic on the background of countries with radical reforms (Table 5).

Table 5. Livestock Population Change during Transition in Uzbekistan

Livestock type	Lowest number			Radical fall		2004			Year of max increase
	year	% to 1992	% per year	year	%	% to 1992	% to lowest	% per year	
Cattle	1997	99	0.2	1996	4	106	106	0.9	2002
Sheep	1997	89	1.2	1997	11	98	105	0.7	2002
Goats	1997	94	1.2	1997	11	98	105	0.7	2002
Pigs	1998	11	15	1997	52	13.8	128	4.7	1999
Poultry	1997	28	12	1994	32	47	165	9.3	1998
Horses	1992	100	0	-	-	129	129	2.4	1995
Camel	1992	100	0	2000	11	109	109	1.6	2001

Source: FAO, 2004

The poultry industry almost collapsed for the same reasons as in other countries and started recovering since 1997. The pig numbers meanwhile stabilized after unprecedented cutback during 1992-1998 which can be accounted for by interweaving factors. A feed grain supply from elsewhere stopped since collapse of the SU which was major factor. An exodus of large Russian population incontestably led to a collapse of pig numbers among households. During the second period of transition, some recovery of poultry and pig industries was noticed with more profound growth in poultry. Under scenario of gradual reforms cattle, horses and camel numbers never went down slightly increasing by 1-2% a year. The best year for most livestock industries was 2002 thanks to more favorable weather conditions for range productivity.

In Turkmenistan, the scenario for incipient part of transition resembled very much trends in Uzbekistan (Table 6).



Table 6. Livestock Population Change during Transition in Turkmenistan

Livestock type	Lowest number			Radical fall		2004			Year of max increase
	year	% to 1992	% per year	year	%	% to 1992	% to lowest	% per year	
Cattle	1992	100	0	-	-	111	111	0.9	1993
Sheep	1992	100	0	-	-	112	112	1	1993
Goats	1992	100	0	-	-	168	168	5.7	1995
Pigs	2001	19	2.1	1994	25	19	100	0	-
Poultry	1997	24	15.2	1996	53	73	267	23.9	1998
Horses	1999	78	3.1	1995	10	80	103	0.6	1993
Camel	1992	100	0	-	-	100	100	0	-

Source: FAO 2004.

In Turkmenistan, only pigs and poultry were badly affected by reforms accounted for mainly by removal of subsidized feed grain supply. The exodus of ethnical Russians from the country also by all accounts boosted rapid decimation of pigs. In the second part of transition poultry industry started recovering attaining 24% growth a year while pig numbers stabilized at rather low level. The number of cattle, sheep, goats and camels never reduced.

As far as the second part of the transition, there is startling controversy between FAO and National statistics. According to FAO during recent ten years Turkmenistan's livestock industry lies mainly on plateau while the National statistics demonstrate that the livestock sub-sector makes startling strides (Table 7).

Table 7. Comparative Data of FAO and National Statistics on Livestock Population in Turkmenistan in 2004

Livestock type	Heads, '000		%
	FAO	Turkmen mallery	
Cattle	860	1,969	229
Sheep and goats	6,370	15,637	245
Poultry	4,000	14,987	375
Horses	16	31	194
Camel	40	126	315

According to Turkmen Mallary responsible for livestock sub-sector number of all animal species is two-three times higher as compared to statistics published by FAO. Even considering that making inventory of the livestock in private sector is very inaccurate and National statistical data might be very optimistic it can not be on plateau with prohibition of slaughtering Karakul sheep lambs and other policies favoring livestock development. We will show below that FAO data on meat and milk production recognized considerable increases that could not be the case with livestock population on plateau.

In Tajikistan, following intermediate approach to reforms trends where also in between (Table 8). As in other neighboring countries, pigs and poultry were affected most severely by the processes associated with transition to new political and economical systems. The poultry numbers have been increased in both private companies and in households. The civil war boosted exodus of ethnic Russians bringing to almost complete stop of pork production.

Table 8. Livestock Population Changes during Transition in Tajikistan

Livestock type	Lowest number			Radical fall		2004			Year of max increase
	year	% to 1992	% per year	year	%	% to 1992	% to lowest	% per year	
Cattle	2000	75	3.6	1993	10	82	110	2.5	2003
Sheep	2000	59	5.1	1993	13	65	109	2.2	2003
Goats	1998	77	12.8	1995	10	98	107	4.5	2003
Pigs	2003	0.4	9	1996	81	0.4	100	0	-
Poultry	1997	12	17.6	1995	60	33	267	23.8	1998
Horses	1992	100	0	-	-	151	151	4.2	1994
Camel	2004	80	1.7	2004	5	80	100	0	-

Source: FAO 2004

Many Muslim people in CA countries eat pork but they wouldn't like to raise them in household barns. Even in civil war times cattle didn't suffer much as cows provide milk, the most important product to families. Sheep population's cutback was less severe than in countries with radical reforms but more remarkable than in countries with gradual approach to reforms.

## CHANGES IN LIVESTOCK PRODUCTION

During transition period, all livestock products reduced but at different rates bringing to changing composition of food availability (Table 9).

*Table 9. Changes in Livestock Production Structure during Transition in Kazakhstan*

Product	1992		2004		
	'000, t	% to total	'000, t	% to total	% to 1992
Beef and veal	596	47.8	310	45.4	52
Sheep and goat meat	243	19.4	102	14.9	42
Poultry	139	11.1	36	5.3	26
Pork	217	17.3	185	27.1	85
Horsemeat	55	4.4	50	7.3	90
All meat	1,250	100	683	100	55
Milk	5,265		4,557		86
Wool, greasy	96.4		26.6		27

*Source: FAO 2004.*

Although cattle number decreased by 21% beef and veal production reduced by 48% because major stock lost were steers not cows (Fig. 2). This is also evident from milk production which reduced only by 14%. Although about 2 million of Russians and Germans left Kazakhstan during recent years, pork production has been taking more important role than before in diet of people with pork's share increased from 17 to 27% in total meat output. There are several reasons helping to explain this puzzle. First, availability of feed grain provides adequate conditions for feeding pigs. Secondly, diet of poor people has changed during transition when poverty increased significantly. In the FSU, sovkhoses had problems with marketing pigs because people didn't like pork fat and preferred lean meat. Now preferences of people have changed towards pork, including pork fat because poor people have been finding it cheaper as compared to other meat. Thirdly, livestock moved to household operations and in the North with abound grain stocks in each rural family pigs are the best animals converting grain into meat which can be marketed to cities and to adjacent areas of Russia. Horsemeat is traditional diet for Kazakh people and is consumed largely during winter and also for making sausages. Its share increased and will continue to increase in future. Wool production is not recovering even though sheep numbers are increasing because wool is not attractive item in production.

In Kyrgyzstan, food habits of local people are very much the same but livestock production realities are different. At the starting point, share of produced beef was definitely less and remarkably more of sheep and goat meat produced than in Kazakhstan (Table 10).

Table 10. Changes in Livestock Production Structure during Transition in Kyrgyzstan

Product	1992		2004		
	'000, t	% to total	'000, t	% to total	% to 1992
Beef and veal	88	38.8	58	46.4	66
Sheep and goatmeat	70	30.8	26	20.8	37
Poultry	22	9.7	4	3.2	18
Pork	36	15.8	11	8.8	30
Horsemeat	11	4.9	26	20.8	236
All meat	227	100	125	100	55
Milk	961		807		84
Wool, grease	33.7		10.0		29.7

Source: FAO 2004

During the twelve years of transition, unprecedented changes occurred in livestock production. Most dramatic fall was observed in poultry, the share of which dropped from 9.7 to 3.2%. Pork production reduced by 70% and its share went down from 15.8 to 8.8%. Mutton and lamb are recognized by Kyrgyz people as the main source of National diet. However, dramatic cutback of small ruminant's population resulted in lowering its share from 31 to 21%. Most startling are data on horsemeat production. Its share in total meat product increased from 5 to 21% and attained the level of mutton and lamb which does not correspond to increase in horse number just by 6%. Most probably there are some inaccuracy in statistics but trend is correct: horse meat consumption has been increasing. According to national statistics share of different meat types in total is as follows: beef 49.4%, small ruminants 28.9%, horsemeat 11%, pork 8.4%, poultry 2.2% (Bazar, 2005). The trends are similar but the share of horsemeat is remarkable yet not as high as in FAO statistics. Milk production slightly reduced by 16% and milk remains important part of people's diet although its consumption reduced from the SU times. Wool production just like in Kazakhstan is in a worse shape than sheep meat.

According to FAO published statistics, trends in meat production are very discouraging because the most noticeable drop in meat, and milk production occurred in 2004. For example, in 2004 it produced less beef,

mutton, pork, poultry and milk as compared to previous year by 38, 41, 49, 63 and 32%, respectively. These numbers are not in agreement with data given by the Government of Kyrgyzstan: reduction of meat production in live weight in 2004 as compared to previous year just by 1.5%.

In Uzbekistan, under gradual reform approach, total meat production gradually increased but its structure has changed remarkably (Table 11).

*Table 11. Changes in Livestock Production Structure during Transition in Uzbekistan*

Product	1992		2004		
	'000, t	% to total	'000, t	% to total	% to 1992
Beef and veal	323	69.5	420	82.4	130
Sheep and goatmeat	67	14.4	60	11.8	90
Poultry	39	8.4	15	2.9	39
Pork	36	7.7	15	2.9	41
All meat	465	100	510	100	110
Milk	3,799		3,690		97
Wool	27.4		16.0		58

*Source: FAO 2004.*

One can see a very definite trend: moving up in beef and veal production at the expense of poultry and pork. As in other countries it is associated with discontinued maize and soybean grain supply to chicken and pig factories. Mutton and lamb has been produced largely in private sector. Officially those are household plots but in fact all meat produced outside of registered shirkats and farms are accounted for as Dekhkan farms. This gives the wrong impression that some people can feed the nation with meat and milk with no range and no forage. Wool production is in a worse position as compared to sheep meat because of low prices.

Turkmenistan is the only country in the region which shows definitely positive trends in livestock production (Table 12).

Increase in beef and veal production by 46% is the highest in the region while growth in sheep and goat meat production is unprecedented while most countries cutback remarkably. These strides are explained by policies favoring livestock producers and banning slaughtering Karakul sheep lambs for pelts. As distinct from three other countries under discussion the share of sheep meat and beef is very close against background of other countries with prevalence of beef. The gear up in milk production also looks fantastic against background of other countries with noticeable recession. The poultry production has been reduced but is already recovering while pork production is reduced to minimum because of circumscribed demand. This is

the only country in the region increasing wool production although in lower rate than meat. Wool of Sarajeen sheep is used for famous Turkmen carpets.

Table 12. Changes in Livestock Production Structure during Transition in Turkmenistan

Product	1992		2004		
	'000, t	% to total	'000, t	% to total	% to 1992
Beef and veal	46	48.4	65	49.6	141
Sheep and goatmeat	35	36.8	60	45.8	171
Poultry	7	7.4	5	3.8	71
Pork	7	7.4	1	0.8	14
All meat	95	100	131	100	138
Milk	471		850		180
Wool, grease	16.6		20.0		120

Source: FAO 2004

Increase in beef and veal production by 46% is the highest in the region while growth in sheep and goat meat production is unprecedented while most countries cutback remarkably. These strides are explained by policies favoring livestock producers and banning slaughtering Karakul sheep lambs for pelts. As distinct from three other countries under discussion the share of sheep meat and beef is very close against background of other countries with prevalence of beef. The gear up in milk production also looks fantastic against background of other countries with noticeable recession. The poultry production has been reduced but is already recovering while pork production is reduced to minimum because of circumscribed demand. This is the only country in the region increasing wool production although in lower rate than meat. Wool of Sarajeen sheep is used for famous Turkmen carpets.

In Tajikistan, livestock production was affected just as badly as in countries with radical reforms even worse which can be explained by the civil war damage to whole economy including agriculture (Table 13). There are some differences in composition of meat balance however. Beef production is relatively low because majority of cattle are dairy cows and fattening of steers is not widespread adopted practice while fat tail Gissar sheep are quite large and fattening them is normal practice. Pork production came almost to a complete stop which is another evidence of exodus of Slavic people from the country. Wool didn't play important role in livestock production.

Table 13. Changes in Livestock Production Structure during Transition in Tajikistan

Product	1992		2004		
	'000, t	% to total	'000, t	% to total	% to 1992
Beef and veal	41	58.6	15	48.1	37
Sheep and goatmeat	20	28.6	14	44.9	67
Poultry	5	7.1	2	6.4	40
Pork	4	5.7	0.2	0.6	5
All meat	70	100	31	100	44
Milk	509		411		81
Wool, grease	3.7		2.9		78

Source: FAO 2004

## DISCUSSION

All five Central Asia countries got independence after collapse of the Soviet Union in 1991 where they were part of one standardized system managed through unique centrally commanded political and economical system. Each country, however, had specific responsibilities in livestock production. Kazakhstan was the largest livestock producer having largest herds of all animals and exporting meat mostly pork to elsewhere in the SU, Uzbekistan and Turkmenistan were focused on Karakul sheep breeding producing pelts for export, Kyrgyzstan was distinguished with quite remarkable sheep population for small mountain country while Tajikistan was well known with goat raising for fiber. During FSU almost all rural families had household livestock mainly cow and calf for subsistence purposes.

During transition, countries started reorganizing their agricultural sector disintegrating large sovkhozes and kolkhozes at different rates: faster under liberal policies and slower under Government control. In both cases three major types of agriculture production units have been established: reorganized agricultural enterprises, farms, and household plot farms. The large reorganized agricultural enterprises are mostly engaged in crop production. The farms also are not keen to take up livestock production business under any policies. Thus, in all five countries livestock got left in small farms which are actually expanded household operations. They existed in the past for family needs and have been developing into market oriented small farms. It was a constant surprise for outsiders to see exiting numbers in

statistics of the SU as how small farms with no land and no equipment and inputs had been producing so much of agricultural output. The household farms are interwoven with large agricultural enterprises and are getting inputs from the latter in variety of ways.

When HPs were used by people for subsistence it was one thing but now they became major player in livestock production which is another business for which they have no base. The livestock production being in the hands of numerous householders puts this sub-sector in a very difficult situation. They don't have land to produce forage and facilities to keep and maintain livestock. The animal health service has limited support from the Government while private veterinary service is under establishment.

The collapse of the SU put before every country challenges as how to reorganize agriculture including livestock industries. All countries were putting food security as priority in their agricultural policies during transition with emphasis on grain production. In all five countries, irrespective of the policy adjustment of a market economy, wheat production became priority in agricultural sector development. During transition, four countries of the region increased wheat production dramatically, while Kazakhstan remained grain net exporter even after cutting large areas of marginal lands devoted to grain production in the past. The second strategic crop for southern countries of the region remained cotton. It is noticeable that in countries where Government enforces cotton planting its area is kept stable while in countries with liberal economies cotton area remarkably increased like it happens in market driven economies.

At any policy scenario, with strict Government control and with complete freedom in the cropping practices, fodder crops have been removed from the fields in both rainfed and irrigated agriculture. This happened because very good grain prices in mid-nineties made grain industry profitable during the hard times of transition while livestock sub-sector proved to be unprofitable. The annual fodder crops as maize for silage had been produced before collapse of the SU on large areas in Kazakhstan just to supply silage for dairy operations not considering economics. The story of annual grasses was a little different: they were sown to produce some forage but very often were harvested for grain. After removal of state control over the cropping systems, the fodder crops faded right away as uneconomical. Forages were removed from cropland also in irrigated agriculture under both policies liberal and controlled. Under Governmental controlled crop production plans, all cropland has been devoted to strategic crops wheat and cotton leaving no place for forages while under liberal policies farmers have been planting cotton as most profitable cash crop occupying all cropland.

Rangelands in Kazakhstan and Kyrgyzstan, in spite of severe cutback of livestock population, has been degraded because of underutilization of remote rangelands and overstocking of rangelands near villages after reduced



livestock numbers were transferred to owners of small herds (Iniguez et al, 2004). Even in countries with less liberal policies like Uzbekistan, lack of winter forage, a typical constraint of the region with severe winters, and poor maintenance of water wells, have accelerated rangeland degradation (Gintzburger et al, 2003). Policies in Turkmenistan provided natural gas to all people including rural area free which prevented significantly harvesting of range vegetation for fuel and improved remarkably rangelands productivity but fast increased livestock population is of particular concern as more small ruminants may invariably lead to increase in land degradation.

The livestock sub-sector therefore happened to be put in most difficult position during transition. This affected its population badly in countries with liberal agricultural policies but it was different for various groups of animals. Most dramatically were affected small ruminants numbers: in both Kazakhstan and Kyrgyzstan its population was cutback three-four times in period of three-five years. By the end of the century, the situation got stabilized with positive trends in last three years only in Kazakhstan where the Government has been providing support to agriculture including to livestock sub-sector since 2003. This goes alongside with improved profitability of the whole agricultural sector including livestock. In countries with gradual approach to reforms there are two scenarios in small ruminant numbers: in Uzbekistan its population did not change significantly while Turkmenistan is the only country where small ruminant population increased dramatically because of substantial Government support: subsidized inputs, no taxes, providing half of off-spring to sheep herders taking care of large enterprises. Although official statistics of FAO doesn't show any increase of livestock numbers during last five years in Turkmenistan it published data on increase of meat by 38%. While sheep meat production is recovering it is not the case with wool as this business is not profitable. Apart from an overall shortfall in wool supplies, the wool currently sold by producers is usually not sorted or of good quality, causing technical difficulties for processing at the factories (Kerven et al, 2002).

Cattle numbers were affected much less as they are base of subsistence farming and they were more seriously cutback only in Kazakhstan where large cattle diary operations existed in the past. Again cattle population in Uzbekistan didn't change noticeably while in Turkmenistan it increased substantially. It can be seen from milk production, which didn't change in Uzbekistan during 12 years of transition while in Turkmenistan it increased by 80%. In all countries, poultry industry was badly affected by transition after having lost supply of feed to chicken factories.

During recent years the industry started recovering in all countries with largest success in Turkmenistan. Pig numbers were very big in the past only in Kazakhstan since it was exporting pork to elsewhere in the SU. During transition, pork production almost stopped in all countries except

Kazakhstan where even with reduced pork production it takes second place after beef and veal in total meat product. Horse meat and milk are playing significant role in diet of Kazakh and Kyrgyz people and their production has been increasing.

In countries with gradualism approach to agricultural reforms, Government policies in general are favoring production of strategic crops leaving without attention forages as far as livestock production has been transferred to private sector. In countries with radical agricultural reforms livestock sub-sector also is suffering because grain and cotton production is more beneficial. Gradually attitude to forage crops is changing but very slowly. Government policies should promote forage production in both dryland and irrigated agriculture because this will not only improve livelihoods of many poor people but also will help combat land degradation. This can be tied up for example with agricultural input subsidy policies in Kazakhstan adding to eligibility requirements request to keep certain land area under alfalfa and other forages. In most of Central Asia, there is time for second crop after harvest of winter wheat and normally this land has been left idle. This could be used for forage production.

## REFERENCES

- Abdyrasulov S. 2005. More attention to rangeland problems. J. Agropress, March, pp. 26-28, Bishkek, Kyrgyzstan (Kyrgyz).
- Agricultural policy and investment, 2004. J. Agropress, #9, January, pp. 8-12. Bishkek, Kyrgyzstan (Rus).
- Agricultural and land reforms 2004. J. Agropress, #9, January, pp. 14-18. Bishkek, Kyrgyzstan (Rus).
- Bazar tamyry. 2005. Newsletter, # 10, Bishkek.
- Crop production 2004. J. Agropress, #9, pp. 34-38. Bishkek, Kyrgyzstan (Rus).
- FAO, 2004. FAO Statistical Yearbook. Rome.
- Gintzburger, G., K. Toderich, D. Mardonov and M. Makhmudov. 2003. Rangelands of the arid and semiarid zones in Uzbekistan, CIRAD, ICARDA.
- ICARDA. 2000. Integrated Feed and Livestock Production in the Steppes of Central Asia. Annual Report. Natural Resource Management Program. ICARDA, Aleppo, Syria. 72 pp.
- ICARDA. 2001. Integrated Feed and Livestock Production in the Steppes of Central Asia. Annual Report. Natural Resource Management Program. ICARDA, Aleppo, Syria. 175 pp.
- ICARDA. 2002. Integrated Feed and Livestock Production in the Steppes of Central Asia. Annual Report. Natural Resource Management Program. ICARDA, Aleppo, Syria. 205 pp.
- Iniguez, L., M. Suleimenov, S. Yusupov, A. Ajibekov, M. Kineyev, S. Kheremov, A. Abdusattarov, and D. Thomas. 2004. Livestock production in Central Asia: constraints and research opportunities. In: Rayan, J., P. Vlek and R. Paroda (eds). 2004. *Agriculture in Central Asia: Research for Development. Proceedings of a Symposium* held at the American Society of Agronomy Annual Meetings at Indianapolis, Indiana, USA, Nov. 10-14, 2002. ICARDA, Aleppo, Syria, pp. 278-302.
- Iniguez, L., A. Aw-Hassan and M. Suleimenov 2005. Integrated Feed and Livestock Production in the Steppes of Central Asia: A collaborative research initiative undertaken by ICARDA and the national agricultural research systems of Kazakhstan, Kyrgyzstan, Turkmenistan And Uzbekistan. International Center for Agricultural Research in the Dry Areas (ICARDA), Aleppo, Syria. ( to be published soon)

- Isayev, A., 2005. From concept to strategy and program. J. Agropress, March, pp. 10-12. Bishkek, Kyrgyzstan (Rus).
- Kerven, C., A. Russel and J. Laker. 2002. Potential for increasing producers' income from wool, fibre and pelts in Central Asia. Socio-economics and Policy Research Working Paper 45, ILRI, Nairobi, Kenya. 40 pp.
- Kazakhstan Agricultural statistics, 2004. State Committee on Statistics, Astana.
- Kyrgyzstan Agricultural statistics, 2004. State Committee on statistics, Bishkek.
- Land resources. 2004. J. Agropress, #9, January, pp. 20-24. Bishkek, Kyrgyzstan (Rus).
- Mueller, J. 2000. Assessment of potential for the improvement of mohair, cashmere and fine wool production in Kazakhstan and Kyrgyzstan. Consultancy Report. Natural Resource Management Program. ICARDA, Aleppo, Syria. 18 pp.
- Rangelands. 2004. J. Agropress, #9, January, pp. 26-28. Bishkek, Kyrgyzstan (Rus).
- Shaydullayeva, T. 2005. About association of sheep and goat producers. J. Agropress, March, pp. 19-20. Bishkek, Kyrgyzstan (Kyrgyz).
- Suleimenov M. and P. Oram. 2000. Trends in feed, livestock production, and rangelands during the transition period in three Central Asian countries. Food policy 25 (2000), 681-700.
- Turkmen Mallery Association. 2005. Statistics of Livestock Production, Ashgabat, 2005.
- Urdavletov, M. 2005. Needs to address agriculture development issues. J. Agropress, March, pp. 6-7. Bishkek, Kyrgyzstan (Kyrgyz).
- Uzbekistan Economy. 2004. Statistical and Analytical Review for the 2003, #4, CEEP, Tashkent.
- Zhusupbekov, E. 2005. It is a shame to say I am poor. J. Agropress, March, pp. 35-36. Bishkek, Kyrgyzstan (Kyrgyz).
- Zhumabayev, Z. 2005. Economical growth in agricultural sector. J. Agropress, March, pp. 4-5. Bishkek, Kyrgyzstan (Rus).

## CHAPTER 15

# **PRIVATE SECTOR DEVELOPMENT IN UZBEKISTAN AGRICULTURE: CHALLENGES AND OPPORTUNITIES**

Sandjar Djalalov

*Center for Efficient Economic Policy, Uzbekistan*

Masahiko Gemma

*Waseda University, Japan*

## **INTRODUCTION**

Uzbekistan is considered to be a linchpin for vital parts of Central Asia in terms of culture, science and investment. In addition, the country was a major supplier of cotton, melons, fruit and vegetables to the other Socialistic Republics of the Union. The large shares of agricultural crops, except technical crops, were produced in the private sector. The privatization of small and medium size trade networks and the creation of a new market infrastructure and adoption of favorable legislation has increasingly stimulated development in the private sector. However, there are some barriers that restrain production efficiency, thereby lowering the income in the private sector (Djalalov et al., 2002). The purpose of this chapter is to show the impact of new market conditions on private sector developments in Uzbekistan. Land reform, farm restructuring, marketing, pricing, the role of government, institutional changes, finance and credit policy will all be taken into consideration. The objective is to describe and analyze current private farm policy, to identify problems existing at the level of policy, and to suggest ways of resolving these problems.

The data for this paper were drawn from statistical yearbooks and the study was supported by the Association of Dekhkan and Private Farms - the

institution in charge of private plot agricultural activity in Uzbekistan and private farms survey.

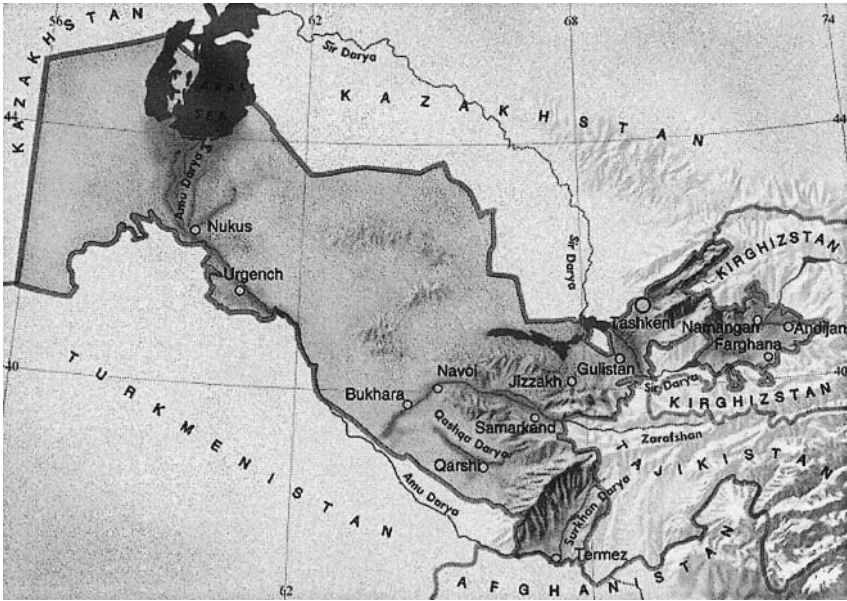
## **THE CURRENT ROLE OF THE PRIVATE SECTOR IN AGRICULTURAL PRODUCTION**

Although Uzbekistan is the only single double-locked country in the world, historically it has played an important role as an intersection for culture and commerce on the “Silk Road” between West and East. The country is located in the south of the former Soviet Union republics and has a border with Kazakhstan, Turkmenistan, Tajikistan, Afghanistan and Kyrgyzstan.

With a population of over 25 million and covering an area of 447,400 square kilometers, the country plays an important role in the political and economic life of Central Asia. Due to natural and climatic conditions and with an abundance of sun (around 3000 hours of sunshine per year), the important state specialization is agricultural production. Agriculture accounts for about 70% of internal trade and 55% of the hard currency held by the country; the sector's share of Gross Domestic Product content is more than 30 %, and more than 44 % of the labor force is employed in agriculture.

The role of the private sector has been increased considerably during the independent period. The share of subsidiary plots for household and private farms in agricultural output during the ten independent years has doubled. Since the adoption of a Decree on Dekhkan Farms (a previous name for private farms) in 1992, the number of private farms and area allotted to them has increased rapidly. (Table 1).

Map of Uzbekistan



*Table 1. The Main Indicators of Private Farm Development for the period 1992-1999 in Republic of Uzbekistan.*

	Measures	1992	1993	1994	1995	1996	1997	1998	1999	% rise from 1999*
Number of Dekhkan Farms	unit	5942	7538	14236	18085	18848	21416	23048	31090	520%
Total Area	1000 Ha	45.1	70.6	193.1	264.6	351.6	413.3	446.5	665.7	1480%
Number of Employees	1000 employer	20.9	29.8	62.9	95.1	104.2	135.8	137.9	176.5	840%
Total area Sown	1000 Ha	14.9	27.3	136.8	159.9	207.4	261.8	NA	481	3230%
Production of Wheat	100 tons	51.5	103.8	291.2	1,014	1,418	1,889	2,916	1,150	2230%
Production of Rice	100 tons	17	19.4	76.6	86.7	166	230.9	169	409	2400%
Production of Cotton	100 tons	7.3	63.9	283.4	1,005	1,581	779	2,699	4,375	59930 %
Production of Potatoes	100 tons	5.4	42.3	68.9	89.2	96.5	168.9	197	226	4185%
Vegetable Production	100 tons	65.9	95.1	349.6	695	528.3	638.9	774	1481	2247%
Production of Melons	100 tons	44.4	67.3	242.7	359.3	275.5	259.7	293.1	335.7	760%
Grapes	1000 Ha	2.9	13.3	31.2	108.6	68.8	126.4	114	150	5172%
Production of Meat	1000 tons	4.2	4.5	13.4	17.6	18.1	11.7	10.6	10.6	250%
Milk	1000 tons	23.6	24.9	52.6	71.5	56.1	49.3	50.7	50.2	210%
Eggs	million unit	1.2	2.6	3.3	4.9	4.8	4.1	7.5	7.5	630%

*Source: Information provided by Association of Dekhkan and Private Farms of Uzbekistan.*

*\* levels as a percentage increase from 1992*

The increased percentage growth of production in 1999, in comparison with 1992, for the state order strategic crop cotton was 59,930 %; in contrast, crops that may be sold through private channels have increased



only 760 % for melons and 2,200 % for vegetables. A decline of the area dedicated to the animal feeds due to use of farmland for strategic crops, such as cotton and wheat, has resulted in an increased price of livestock special feed - concentrate. As a consequence of this policy and because of the low purchasing power of the population and expensive input, livestock production has become unprofitable for farmers. As a result, meat and milk production during the same period has doubled.

In 1999, private farmers occupied 10.2% of agricultural land and 7.9% of irrigated land, however, the share for the private sector did not grow as expected. The share of private farm production for total agricultural production of the Republic in 2000 was 5.1 %, in crop production 8.52 %, and in livestock production 1.55%. Furthermore, due to the sensitivity of agriculture to natural conditions during the year (no rain and high temperatures), since 1998 the percentages of non-state order agricultural products declined in respect to the previous year. (Table 2)

*Table 2. Percent Share in Agricultural Production of Private Farms of Uzbekistan*

Crops	1992	1993	1994	1995	1996	1997
Cotton	0.02	0.15	0.7	2.6	4.5	2.14
Wheat	0.6	0.8	1.1	3.8	4.8	8.1
Rice	0.6	0.9	1.2	1.6	3.7	4.8
Potatoes	0.4	0.7	1.5	2	1.9	2.8
Vegetables	0.3	0.3	1.3	1.8	2.1	3.1
Melons	0.7	1.2	1.2	4.8	5.9	9.9
Fruit and Berries	1.2	1.2	1.4	1.8	1.8	3.4
Grapes	1	1.1	1.5	1.7	1.4	3.4
Meat	0.4	0.5	1.6	2.1	2.3	1.3
Milk	0.3	0.1	1.4	1.9	1.6	1.5
Eggs	0.3	0.5	0.2	0.4	0.4	0.6

*Source: Ministry of Macroeconomics and Statistics*

The reason for the inefficient use of agricultural land in the private sector in comparison with the other agricultural sectors is based on the barriers that farmers faced in their activity (Djalalov et al., 1997). The basic problems include:

The state order for production of the strategic crops, cotton and grain, occupied the greatest part of farmer's irrigated land.

Price policy, which does not stimulate agricultural producers to increase their productivity, increases unprofitability because of the existing disparity between industry prices and those of the agricultural sector.

Absence of favorable conditions for development of the private sector because of weakness in market infrastructure, absence of competitive markets, and intervention of official bodies in the marketing of agricultural products. Lack of input and high prices, which result in low productivity of plant and livestock production. Government control of all distribution channels of input supply.

Difficulties in accessing financial resources and credit due to existing credit policy in agriculture. Lack of cash in the marketing system forces sellers to avoid marketing channels controlled by the government and other channels connected with money transfer.

An increasing water deficit due to ineffective water management at the individual farm level, lack of incentives for farmers to save water resources and absence of self sufficient institutional structure to represent the farmers interest at the district level.

For the purpose of identifying problems faced by farmers and suggesting ways of resolving them, authors used a customized questionnaire to carry out a private farm pilot survey. The survey design was a random sample of eight hundred and sixty private arable farms in the Jizzakh region of the Republic of Uzbekistan. The Jizzakh region is located in the south-east of the republic. The region is representative of the entire agricultural sector of Uzbekistan: the climate in Jizzakh is arid with 80 % of the land being desert or semi-desert; water is a scarce resource in the region; and 65 % of the population lives in rural areas. Jizzakh is an important agricultural center that was developed as virgin irrigated land during the last three decades. The region's share in the total agricultural production of Uzbekistan is about 4.5%, with a specialization in cotton and grain production, representing 5 % of the Republic total cotton in 1998, of which private farmers produced half. This region accounted for 6.7 % of total grain production in the Republic and one-fourth of that produced among private farms. These figures highlight the importance of private farm production in the region.

## **LAND REFORM AND FARM RESTRUCTURING**

Before considering the main points, it is necessary to clarify the terminology. The term "private sector" has been widely used in publications about transition economies, but in reference to the private ownership of assets and land in Uzbekistan, however, it has a slightly different meaning from the idea commonly used in the western world. First of all, according to the

legislation "On Land," adapted in 1990, the land in Uzbekistan is owned by the state. Selling land or using it as collateral is prohibited except for the land beneath houses and surrounding yards; however, Decree # 96 adopted on the 15th of March, 1995 by Cabinet Ministers, allowed the selling of land used for privatized livestock farms.

In rural areas, the backyards, more precisely termed "small holdings" or "subsidiary plots of households" in Soviet economic terminology, were used for self-sufficiency purposes and the selling of commodities in free markets called bazaars. The sizes of these smallholdings varied and depended upon the population density of the individual region, ranging from 800 square meters to 3500 square meters. This type of agricultural activity was usually performed by family members and was considered to be in the private sector, but those farms were not legal entities and did not have bank accounts. Nevertheless, they played a significant role in agricultural production. In spite of several attempts by the Soviet Government to eliminate the private sector, it survived and even continued to grow. The share of commodities produced in subsidiary plots in households is shown in Table 3.

Table 3. Production of Subsidiary Plots (or small holdings) for Population in Uzbekistan (1000 tons)

Crops	1992	1993	1994	1995	1996	1997
Cotton	0.02	0.15	0.7	2.6	4.5	2.14
Wheat	0.6	0.8	1.1	3.8	4.8	8.1
Rice	0.6	0.9	1.2	1.6	3.7	4.8
Potatoes	0.4	0.7	1.5	2	1.9	2.8
Vegetables	0.3	0.3	1.3	1.8	2.1	3.1
Melons	0.7	1.2	1.2	4.8	5.9	9.9
Fruit and Berries	1.2	1.2	1.4	1.8	1.8	3.4
Grapes	1	1.1	1.5	1.7	1.4	3.4
Meat	0.4	0.5	1.6	2.1	2.3	1.3
Milk	0.3	0.1	1.4	1.9	1.6	1.5
Eggs	0.3	0.5	0.2	0.4	0.4	0.6

(including selling to *kholhozes*, *sovkhazes* and interfarm enterprises by contracts).

Source: Statistical Yearbook. Economy of Uzbekistan, 1989

Since independence, several laws and government decrees have been passed, including “On Dekhkan Farms” in 1992, which was passed in order to support private sector development and to support private ownership. These have stimulated rapid growth of entrepreneurship in agriculture and development in different types of non-state ownership. As an example of development, a new type of farm, called in the beginning “Dekhkan” farm, was taken from the American model of farming. According to the law, “On Dekhkan Farms”, land could be allocated for both long term and short -term lease, and as a lifetime inheritable possession. In 1997, however, the lifetime inheritable possession rule was changed to the long term leasing rights from 10 to 50 years. The reason was the inefficient use of agricultural land by farmers, as evidenced by low crop yield, failure to sow and soil condition aggravation. Moreover, in many cases inefficiency was caused by government rules and regulations: low purchasing prices, the state ordering system, over expensive distribution of input supplies and monopsonic buyers. Although the inheritance right and long term leases were able to stimulate farmers to put investment land to more efficient uses, according to the survey results, less than 1 percent of farmers received land with a more than 20 years lease. According to the survey, data shows that private farmers granted land held it

for an average of 12.2 years. The frequencies of land leasing is shown in Table 4.

*Table 4. Frequencies of Land Leasing Among Private Farmers*

	Period of Land Leasing	Share in % of Private Farms
1.	From 1-8 years	0.85
2.	10 years	86.9
3.	12 years	0.36
4.	15 years	2.9
5.	20 years	4.5
6.	25 years	0.36
7.	40 years	0.36
8.	50 years	0.26

The private farms have a wide distribution in size. In contrast with water in the Jizzakh region, the land is not a limited resource; most of the farm land is located in non- irrigated areas, which makes it naturally very convenient for wheat production. The average area of private land plots per farm is about 33.5 ha, although 37 % of farmers have land with an area of less than 20 ha and only 16 % have land of more than 50 ha. Figure 2.3 highlights that 60 % of farms have areas between 10 and 40 Ha. The size of a farm depends on many factors including wealth, number of family members, availability of hired labor, machinery and input. In Ferghana Valley and the Samarkand region, the density of population is the main factor that impacts farm size.

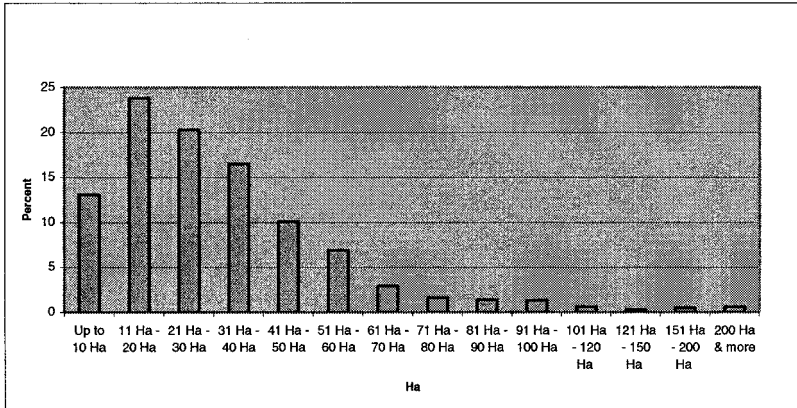


Figure 1. Private Farm Plot Area Averages in Jizzakh Region

A number of government resolutions were adopted in 1993 –1994 with respect to farm restructuring. Different forms of land tenure (see table 2.4) and the rights and responsibilities of owners were defined in the law “On Property” (1990).

Table 5. Land Ownership Types and Farm Types in Uzbekistan

Types of Land Ownership	Types of farms
State	Sovkhozes
Private	Privatized Livestock Farms (land under buildings)
Lifetime Inheritable Possession	Subsidiary Plots of Households, Private Orchards and Vineyards
Perpetuity	Kolkhozes, Agricultural Cooperatives.
Lease	Leaseholdings Private farms.

The state Agricultural policy was aiming for the development of multiownership and other varied institutional forms, mainly with production in mind (Nazarova, 1999). After several years of implementation, in March, 1998, “The program for the deepening of economic reforms in the agrarian sector for the years 1998- 2000” was adopted. This program laid out the framework for future reforms. Special attention was given to changing the system of land relationship (types of ownership) for the creation of stimulus to increase efficiency in production on the farms. In juridical terms, three types of farm were identified.

Agricultural cooperatives (shircat) were planned to be large agricultural enterprises, mainly for the production of state order crops such as

wheat and cotton. Attempts to involve workers in the management and stimulation of high productivity were made by the distribution of shares amongst cooperative members. This type of organization represents a pure production cooperative, with state control of the marketing and selling of the cotton and wheat.

Private Farms were a new private type of producer, dealing with agricultural crops and livestock production. Livestock farms, which typically hold not less than 30 head of cattle are granted up to 0.3 or 0.4 hectares of land per head, for production of agricultural crops (cotton and wheat). They receive 10 hectares of land as a minimum allotment. Previously, these types of farms were called “dekhkan farms” (see below), but now they are mentioned using the simple term, “farmers”.

Dekhkan farms are small family plots that were previously known as small land holders or simply subsidiary households plots. According to the law “On Dekhkan Farms,” (July, 1998) this type of production became a legal entity with the ability to open bank accounts and receive credit. The purpose was to legalize participation in the market for farms that previously were not under government control and had not been taxed. In 1999, the number of smallholdings was 3,322,600 and out of, 1,444,000 were registered as Dekhkan farms. More than 600,000 ha of land are now under the category, Dekhkan farms.

Traditionally, subsidiary plots played significant roles in the agriculture of Uzbekistan. Jointly with private farmers in 1999, the share in total of produce output was 85 percent for potatoes, 71 percent for vegetables and more than 90 percent for livestock production including milk and meat. The comparison of these figures with the share of private farms in Table 1.2 shows the importance of smallholdings toward national food security. The government attempt to create this legislation basis for smallholding development appears to have been beneficial. It has increased state support in credit and exports of Dekhkan farm production and improved the input supply. Still, since organizing the Institution in charge of private sector development (the Association of Dekhkan and Private Farms) in 1996, the number of cattle, sheep and goats on private farms has been decreasing. Such a trend causes farmers to become apprehensive about joining the Association.

The creation of Dekhkan and Private farms has achieved several objectives. Firstly, it has alleviated equity concerns, although in practice there is simply not enough land to provide every person with a plot. Secondly, land reform has created some growth for producers because of the strong control of government authorities. Despite, these modest gains, the small land plots do not go far in solving chronic land- related problems and increasing shares of the private sector in crop production. Thirdly, achieving food security, under which strong government framework may cause problems related to unsustainability in the private sector. Success of private commercial

enterprises depends on profitability. If the potential for profitability is artificially supported by state intervention, it would be excessively costly in case of market failure.

## PRIVATE FARM MANAGEMENT

The success in business in most cases depends on the quality of farm management and family welfare. Furthermore, a low level of market infrastructure, lack of knowledge concerning business management and State intervention in pricing also create a negative environment, thereby effecting the farm business. In this respect, previous experience plays an important role in the successful farm (Khusanov and Kosimov, 2000). Although a new type of farming is very popular among farmers, land scarcity and other factors, previously discussed, have limited the number of farmers (maas van Den Top et al., 1999).

In accordance with government decrees and laws, priority is given to the candidates who have experience in farming; nevertheless, the private farms survey provides surprising results. Only 69.7 % of private farmers had previously worked in kolkhoz or sovkhoz directly in agricultural production, such as cropping or livestock (Table 6). The balance held different positions in service and management, including tractor operators, drivers, engineers and agronomists. 17.2 % of private farmers are people, involved in another non-agricultural business, such as schoolteachers, economists, salespeople, businesspeople and doctors. In addition, 28% of these were officials from regional and rayon institutions including agrofirma, agricultural and water departments in Khokimiat (local authority) and Commodity Associations.

All farmers had some degree of school education; 97 % have graduated from junior and senior high school; 21.9 % graduated from college and 28.5 % of private farmers have graduated from University. Only 21.7 % of the farmers who have graduated from colleges and universities received an agricultural related degree. The age of managers ranged from 22 years to 65 years, but the majority are between 35 and 45. According to the survey, the average number of years of previous experience is about 11.8 but there is a large deviation from 1 year to 48 years. The frequencies of farmers previous experiences could be divided into following decade categories – under 10 years, 55.1 %, from 10 –20 years 37 %, from 20 – 30, 5.9 %, and 30 and over, only 2%. This implies, therefore, that the reformation process and willingness to be independent are more attractive for the younger generation, who have not had much previous experience.



*Table 6. Share Distribution of Private Farmers According Experience in %*

	Group of Private Farmers	Share in Total Distribution (%)
1.	Worker in Kolhoz and Sovhoz	69.7
2.	Region and Rayon Representatives	4.8
3.	Tractor Operator and Driver	3
4.	Accountant and Economist	2.8
5.	Brigadir and Zveneovod	7
6.	Specialist in Kolhoz	4.3
7.	School Teacher	7.5
8.	Salespeople and Businesspeople	0.9
	Total	100

*Source: Author's Own Calculations*

It is not popular to share a private farm with others in farm management in Uzbekistan. The idea of joint ventures partnership has not been successful. In 75.7 % of cases, farmers were managing the farms on their own and in 24.3 % of cases there was joint management with other members of the family. The private farm manager is traditionally a hard worker, with his own responsibilities, traditions and ways of thinking.

Poverty is widespread among rural communities in Uzbekistan. The lack of credit, high interest rates and shortage of state financial support are important factors that have impacted upon successful business and the farmer's family welfare. While a few people have benefited from the changes that have taken place since independence, the majority perceive themselves as being worse off than they were ten years ago. Sharp social stratification (the elite, the independent farmers, and the majority of the traditional rural population) is very real and is perpetrated by the escalation of economic and population pressures. In 1991 –1995, the farmers generated more profits because of a weaker control by the government organizations. As a consequence, the people who had money at that time became farmers and created sustainable businesses.

The social welfare of the rural population in Uzbekistan was previously much better than those of other Central Asian Republics. The average living conditions and durable goods of private farmers are presented in Table 7. Since the Soviet Union's collapse, a financial crisis has effected Uzbekistan and this has led to a major decline in publicly funded social services, including health and education, and also in the supply of key amenities, including clean water and gas. Quantity and quality of these services have also declined.

Table 7. *Living Conditions and Durable Goods (860 Private Farmers)*

1	Own house in %	98.8
2.	Average built before (years)	20
3	Average renewed (years)	6
4	Number of living rooms	5
5	Gas network in %	96.3
6	Numbers of cars (1 car) in %	35
	(2 cars) in %	3.5
	(3 cars) in %	0.3
7.	Number of motorcycles (1 motorcycle) in %	29.5
8.	Number of refrigerators (1 refrigerator) in %	63.8
	(2 refrigerators) in %	3
	(3 refrigerators) in %	0.4
9.	Number of color TVs (1 TV) in %	41.1
	(2 TVs) in %	3.6
10	Number of black and white TVs (1 TV) in %	69.4
	(2 TVs) in %	3.3
11	Telephones in %	7
12	Washing machines in %	56.8
13	Number of personal computers	1

*Source: Farm Survey Results*

The significant role in successful farm management plays the national mentality of the nation. Since ancient periods, the Uzbek people have maintained a settled style of living, mainly based on agricultural production, trade and handicraft. Until recently, mostly Uzbek settlements continued with the same process in neighboring countries. This historical background has become an important advantage in private farm development of crop production and trade. The unfriendly economic conditions created by the bureaucracy at different levels, however, facilitated a serious barrier to successful farm management. For this reason, more than 5 % of farmers reduced their activity in 1997.

The potential for private sector development was created before, and again recently, during the independent period, in Uzbekistan. In its transition to a market economy, it was necessary to create conditions for the efficient

use of a farmer's previous experiences and financial resources, in order to create in producers an interest to invest in land and facilities, and to reduce State intervention in farm management.

## **EMPLOYMENT AND INCOME**

The minimization of unemployment in rural areas is an important policy objective for the transition period. It is, however, important to recognize that this is an aspect of overall economic adjustment and not solely an agricultural issue. It is evident that large numbers of people need to enter the agricultural sector as farms are restructured. As mentioned previously, the number of employers depends on the sown area, farm machinery and the type of crops grown. As a rule, family members have the priority to work on the farm; in large farms, however, the number of non-family member working is increasing sharply.

Although private farm development may create some new jobs, utilization of machinery and new technology for increased productivity may, in some cases, provoke unemployment. In the former sovkhoses and kolkhozes, labor utilization was organized on normative bases, and as a consequence, labor for crop production was used inefficiently. Although the development of private farms reduced the inefficient use of labor, a comparison of job-creation versus unemployment, actually reveals an increase in unemployment. According to private farm survey information, on average there are 5.3 adults and 7.2 children living on farms. 88.6 % of adults took a job on the farm, while the remaining adult family members are dependents or are involved with other businesses. Children from 8 years and over usually help on the smallholdings (dekhkan farm), in general, caring for livestock.

Agricultural activity is seasonal and much seasonal labor is required, particularly for cotton production. The peak of labor consumption is during the sowing, irrigation and harvesting periods. In those periods, the number of family members is insufficient and so farm managers usually hire additional people and rent extra machinery. In the cotton-harvesting period (September and October), managers usually hire people for the hand picking of cotton in order to facilitate quality, and thereby raise the value of their cotton. According to the survey, the total amount of labor spent on cotton production was 32.8 days per hectare. The Institute of Market Reform in the Agrarian Sector (the main state research institution working out technological norms for crop growing) has recommended 52.2 days per hectare for cotton production. This norm is an average scale used for judging farm labor productivity for all types of farming. In some inefficient farms, the actual days per hectare may double the recommended in the norms. The gap between

private farm labor spending and Institute recommendations is 19.1 days representing the superiority of private farm efficiency in labor management.

The transition to market-based agriculture will also present new opportunities for employment as private agricultural services develop from the disbursal of assets, currently held by large farms. The future diversification of agriculture will also provide greater opportunities for private enterprise. New private farm activity will develop other businesses, including simple process manufacturing and service industries. The opportunity for the farmer to be involved in other businesses, such as processing, marketing and machinery management will depend on the size of the farm. On the small farm, with the exception of the farm owner and family, workers involved in other businesses pursued vocations such as working for a government organization as a teacher at a school, a doctor in a hospital, or a bookkeeper at a kolkhoz. Recent trends, however, show a reduction of “non-agricultural” activity among farmers. This can be attributed to the impact of the government policy, which holds to the principle that a good farmer is a farmer who is only involved in the agricultural sector. In order to identify eligible farmers, those who meet State criteria for Association of Private and Dekhkan farms the (state controlled farmers association) conducted an evaluation called farmers attestation during 1999. One of the criteria for success was insuring that farmers focused solely on agriculture. According to the study data, was insuring that a significant share of farmers main business included farming and “processing their own products”. This could, however, be a response to the State policy’s emphasis on agricultural production.

The survey highlights that 3.5 % of farmers’ future financing plans were to buy equipment to process milk, meat, fruit and vegetables. There already exists a tradition that one representative of the private farm (usually one from the neighborhood or kolkhoz) will sell agricultural goods at the market in the nearest city. Another business enterprise that was suggested was the creation of a machinery park for leasing to the farmers. Tractors and farming equipment are, however, very expensive, so most farmers can’t afford to meet repayment. As a consequence, the machinery in former kolkhoz and sovkhov has been used extensively as a consequence despite being in need of spare parts.

It is very difficult to categorically state that farming is the only a source of income for farmers. In plant production, private farming is considered to be land given for long-term lease, but each family is also granted small plots of about 0.25- 0.35 ha. The income from this land has not been considered until lately. Recently, a double source of income is appearing from farming activity. Previously, farmers held mainly small number of livestock and orchards, and didn’t declare this source of income. Since 1999, smallholdings became a legal entity and in the year 2000, 4524 plots were registered. The surveyed farmers gave information about other activities,

smallholdings, and they generated about 20% of the total income. The products produced by smallholdings are usually used for internal consumption although a portion is sold at the nearest market. The second source of income is private farming, in which the farmer declares receipts to the taxation department. Other sources include pensions and salaries from jobs. Family members sometimes have a shop or cafeteria, but usually this is not taken into consideration as a non-farming activity.

The Institute of Macroeconomics and Statistics conducted a comparative socio-demographic study between city and rural areas in November 1998, in the Jizzakh region. The study found that the average number of family members in rural areas was 7.1; the family structure included 2 working persons, 1 working in smallholding and more than 4 other members, which included dependents from 3 to 16 years of age.

Unemployment and under-employment are becoming major problems in rural areas. High birthrates in rural areas are a contributing factor toward unemployment. There is one unemployed person for every two families in rural areas, and so the share of salary in the total income in the rural area is 21.5 %, compared to the city, at 43.6%. Such a low share of the salary has motivated villagers to generate their main share of income from entrepreneurship and smallholding. According to the survey, monthly total income per capita was 2290 soums (US dollar = 100 soum in 1998) for rural areas and in the city, 327.9 soums greater. The conclusions from this survey are: firstly, due to unemployment in rural areas a surplus of labor is available in the region, secondly, due to the low salaries of villagers, the shares in small holdings is increasing and are becoming the main source of income.

The idea of private farming is based on receiving of a maximum profit from agricultural production and sharing it among family members. This stimulates farm management to employ all family members initially and also utilize seasonal labor, when necessary. In spite of this, private farming has been more efficient than collective farming. On the one hand, it increases productivity and output of agricultural goods; on the other hand, however, it also increases the unemployment rate in rural areas. The surplus of labor and lack of jobs may potentially cause instability in the region. Private farmers have more willingness to develop other business activities, which are closely related to agriculture, such as the manufacture of their own products and the creation of machinery parks that will generate new jobs. The instability in farmer's incomes and dependence on external factors diminishes their incentives to invest in other businesses activities.

## THE MARKETING AND PRICE POLICY

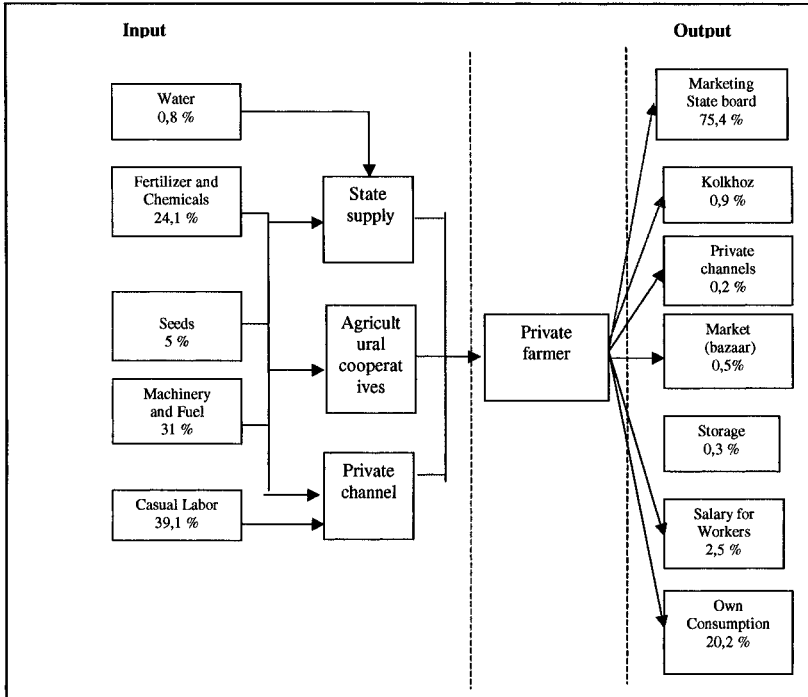
Price liberalization began in 1992 by Decree 6/1 of the Cabinet of Ministers, "About measures of Price liberalization". On the same year the Law on Dekhkan (Private) farms was adopted. The main objective of price liberalization was to allow commodity prices to approach world market price levels (Mass Van Den Top et al. 1996). There are, however, two different systems of pricing and marketing policies functioning in Uzbekistan. One system is for state order crops - cotton and wheat, in which marketing is strongly regulated by the government. In practice, state order procurement remains because it is by far the largest marketing channel for wheat and the only marketing channel for cotton. For other products, such as rice, strict controls on marketing, enforced mainly by the local authorities, are practiced at different levels. In contrast, for the fruit and vegetable sub- sectors, marketing and pricing are liberalized and production of those products is only constrained by the lack of suitable land or availability of inputs. The trade of these commodities is the most important source of income for producers. Most commodities go through government channel pricing based on "cost-plus" formulas (In former Soviet economies pricing for commodities was based on formula - cost of production plus some profit, usually 15 -20% of cost).

Aside from cotton and wheat, the remaining agricultural products are free of state controls. The price of these products depends on the forces evident in the two parallel markets: selling in the bazaar, where prices are negotiated between the seller and consumer and payment is immediate and in cash; or else contract for production with the process enterprises controlled by a commodity association (quasi- government organizations). Quite often contracts are determined by agricultural cooperatives and consequently, commodity associations that manage these enterprises regulate the prices. A lack of market information for the producers and lack of equipped storage facilities caused price instability for food products during the year. Although the contract system is an essential market instrument to avoid market instability, private farmers try to escape the contract system because of the lack of benefits and their low guarantee for payment.

The private farms profitability depends on an input and output equilibrium. Strong State interference exists in the control of output. Due to a sharp increase in private farm production for state order crops, more than 76% of total output goes through state marketing channels (red lines in figure 2), which include all cotton production and majority of the wheat production. A relatively smaller proportion, less than 1%, (blue lines) leads through the open market (bazaar) and private channels. These tendencies can be understood by

recognizing that these channels are mainly used for selling output from the farmer's smallholdings.

Figure 2. Input and Output Distribution in Private Farm Production



The current domination by State marketing channels allows private farmers only limited market opportunities for most products. The problem that private farmers encounter is that selling through government marketing channels is not commercially appropriate, however, at the same time, bazaars create market opportunities for only a very limited numbers of farmers. The output price analysis shows the differences between state marketing channels and private selling through the bazaar (see table 8). The State Marketing Board is a monopsonic buyer of cotton and the only channel for cotton sales to the world market. Average cotton prices are dominated at least two times in compared with wheat state purchasing prices, but farmers prefer to grow wheat instead of cotton for two reasons: Firstly, for food security reasons and also for the possibility of receiving cash payment at the bazaar. Secondly, high prices for cotton usually are accompanied by high production costs. A standard deviation of output prices shows the greatest dispersion of wheat selling prices through private channels and the markets, which is quite normal due to market fluctuation during the year. A surprising result in terms of standard deviation and range has been evident, however, for state cotton prices. The explanation for the relatively large deviation may be due to price categorization based on the quality of cotton. According to the state standardization system, there are five types of cotton pricing, the range of which more than doubled between the first category and last category. The lack of necessary equipment for the determination of cotton quality, however, gives advantage to cotton ginning manufacturers, which own monopolies in their surrounding areas. The indicators for measuring of the central tendencies, mean, mode and median, show relatively stable price data sets, without sharp fluctuation for all marketing channels of wheat and cotton.

*Table 8. Output Price Analysis for Wheat and Cotton Production. (1999)*

Crop and Marketing Channel	MEAN Price (Sum per 100 kg*)	Standard Deviation	MODE	MEDIAN
Cotton price for Marketing Board	2045	293.58	2100	2100
Wheat Price for State Organization	1007	183.37	1100	950
Wheat Price for Kolkhoz	1028	137.89	1100	1100
Wheat Price for Private Channel and Market (Bazaar)	1567	807.63	1500	1500

*Source: Farm Survey Results*

In order to achieve high revenue from sown area, on-time supply with reasonable prices is critical. Several factors, including delivery input on time, input - output price correlation, impact on-farm output levels and profitability. There are three main input suppliers for private producers: quasi - state institutions in charge of input delivery and distribution; agricultural



cooperatives (former kolkhozes and sovkhozes); and private channels (shops, companies and firms) (See figure 2). Agricultural cooperatives receive the input as partial payment for products produced by state order. Private farmers input comes mainly from agricultural cooperatives to partially fill the state order of cooperatives, because the land allocated to the farmer is still under state control. For the crops, which are not under state control, private farmers usually buy input from shops, agricultural cooperatives or state supply agencies.

The main source of short -term support from outside the farm has clearly arisen in an indirect way, no doubt reflecting the advance payment systems for cotton and wheat. Most bank advances, under the advance payment schemes, seem to stop at the Kolkhoz level while the benefits, which are passed on to the private farmers, are made in "kind". It is noticeable that these deferred payments were for inputs like cotton and cereal seeds, machinery hire and fertilizers, all of which are associated with crop farming, whereby farmers are paid for seeds in advance. The exception is for water (table 9).

Table 9. The Frequency of Input Payments in Relation to Delivery

Input	Source	Payment in relation to delivery (%)			
		Before delivery	At time of delivery	After delivery	End season
Wheat Seed	Kolkhoz	64.4	4.6	27.6	3.4
	State Supplier	63.8	13.8	10.1	12.3
Cotton Seed	Kolkhoz	71.6	0.24	27.1	1.2
	State Supplier	74.5	3	17.3	5.2
Fertilizer	Kolkhoz	62.4	4.5	17.7	15.4
	State Supplier	76.3	0.4	22.5	0.8
Insecticides	Kolkhoz	80	10	10	0
Machine Hire	Kolkhoz	19	11.8	61.1	8.1
	Private	5.7	73.3	15.7	5.3
Casual Labor	Private	21.7	33.3	43.5	1.5
Irrigation Water	State	0.5	2.4	1.8	95.2

Source: Farm Survey Results

The recent tendency toward increasing the share of state regulated crop allocation patterns in private farm production has aggravated the economic condition of the private sector. As a consequence, according to the survey data, 75.1% of farmers lacked the ability to pay for inputs and were

required to produce state order crops in exchange for advance payments that are processed through State controlled channels. The production of cotton and wheat, however, is usually unprofitable due to high production costs and the delay in output payment in relation to delivery to the State. (figure 3)

There are several cases in which the delay in payment for wheat continued for two years; for 3.5 % of cotton cases a delay of approximately one year was experienced. The average delays in payments were 5.5 months for cotton and 3.5 months for wheat. The artificial delay in payment for output and request for advanced payment for input put agricultural producers in a vulnerable position with a chronic lack of cash. The processing enterprises and input producers and suppliers have advantages, because the state guarantees payment for state order crops.

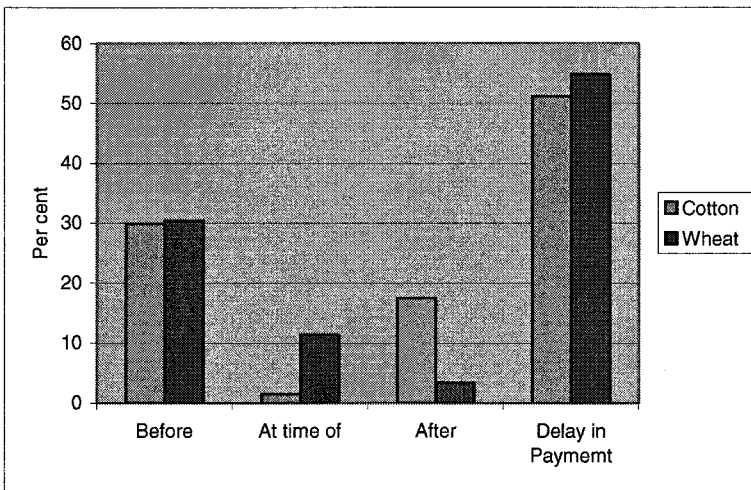


Figure 3. The Frequency in Output Payment in Relation to Delivery for State Organizations

Prices for most inputs are simply unaffordable to producers; farm equipment, and critical farm inputs, such as fertilizers, pesticides, and veterinary supplies often have higher prices than market prices elsewhere. Some key agricultural inputs, such as fuel and electricity, remain under administrative price controls. Nevertheless, they have been subjected to several large price increases. The result has been a dramatic increase in the cost structure to the farming sector. In some instances, for example, fertilizers, the cost on the domestic market exceed prices under similar conditions elsewhere partly because input and farm equipment distribution is determined by government controlled supplier associations. The Government subsidized

only the delivery of irrigation water and electricity; however, the remainder of input is at market prices (see Table 10).

*Table 10. Input Price and Cost Analysis for Wheat and Cotton Production. (1999).*

	MEAN Average Price (Sum per centner*)	Standard Deviation	MODE	MEDIAN
Wheat seed	3327	498.22	3000	3500
Cotton seed	3685	438.13	3800	3800
Sold Petra	857	184.45	800	800
Carbomid	657	230.96	500	560
Amorphous	1736	428.67	2000	1700
Water charge for cotton sum/m <sup>3</sup>	0.03939	0.03399	0.01	0.035
Water charge for wheat sum/m <sup>3</sup>	0.04824	0.04835	0.035	0.035
Labor Cost sum/day	242	205.63	44	221
Machinery Cost sum/hour	1788	1665.81	500	1000

The standard deviation is high in machinery costs. The reason can be attributed to the creation of alternative machinery services, such as Machinery – Tractor stations (MTS), private tractor operators and machinery in agricultural cooperatives. There exists a wide range in the cost of services for the same operation and price can be differentiated by the service provided. MTS service costs are relatively expensive, and therefore farmers prefer to hire private tractor operators or rent machinery from agricultural cooperatives.

More than half of the respondents in a private farm survey in Jizzakh region in 1999 ranked fuel as the most limited resources. (Table 11). In spite of the fact that Uzbekistan is self sufficient in oil and gas, oil products are generally scarce, except for the production of state order crops. This condition is observed for all inputs. Most fertilizers used in agriculture, except potassium, are produced domestically; however, 62.4 % of farmers ranked them as the second most limited resource. Land and water in the near future will be the most limited factor of agricultural development, and were ranked third and fourth in survey. The least limited resource is electricity, with water inputs subsidized by the government.

Table 11. Farmer Responses Ranking for Most Limited Resources among Inputs (percent)

Ranks Share, %	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	No response
1. Fertilizer	2 26.7	1 62.4	4 6.2	7 1.8	7 1.6	7 0.1	7 0.3	0.9
2. Electricity	7 0.4	4 2.1	7 1.1	6 2.5	4 10.5	4 10.8	1 62.9	9.0
3. Fuel	1 55.4	2 23.4	3 13.2	5 3.8	6 1.9	6 0.5	6 0.9	0.9
4. Land	3 10.7	3 7.1	1 34.9	3 13.9	5 8.5	2 22.7	5 1.4	0.8
5. Water	5 5.7	6 1.8	2 38.8	2 27.2	3 11.5	5 7.5	4 5.7	6.8
6. Pesticide	4 8	7 0.1	6 4.2	4 10.4	1 31.9	1 34.5	2 10.8	0.1
7 Seeds.	6 0.5	5 2	5 6.1	1 38.2	2 28.7	3 15.3	3 7.9	1.3

The principles of the current mechanism of the state order operation (at the farm level) consist of two main points. Firstly, the areas sown and production output of cotton and wheat has to be completed by each farm. The implementation procedure has a hierarchical structure: state order allocated to the region level as a share of the National total; allocated to a district level as a share of the fulfilled region total; allocated to farm as a share of the designated district total. Secondly, in case where state order production is fulfilled, 50% of wheat (30 % of cotton) must be sold to purchasing agencies at state-determined prices. The balance of the production can be sold to any buyer. However, if state order production is not fulfilled, the total production must be sold to the State at state determined prices. In practice, commonly the purchase through state order has been reported to be higher, at 60-70 percent of the crop, because many producers have not met ambitious production targets and therefore have been required to sell all the output at state order prices.

The investigation shows a high correlation between prices associated for State controlled channels and input prices for production of wheat and cotton (red color heads) (see Table 12). Those two variables have positive relationship. Different tendencies can be observed in relationship between prices associated for private marketing channels (blue color heads) and input prices for cotton and wheat production. The relationship between those two

variables is weaker. For some inputs such as seeds, some fertilizer, water charge for wheat and machinery, it has even negative values, which indicates a downward- sloping relationship (when one variable increases, the others decreases). The behavior of both variables has approved the input and output distribution model, which was schematically presented in figure 2.

Table 12. The Correlation between Input and Output Prices for Wheat and Cotton in 1999.

<b>Output</b> <b>Input</b>	Cotton Price for Marketing State Board	Wheat Prices for the State Organization	Wheat Prices for Kolkhoz	Wheat Prices for Private channel and Market
Cotton seed	0.9492	0.9356	0.7858	-0.2203
Wheat seed	0.8018	0.8968	0.7903	-0.0801
Sold Petra	0.7239	0.8931	0.6647	0.1270
Karbomid	0.9857	0.9085	0.7472	-0.2896
Amorphous	0.8000	0.8531	0.2694	-0.2243
Water charge forcotton sum/m <sup>3</sup>	0.8486	0.8641	0.6959	0.1326
Water charge for wheat sum/m <sup>3</sup>	0.5765	0.6160	0.6109	-0.0507
Labor cost sum/day	0.6464	0.7284	0.7944	0.1190
Machinery cost Sum/ hour	0.8770	0.9601	0.8841	-0.0456

*soum (local currency) per 100 kg*

A few important elements of the current marketing system in Uzbekistan for primary crops need to be highlighted. Firstly, the State maintains a monopoly in the production and monopsony in marketing cotton and wheat, which means that farmers have limited options other than selling to the State at State determined prices. Secondly, state farms and agricultural cooperatives, which private farms lands are allocated, have been able to force private farmers to produce quantities of state order crops and surrender them as part of the agricultural enterprise production requirement. The system of advance payment that is practiced widely and advancing credit for the purchase of farm inputs to produce cotton and grain is also part of the state order. During the independent period, the sown area under two strategic crops has not been reduced; in fact, the areas sown for wheat have been increased.

## **INSTITUTIONS ASSISTING THE DEVELOPMENT OF PRIVATE AND DEKHKAN FARMERS**

The creation of new types of ownership in Uzbekistan identified the need to support independent farmers and small holders. As a consequence, the

Association of Dekhkan farms and Smallholdings, in accordance with the Decree of the President of March 18, 1997 “On measures for Government support for dekhkan farms and small holdings and strengthening their role in food supply of the Republic”, was established. The aim of the association is to ensure co-ordination of the activities of dekhkan farms, small holdings and enterprises, as well as providing them with certain support services.

The Association, as presently constituted, has branches at national, regional and district levels and thus mirrors the structures of Government at these levels (figure 4).

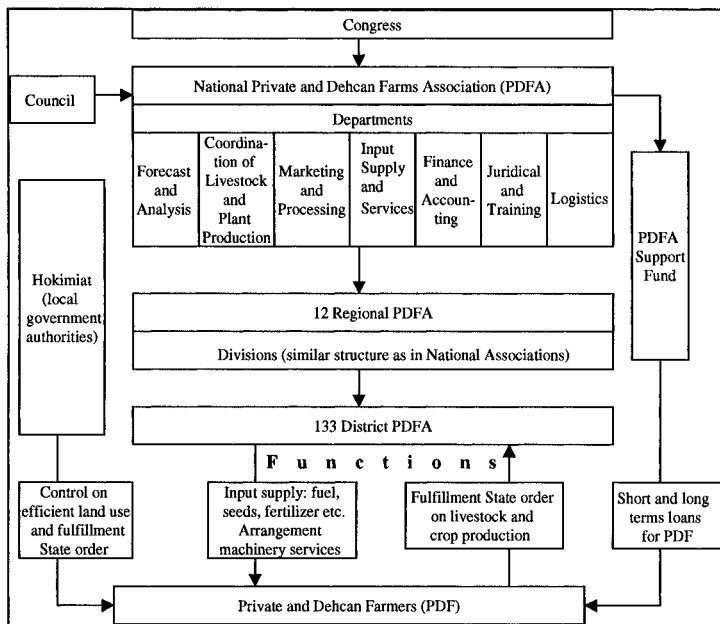


Figure 4. Institutional Structure and Functions of Private Farm Association in Uzbekistan

The Association is classified as a voluntary body. By definition, a voluntary association has voluntary membership and members elect its governing body democratically. The association's governing body appoints executive staff and other support staff. While there is a provision for the president to be elected by the supreme organ of the association – congress, the appointment has to be approved by the Cabinet of Ministers in the case of the national association and by the Khokimiats in the case of regional and district associations. Furthermore, there seems to be no provision for the democratic election of members to the Council of the Association. Thus, the Association

is voluntary only in the sense that farmers have the right to choose whether to join or not to join, the Association financed by Private farmers. The membership fee is calculating on the base upon the sown area of farms and in 1998, according to private farms survey, were 394 sums per hectare. The membership fee per farm was in average 14548 sums, but 10.1 % of private farmers didn't pay it.

The Association, amongst other activities, arranges for the supply of Government subsidised inputs to its members. This function alone gives little option for farmers to become members. Among the other main activities of the Association are the purchasing of commodities, which are subject to state order, facilitating farmers in arranging and fulfilment of contracts with government and private concerns and arranging for the supply of services from the state machinery pools. It also uses its influence to obtain additional land for its members. In addition, it arranges seminars, and endeavours to provide members with some legal and technical advice as well as marketing information. Most significantly, however, it monitors the performance of farmers in fulfilling their commitments under the state order system and assumes the powers to dismiss farmers who fail in that commitment from the Association. This latter role is clearly a control role, whereas, the provision of legal and technical advisory services is clearly a development role.

Other functions mentioned, such as the allocation and supply of inputs and arrangements for services from machinery pools, contain both control and development aspects. These latter services would seem more appropriate to the private sector under normal supply and demand market arrangements. The role of the Association does not change significantly from the role of the Association, as it currently exists.

The impact of state control reflects farmers total revenue. Figure 5 shows the index growth of three main types of producers in Uzbekistan during the independent period. A sharp increase can be observed – more than 4 times by 1994 in growth of revenue after legalization private farm activity through passing “Law on Dekhkan (private) Farms” from 1992. Since 1995, however, a sharp decline of this indicator demonstrating the aggravation of the economic environment, in spite of an increase in sown area and number of farms is evidenced. The creation of a new Association in 1997 as a new government channel for input supply and financial support has slightly improved the tendency, however, since 1999 the negative tendency is still observed.

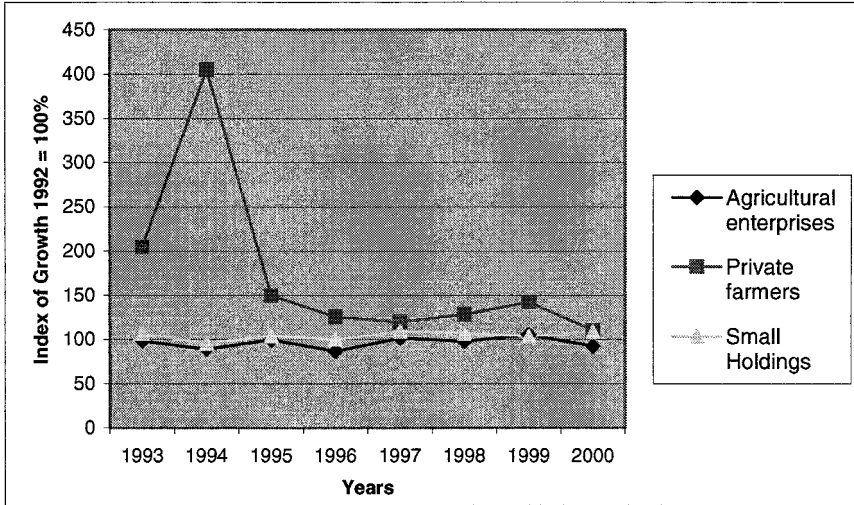


Figure 5. Growth of Revenue by Different Type of Producers in Uzbekistan

Source: Ministry of Macroeconomics and Statistics of Republic of Uzbekistan.

The Association thus has a dual role; control on the one hand and development on the other. These two roles can scarcely be regarded as complementary. It is an accepted phenomenon, world-wide, that farmers lack confidence in an organisation with a control function and this, in turn, greatly diminishes its ability to provide an effective development service. Except for the Association Of Dekhkan and Private farms there is the local authorities call as Khokimiat, which is dealing with commercial and production issues on the region or in rayon level. They are responsible for the economic and social development at the local level. The Khokimiat controls agricultural activity of private farms through kolkhoz. Seeds, machinery, fuel and fertilizer for production main strategies crops cotton and wheat goes through kolkhoz or Association. The local authorities are also in charge for land allocation for private farming and for other purposes.

Some attempts have already been made to establish farmers' associations in Uzbekistan, constituted along the lines of Western European farmers' associations. An example is the farmers' association initiated in the Ferghana District under a TESIS project. However, it would appear that the independence normally associated with voluntary associations, as outlined above, has not prevailed. The Ferghana Association, while providing very useful services to farmers, continues to function as an instrument of government by carrying out control functions on its behalf.



The lack of independence of farmers' associations, as currently constituted in Uzbekistan, has a number of disadvantages. In the first instance, it cannot lobby on behalf of farmers with the impartiality of an association created democratically by farmers for the sole benefit of farmers. Secondly, some of the services provided for farmers, such as the technical advisory service, is less effective than would otherwise be the case. Farmers are usually reluctant to avail of such a service, if the provider also performs a control function for the government.

Uniting commercial and production management function of government institutions could cause very serious consequences for the reform progress. It means that state organizations did not concentrate on their main functions - creation of appropriate condition for private farm development, and service for the farmers. Government organizations interference to the commercial issues will break the development of market mechanisms. The reason that financial welfare of depend on commercial function will never make them to refuse they room in the market.

It is suggested, therefore, that the Association ought to be relieved of its control functions. These functions could then be carried out by another existing organisation or by the Ministry of Agriculture. In any event, as the process of restructuring intensifies, such control measures are likely to be abandoned in favour of allowing the market to determine the type, quantity and location of production.

## FINANCE AND INVESTMENT

By law anyone hoping to become a private farmer must open a bank account. There are several banks associated with agriculture, in which farmers can have bank accounts. Pahta Bank is the largest bank and still has a strong relationship with the government because it serves as the disbursement window for advance payments on cotton. The private farmer benefits from these advances in one of three ways: either by advances direct from the cotton ginning; through contracts with the Farmers Association, or through contracts with a Kolkhoz. The Gallabank was established to provide financial services to the wheat processors, with the main purpose of financing the purchase of wheat from farmers. The farmers get their advances directly from the mill. The private farm survey confirms that the effect of some of these advances mainly delivers to the private farmer through kolkhoz and mainly in kind. The Tadbirkor Bank is the bank used by the majority of private farmers, 70.7 %. The number of branches has been reduced from 180 to 107, and the supervision has increased in order to achieve a 100% loan recovery. The bank is hardly able to expand activities on its own deposit base at present. The

Mevasabzavot Bank is a small bank with 21 branches. It also acts as a channel for advance payments using funds provided by the Ministry of Finance at “privileged” interest rates. The Zamin Bank was initially established to take land as mortgage for credit but, because of the non-transferability of private farm leaseholds, this has not yet proved possible. (Table 13)

*Table 13. Percentage Share of Farm Association among Banks*

Banks	Percentage of Private Farms
Tadbirkor Bank	70.7 %
Pahta Bank	19.1 %
Asaka Bank	4.6 %
National Bank	2.8 %
Sovdagar Bank	1.9 %
Others (Galla Bank, Mevasabzavot Bank, Halk Bank)	0.9 %
Total	100 %

Most private farmers report serious problems in obtaining credit, and receiving payments in general. It is commonly claimed that farms face serious restrictions on their access to cash and in their use of cash. In particular, farms may withdraw only the cash required to pay wages; any withdrawals must stay within 5% of their overall bank balance (Sagriloeva, 2001).

In the past, farmers have seen themselves as mainly self-financing their farming activities. The formal credit system has not made a lasting impression on them and even the Farmers` Association credit scheme and the Business Fund has had little impact. Only 28.6 % of the 860 farmers covered by the survey reported having direct access to advance payment schemes for cotton production and 15.7 % for wheat. Meanwhile, 3 % received loans for equipment purchases from outside their own family. Of the 15 farmers that filed successful loan applications, only 4 held their loans for a period of more than one year, confirming the suspicion that longer term formal finance is especially difficult to obtain.

According to a survey, 66.7 % of private farmers had not approached a bank for credit in the past. 30.6 % of all farmers in the survey said they did not need credit, but it is necessary to bear in mind that the farmers who took part in the survey clearly did not consider the deferred payment arrangements they had with the Kolkhoz and others as credit. The other farmers who did not approach a bank, either said that interest rates were too high (36.6 %) that the

procedure to get credit was too complicated (23.3 %) or simply stated their lack of confidence that banks would help them (4.4%). Generally, the answer to this question reveals a lack of confidence on the part of the farmers toward the banks.

The 89.1 % of the farmers who actually did approach a bank for credit failed to obtain a loan. High interest rates were again cited as a factor by 14.6 % of failed loan applicants. Other reasons given were that the bank would not grant a loan for a long enough period or that they could not satisfy the banks' requirement for collateral or guarantees.

All, bar one, of the 15 successful loan applicants received short-term loans up to a maximum period of one year, only 3 of the borrowers were able to obtain their loans without the use of collateral, 4 were able to secure third party guarantees and the remaining 8 provided a variety of farm buildings, personal effects and machinery being purchased to meet collateral requirements. Whilst the acceptance of the machinery being purchased as collateral is a step forward by the banks, they will still not accept signed contracts for future sales as collateral. This indicates a lack of confidence on the part of the banks concerning the value of contracts at present.

Every farmer in the survey indicated that they wished to expand their operations in various ways. Most of the investment was expected to be of small to medium size, with one third in the size bracket from Soum 30,000 to 500,000 (approximately US\$ 215 to US\$ 3,570) and 34% in the bracket from Soum 500,000 to 5 million (US \$ 3,570 to US \$ 35,700). A substantial minority (2.6%), however, had larger scale expansion plans.

Although 92.7 % of the farmers still intended to rely solely on their own resources or those of their family and friends for their expansion, 0.2 % hopes for support from Non-Government Organizations (NGO). 13.6 % of farmers, a much greater number than in the past, are hoping for support from the banks and the Farmers Associations. Under present circumstances, however, it is doubtful that sufficient support will be forthcoming. The farmers were somewhat reticent to answer questions about how much of the needed finance they would provide themselves, as only 234 farmers (38% of those surveyed) responded to both questions. Of those who did respond, both lack of financing and insufficient collateral were seen to be serious problems. Nearly 16.1% expected to be able to provide less than 25% of the total cost for the investment; nearly 76.7% did not think they would have sufficient collateral to cover a loan.

One area where Government policy appears to have improved the long- term situation was announced by a Presidential decree in 1997. This policy requires all payments from non-bank funds, to be routed through the banks. Such a system helps ensure that the long- term role of the banks will be recognized when special, and probably temporary, forms of finance are being introduced.

The private farm credit survey showed that a more pressing need, from the farmers point of view, is to ease the problems over raising sufficient collateral to satisfy bank requirements of 120% to 130% of the loan value. There are several ways in which this problem could be addressed. One problem is that the ownership of leaseholds on private farmlands is not transferable. If they were, it would give the farmers lease value that would be acceptable as collateral.

The banks would likely be encouraged if new styles of lending were introduced to the agricultural sector. Banks might be encouraged to lend to small groups prepared to take “joint and several liability for each others” loans. In effect, the people whom banks would pass money over to would be borrowers that know each other well. The group might be considered credit worthy, as farmers would not welcome someone into their group they did not trust. Since collateral is only needed because banks are unable to judge the creditworthiness of borrowers unknown to them, such lending policies would eliminate the need for collateral. This system, which depends on the presence of a well-developed and trustworthy social background such as exists in Uzbekistan, has already been successful in several countries (Mass van Den Top et al., 1997).

## **CONCLUSIONS AND POLICY IMPLICATIONS**

1. Allocation of land on the basis of long term leases is an acceptable alternative to full ownership, provided that the lease agreement gives the farmer the security of long term use of the land and that no restrictions are imposed on how the land is used (except that it must be used for agricultural production). It should be stated explicitly that land use rights can only be withdrawn in cases of non-use of agricultural land and in cases where permanent damage has been done to soil productivity or fertility. Management decisions on cropping patterns or productivity levels should not be imposed and certainly not be included as criteria for withdrawal of land use rights. It is therefore doubtful whether the proposed ‘statute for land use’ is needed. An essential provision, however, is to make the land use rights (leases and other titles) transferable. Such a provision would provide the possibility for development of a land market, which would facilitate the transfer of land to the most efficient farmers. It would also allow the attainment of the objective of creating a variety of farm types in an economically efficient way. If the government wants to make recommendations for development of various types of ownership, it should limit itself to regulating the legal aspects of various ownership titles. The government should not try to regulate the

commercial activities of the farms or enterprises with various types of ownership

2. There are several conditions necessary for sustainable private farm management. First is the farmer's economic independence in decision making. This is necessary to prevent any state intervention into a farmer's production activity, which could lead to financial damages or even cause bankruptcy. The second condition is the farmer's legal independence. It is necessary to consider private farmers as real legal entities and advocate their rights in contracts with all partners such as the state, financial institutions, supply and processing enterprises. The existence of such multi-channel relationships could destabilize a farmer's activity. For this reason, business farm education and training become critical to agricultural producers' sustainability. The third condition is the inviolability of farmer's land. The potential for land redistribution will reduce a farmer's willingness to invest for the purpose of increasing land productivity. The final condition is the farmer's welfare. In the case of an absence of state support and an undeveloped credit system, farmer's welfare plays significant role. In the farmers registration and land distribution process, the farmers' economic welfare needs to be taken into consideration.

In addition, the government should provide support for the development of the private sector and guide it through the process of transition. This can be achieved by the provision of essential services, which include:

Training and education: current training curricula need revision;

Agricultural research: new research programs are needed to cater to the needs of restructured farms;

Advisory services: there is a great need for technological and managerial advice to farmers;

Market and price information: the lack of commercial information is a serious constraint to the development of private enterprises; and

Legal advice on farm restructuring and privatization: farmers need clear information about procedures and their rights and obligations.

3. Private sector development and increasing productivity will create a surplus of labor in rural areas. The increase in unemployment share could play a destabilizing role on society. In order to prevent negative tendencies by the government, support programs must be implemented in rural areas. The key elements of the program must include the following measures: development of new job opportunities in processing, service and other agriculture related industries, reduction of state regulation of salary size and an increasing number of unemployment service branches in rural areas. "Transparency" is another issue that must be taken into consideration. According to official sources, the share of unemployment accounts for only 0.3 % of total labor; international sources and scholars investigations,

however, actually show it to be between 10 and 15 %. The concealment of such problems can only extend the negative impact of consequences to the economy and social stability in society.

4. Together with the intended abolition of explicit state orders prices should be allowed to move up to world market levels. Government requirements of cotton, grain and rice should be purchased at market prices, using a system of contracts to improve production efficiency. Under such a system the government would announce its purchase requirements before the sowing season. The total amount would be subdivided into small lots, and farmers would be asked to offer any number of lots and state an asking price. The government would then choose the lowest-priced offers, and purchase contracts with farmers would be signed. Farmers would thus be insured against price risk. The contracts would be printed and distributed, and would themselves be marketable. This would enable the contracts to be used as collateral for loans and credit. Also, farmers and the government would then be able to buy and sell further contracts in response to changes in prices and other market conditions, or generate income before harvest.

Price controls are necessary as long as agricultural inputs are produced by monopolistic state enterprises. The best method for restraining prices is to encourage competition by allowing private enterprise to enter the market. One way of doing this is to ensure that private entrepreneurs have the same access to government funds as state enterprises. This rule should also apply to the establishment of leasing companies for machinery, for the purpose of increasing machinery and tractor fleets. The most effective method to increase competition and to combat monopoly (and monopsony) pricing, however, is to give private producers and processors access to foreign markets.

5. In order to achieve real economic reforms it is necessary for the government to realize that its role should gradually change. In stead of directing and controlling agricultural production, processing and marketing by the government should concentrate on its key role of creating conditions and providing support for the development of market-based agriculture in order to create incentives and opportunities for private farmers and entrepreneurs. In accordance with this new role, the functions and structure of state organizations at all levels must change and their commercial involvement in input supply, production, processing and marketing should be phased out.

Independent farmers' associations can, in due course, play an important role in providing information and financial and legal advice to their members. Furthermore, agricultural producers should be allowed to form their own commercial organizations for marketing and provision of services. The development of such voluntary associations and private marketing/service groups should be encouraged, and supported by appropriate legislation, assistance with the registration of independent legal entities and the provision

of model statutes and contracts. In order to create a market environment for such a development of private initiatives, it is necessary to abolish the vertical commercial management structures of commodity associations and state concerns, and to terminate the involvement of local authorities in commercial activities.

6. The private farms credit survey showed beyond doubt that the most effective form of short-term credit available to the private farmer is in the form of deferred payments, largely arising from the centralized advance payments systems and especially for cotton and cereals. Still, there is a negative side to this in that such sustains tend to lock private farmers into cropping patterns that are not necessarily in their own interests. Also, the farmers need to be free to choose their own input suppliers and to pay for what they actually use, rather than having a "standard norm" deducted from a settlement account.

The long-term objective of Government credit policy must be to move towards a properly functioning and competitive banking sector that is able to provide credit to farmers from its own deposit base. Clearly the banks are still well short of the deposit base, which they would require to perform this function, and funding from the outside will still be required for several more years yet. Nevertheless, any medium-term steps taken by the government in the next few years must move towards the long-term objective. The recommendations given below are aimed, first, at assisting the development of the banking sector in general and, secondly, at improving the supply of bank credit to the private farmer.

The commercial banks should be encouraged to increase the interest rates on deposits made with them to a level exceeding the rate of inflation.

It is recommended that steps should be taken to improve the situation regarding the collateral requirements of the commercial banks by undertaking measures to confer transferability of land rights that would make land acceptable as collateral; encouraging the development of leasing; and encouraging the development of co-operative credit unions.

## REFERENCES:

- Djalalov S. 2002. Institutional Aspect of Agricultural Development in Central Asia. Voices in Writing. ISSN 1347-1481. Volume I printed in April 2002. Tokyo. Pp14-34.
- Djalalov S, Maas van Den Top, Baker D. et al. 1997. . *A Medium Term Strategy for Agricultural Development in the Republic of Uzbekistan*. Reports of Food and Agricultural Policy Advisory Unit FAPU-TACIS. Tashkent. Uzbekistan.
- Nazarova F. 1999. *Agrarnai politika v kontekste nacionalnih modelei ekonomicheskikh reform*. (Agricultural Policy in the Context of National Economic Models). Economic Bulletin of Uzbekistan. pp. 25-28.
- Khusanov R. and Kosimov M. 2000. *Dehkon khujaligini uritishni ilmi va amalii asoslari*. (Theory and practice of small farm management) Tashkent. Published by Chulpon. 103 p.
- Maas van Den Top, Baker D., Kruse W., Horton T., Mansurov S., Salimov A., Djalalov S., Mosina L., Mamadvaliev T. 1996. Marketing and Price Policy in the Republic of Uzbekistan. Reports of Food and Agricultural Policy Advisory Unit FAPU-TACIS. Tashkent. Uzbekistan.
- Maas van Den Top, Sullivan M., Harvey A., Mansurov S., Salimov A., Djalalov S., Mosina L., Mamadvaliev T. Abduganiev A., Khudjabekov A. 1999. Land Reform and Farm Restructuring; policy guidelines. Reports of Food and Agricultural Policy Advisory Unit FAPU-TACIS. Tashkent. Uzbekistan.
- Maas van Den Top, Sullivan M., Harvey A., Mansurov S., Salimov A., Djalalov S., Mosina L., Mamadvaliev T. Abduganiev A., Khudjabekov A. 1997. Policy for Agricultural Credit Provision in the Republic of Uzbekistan. Reports of Food and Agricultural Policy Advisory Unit FAPU-TACIS. Tashkent. Uzbekistan.
- Sagriloeva Z. 2001. *Sovershenstvovanie sistemi finansovo-kreditnih otnoshenii v APK* (Finance and Credit System Improvement in Agriculture). Agriculture in Uzbekistan 2. p. 48.



## CHAPTER 16

# **INSTITUTIONAL REFORMS AND NATIONAL AGRICULTURAL RESEARCH SYSTEMS IN CENTRAL ASIA**

Suresh Chandra Babu

*International Food Policy Research Institute, USA*

Alisher Tashmatov

*Center for Efficient Economic Policy, Uzbekistan*

## **INTRODUCTION**

Achieving sustainable agriculture development is at the forefront of the poverty reduction objective of the Central Asia Republics. Yet, Central Asia is currently the only region in the world where poverty is likely to increase in the decade. Additionally, food insecurity and malnutrition remain at high levels. Since independence, the regional governments have enacted various reforms, although in varying degrees, to transform their centrally planned economies to market oriented ones. Despite these efforts and the assistance of external organizations, progress in these countries has been slow. While agriculture remains a significant component of the Central Asian economies and the republics have implemented various agriculture reforms, production of several of crops has fallen short across the region. One of the main obstacles to agriculture growth and food security in the region has been the fact that in less than a decade since independence, institutional and human capacity for research, policy formulation, and implementation on agriculture has not been fully developed and the existing capacity for agriculture research and extension has deteriorated. National agriculture research systems face serious institutional, organizational, and management challenges in Central Asia (Babu and Tashmatov, 2000).

This chapter examines the history of the changes in the institutional and organizational structures of the national agricultural research systems in Central Asia and addresses some of the specific institutional reform challenges they face.

## **THE CHALLENGES FOR CENTRAL ASIA'S AGRICULTURAL RESEARCH SYSTEMS**

At independence, the Central Asian Republics inherited from the previous Soviet structure and agriculture research system that was, for the most part, well funded, science based, and centralized. They were also left with substantial local assets from which to develop appropriate national systems for agricultural research and extension. However, they have continued to suffer from the disadvantages of the Soviet approach; the system's influence on politics, the low rate of technology adoption, strict government control and conservative management, inflated bureaucracy, absence of a consistent means of evaluation, a separation between agriculture research and education, and other challenges. These challenges continue to thwart the countries of the region as they build their own national systems of agricultural research. Most countries have lagged in developing a new research program priority to respond to changes in the structure of their agriculture sectors and their emerging market economies, and the capacity of their institutions in dealing with natural resource management and food policy research has declined. Changes in the structure of agriculture in terms of emerging large number of smaller, private farms means that the entire agriculture research system including research institutions, educational academies, and extension institutions in these countries must be reorganized to be responsive and effective to utilize the available human, financial, and physical resources efficiently. Institutional support does exist for structural reforms and to optimize the research system management in Central Asian republics. National agricultural leaders and scientists have, over the past years, made serious efforts to change the mentalities, objectives, procedures, processes, and programs designed to serve the former political order to those that serve their national needs and aspirations. Institutional change and reforms in these countries will certainly depend on political will, but scientific and systematic approaches to system innovation will also be required (Morgounov and Zuidema, 2001).

National agricultural research systems in Central Asia are faced with similar challenges. The large number of staff left behind after independence continues to be a source of human resource management challenge. As staff members age and retire they continue to have affiliations with the research

institutions. Yet, their productivity in terms of contribution to agriculture research and outreach activities remains low. While there is a serious effort to reform the agriculture research system, there has also been internal pressure for keeping the preservationists strategy to deal with agriculture research and extension systems. The scientists have been responsive to external pressure to modify their approach to priority setting and implementing research programs. The maintenance of agriculture research institutes as a system poses challenge for such reforms. While there is some will among agriculture research leaders to reform the agriculture research system, there has not been a systematic approach to develop national strategy for setting priorities for various commodities to undertake agriculture research and linking that research to the users of research and technology. The relevance of existing research priorities to the local and international markets is not clear. Although reforms in several sectors have been moving in the right direction including land, irrigation, and marketing systems, the research system has not responded to the reforms in other sectors. For example, the number of people growing crops in their household gardens has been increasing while the research for such emerging smallholder sector in agriculture of Central Asia has not been highly targeted.

The legacy of the Soviet era, which meant a centralized, well organized system of agriculture research governed by politics, which ruled the research priorities continue to exist in the national agriculture research systems in Central Asia. Academic institutions that deal with agriculture research continue to be unions of institutions under the Ministry of Agriculture that allocates resources for agriculture research and extension. Given the state control over agriculture research institutions and the conservatism that exists among the academic and research institutions partly due to dependency on funding from the state, organizational management reforms in the national agriculture research systems has been slow at best. Resistance to staff downsizing was not highly productive and lack of priorities to respond to change has also increased the ineffectiveness of the national agriculture research systems. The mobilization of human, financial, and existing physical resources towards improving the size, scope, and level of impact of agriculture research on the productivity of smallholder farmers remains to be tackled.

## **SPECIFIC APPROACHES TO INSTITUTIONAL REFORMS IN NATIONAL AGRICULTURE RESEARCH SYSTEMS**

There is an emerging smallholder agriculture sector in Central Asian countries dominated by farmers who are cultivating the lands in and around their households that range from 2-5 hectares. Structural change, in addition to the organized farming sector, requires setting research priorities that will address the poor and marginal farmers. National agricultural research systems can benefit from institutional reforms relating to three major areas: 1) developing a national strategy for agriculture science and technology; 2) institutional restructuring by better organization and management; 3) better capacity strengthening through institutional innovation.

Developing a national agriculture research strategy requires close collaboration of political leaders with the national researchers in order to improve the process of strategy and policy formulation in Central Asia. Policymakers driven by political systems, which are still centrally oriented, require frequent interactions with the scientific community on the role of well-designed agricultural research and development strategy. Identifying such strategic options that would benefit smallholder farmers by developing technologies relevant for their farming systems and addressing the market needs would help linking smallholder farmers to the markets with increased productivity. However, developing national strategies requires capacity at the national level within the institutions and the organizational skill of national leaders to bring together policymakers, researchers, and farmer groups to develop a system of setting priorities and assess the benefit of agricultural research and extension systems.

In order to develop a national research strategy for the countries in the region, information regarding how various institutions dealing with agricultural research are organized and connected to other related institutions in the university system, marketing system, and farm cooperatives should be understood. There is also a need to understand the policy process of developing national strategies for agricultural research within the countries in the region and compare them for the benefit of each other. The financial resources for funding agricultural research continue to be allocated through the Ministry of Agriculture. The national agriculture research systems have not ventured enough to create opportunities for mobilizing resources through other sources of funding. Developing strategies for public/private partnerships and opportunities for raising resources directly through farmer groups for implementing research have yet to be explored in the region. This will in turn depend on the relevance of the agriculture research systems in meeting the emerging needs of the farming community. Setting priorities for

highly relevant agriculture research and development and providing evidence on how such research is in turn benefiting farmers would be useful for convincing national policymakers on the need for establishing strategy for agriculture research. Monitoring and evaluation of agricultural research and development indicators in the region is also important since the data on specific activities and the human, financial, and physical resources allocated to various activities continue to be less transparent.

After independence from the Soviet Union, the national systems of agricultural research in each of the Central Asian countries have followed different approaches to their organization and management. In general, the speed with which they have reformed their institutions has been in line with the openness of the countries. For example, Kyrgyzstan, which has opted for a more liberalized approach to institutional reforms, has improved in terms of consolidating its institutions.

The effectiveness of the national agricultural research systems will depend on how they are organized and managed at various levels. The national agriculture research systems of Central Asian countries face several challenges related to developing new methods and approaches to enhance their organizational efficiency and effectiveness. Effective organization of human capital within research and extension systems would enable increased productivity of NARS. Furthermore, organizing NARS and the institutions within them in a competent manner to mobilize resources and increase the accountability and governance of the research resources by monitoring and evaluating the outcomes of the research programs will improve the linkages between the research systems and their final beneficiaries.

It is important to investigate the best methods of strengthening the capacity of the national agricultural research systems within a short period of time. This will further depend on the national strategies of the countries for agricultural research, setting priorities for specific research activities, assessing the impact of research, research management and policy formulation. Structured approaches to need-based capacity within the NARS, university systems including some distance education approaches would benefit the national institutions to build capacities for agriculture research.

Analyzing innovation systems and process in agriculture to identify their potential for rural growth and poverty reduction is important within the national agricultural research systems. Developing farmers groups, networks among researchers, and partnerships between public and private research institutions and the civil society organizations is important for fostering the generation of agricultural technologies for the smallholder sector. Understanding the characteristics and dynamics of successful networks will help in facilitating such innovation systems that complement the publicly funded national agriculture research institutions. It would be useful to undertake comparative studies of various emerging networks and partnerships

in sharing knowledge regarding organizing and facilitating better partnership opportunities among the diverse actors engaged in agriculture innovation systems (Ekboir, 2005).

## **PROSPECTS FOR FUTURE INSTITUTIONAL REFORMS IN THE NATIONAL AGRICULTURAL RESEARCH SYSTEMS**

Declining resources and weak research infrastructures for agriculture research and extension after independence have reduced the effectiveness of agricultural research systems in contributing to agricultural development and economic growth. While there is an enormous amount of desire for improving the effectiveness of agricultural research systems, the past legacy of politically driven agricultural science agenda thwart the efforts of research leaders in Central Asian countries. There is an immediate need for revitalizing the agricultural research and extension systems including educational system in the Central Asian region. This will require drastic reform process in developing the capacity of the national institutions for organizing themselves towards impact oriented agriculture research. In countries where there has been less political control over agricultural institutions such as Kyrgyzstan, the impediments for such institutional reforms have been less compared to the countries that still continue to have centralized control over the agricultural research institutions.

International agricultural research institutions collaborating the national agricultural research systems in Central Asia have identified several immediate needs for reforming agricultural research institutions in the region. Among them are the establishment of a national research strategy and program plans for each one of the countries that parallel the roles and aspirations of the farming community; and producing necessary policy reforms in the agriculture and allied sector that complement the reform of the national agriculture research institutions. Land reforms, market reforms through liberalization and reforming irrigation systems that result in better use of natural resources would benefit the region in organizing their research towards addressing a wide variety of technology, policy, and institutional issues.

Diversifying the agriculture research base from monocropping to high value crops such as fruits and vegetables and livestock is an immediate need in the region. Yet, the productivity of the agriculture systems in the region remains low. Research oriented towards increasing the productivity of livestock and crops systems would benefit smallholder farmers in the region. Systems including strengthening of the national seed programs remains a

major challenge for encouraging smallholder farming systems. In addition, strengthening the farmer groups and strengthening extension systems by providing capacity strengthening programs that can translate the technology generated from the national agricultural research systems into adopted technologies in the farmers' fields is essential. Furthermore, establishing better cooperation between the research community and the educational institutions is essential.

Recently there have been efforts to organize the agriculture research institutions in the region in the form of Central Asia and Caucasus Association of Agricultural Research Institutions (CACAARI). This includes several types of development stakeholders and civil society institutions to widen the scope of agriculture research in the region. Further efforts have been made to develop an inventory of stakeholders in the complete national agriculture system each country in the region to enable better partnership between agriculture research and development institutions. This will foster cooperation among the partner both within the countries as well as in the region. (CGIAR-CAC, 2004).

There is an immediate need for increasing the participatory research setting approaches involving various stakeholders at the country level. National forums of farmers groups that are emerging should be encouraged to involve various types of farmers in order to undertake planning and implementation of agriculture programs and policies.

There is an immediate need for bringing the existing knowledge and research technology to benefit farmers by developing infrastructure for information sharing. The development of knowledge management systems, each one of the countries is a step in the right direction.

International agencies and donor community working in the region needs better coordination and normalization of their activities to serve the agriculture sector. Working in line with the priorities set by the countries and identifying the common programs that could be funded for the benefit of two more countries in the region would enable effective use of donor resources for agriculture research and development. However, cross-country donor harmonization remains a challenge, not only in agricultural research programs but also in other development projects. The weak linkage that exists between farmers and researchers needs to be addressed through development of innovative extension systems. Outreach and extension approaches specifically designed for reaching out to the farmers growing crops on private land and farmers attempting to reach out to markets in the region as well as outside of the region will increase the participation of the smallholder sector in the development process. Creating markets for agricultural commodities and linking the market opportunities to agriculture research programs that support farmers' production activities will be essential.

The NARS of the Central Asia region are expected to perform several functions. First, improving the productivity of farming systems and conducting research on sustainable use of natural resources is fundamental for improving food security and managing the natural resource base in the region. Second, in the wake of increased diversification to commercial crops such as fruits and vegetables and livestock systems integration of crop production systems with the livestock and feed production systems is essential. Third, natural resource management, particularly in the form of revitalizing irrigation systems in order to improve the water use efficiency as well as reducing the negative impact of irrigation systems such as drainage and salinity problems should be addressed. Fourth, strengthening of institution and human capacity for undertaking priority setting, implementing research programs, monitoring and evaluation of research impact is essential for better management of natural agricultural research systems. Improved linkages between agricultural research institutions, university systems and the extension system should be established for effective transfer of technology from the research system to the farmers (CGIAR-CAC, 2004).

## **CONCLUDING REMARKS**

In this chapter an attempt has been made to describe the nature of the issues and challenges that the national agricultural research systems face in Central Asian countries. Given the increased diversity of land ownership and production of crops there is an urgent need for the agriculture research systems to transform themselves to meet the emerging needs of the farming community in the region. Organizing the institutions to meet the technology, policy, institutional challenges that the countries face will require setting priorities for agriculture research through appropriate science and technology policy process, by bringing organization and business management principles to the management of national agricultural research systems. Facilitating institutional reforms and innovations at all levels of the food and agricultural research system to meet the emerging challenges of the rural sector can hardly be overemphasized.



## REFERENCES

- Babu, S. C. and A. Tashmatov. 2000. Food Policy Reforms in Central Asia – Setting the Research Priorities. International Food Policy Research Institute, Washington, DC.
- CGIAR-CAC, 2004. Strengthening Partnerships for More Effective Planning, Research, and Development in Agriculture in Central Asia, Summary of Proceedings, meeting organized by CGIAR program on Central Asia and the Caucasus. Tashkent, Uzbekistan.
- Ekboir, J. 2005. Building Mechanisms to Promote Innovation in Developing Countries' Agriculture: An Institutional Analysis of the Produce Foundations. Concept Note. IFPRI, Washington, DC.
- Morgounov, A. and Zuidema, L. 2001. The Legacy of Soviet Agriculture Research Systems for the Republics of Central Asia and the Caucasus. Research Report No. 20. International Service for National Agricultural Research. The Hague.

## CHAPTER 17

# **IRRIGATION SYSTEMS AND SUSTAINABLE NATURAL RESOURCE USE UNDER ECONOMIC REFORMS IN UZBEKISTAN**

Alisher A. Tashmatov

*Center for Efficient Economic Policy, Uzbekistan*

Dilobar A. Tashmatova

*Tashkent Institute for Irrigation Management, Uzbekistan*

## **INTRODUCTION**

Environmental issues are of major importance for Central Asian countries and especially for Uzbekistan. Their solution will determine the living conditions for present and future generations and will affect the development of all sectors of the economy.

The Republic of Uzbekistan's total area is 45 million hectares, out of which 33.2 million ha is used in agriculture. The total area irrigated in the Republic is about 4.3 million ha and is limited by available water resources.

Population growth in Uzbekistan is continuing; the agriculture, power, industry and other branches of economy are developing, and accordingly their water demand is increasing. In this connection, the per capita water resources availability in the Republic was 5,000 m<sup>3</sup> in 1960, by 1990 it was 3,043 m<sup>3</sup>, and in the drought affected year 2000, it was 2,214 m<sup>3</sup>. It has been forecasted that by 2010 the per capita availability of water will be 2,144 m<sup>3</sup>, and by 2050 it will be 1,441 m<sup>3</sup>. Because water resources in the Aral Sea basin are limited, water availability in the Republic will become scarcer, requiring a range of measures for rational management and use of the limited water resources. This chapter looks at issues and challenges faced by irrigation systems in Uzbekistan in the wake of ongoing economic reforms.

## IRRIGATION SYSTEM IN HISTORICAL CONTEXT

Historically water resources are distributed in an extremely non-uniform manner, and the country's extensive plains suffered from a severe shortage of water. The main sources for the Republic's water are the trans-boundary rivers Amu Darya and Syr-Darya, which are used on the basis of interstate agreements and legal decisions.

Over the years, of the total water resource available, 92 percent of the general water-intake was used in agriculture, 0.2 percent - in power, 1.5 percent - in the industry, 0.8 percent - fishing and other activities and, 5.5 percent - in municipal sector. According to statistical data from the Ministry of Agriculture and Water Resources, with transition, in the last decade total water use for one hectare has decreased from 13 thousand m<sup>3</sup>/ha to between 10.4 and 12.2 thousand m<sup>3</sup>/ha. Water use in the vegetative period has decreased from between 10.7 and 11 thousand m<sup>3</sup>/ha to between 8.8 and 9.6 thousand m<sup>3</sup>/ha, and in non-vegetative period it is between 2.4 and 2.7 thousand m<sup>3</sup>/ha.

At the same time in some regions in the North close to Aral sea basin, the water-use per hectare remains high, for example in Republic Karakalpakstan – between 15 and 16 thousand m<sup>3</sup>/ha, and in the Khorezm area – between 18 and 19 thousand m<sup>3</sup>/ha.

In the last 20 years, there has been a sharp reduction in the flow of all rivers in region, especially Syr-Darya and Amu Darya. Water salinity also increased: in headwaters to 0.2-0.3 grams per litre (g/l), in mid-stream to 0.5-0.7 g/l, and in downstream to 1.0-1.5 g/l, which has resulted in increased salinization of irrigated land, and also increased the demand for water for leaching salts.

It is necessary to note, that water consumption in irrigated agriculture is set by natural and economic conditions, the physical condition and management of irrigation systems; and the irrigation technologies used. According to the State Committee on Land Resources, as of January 1, 2002, throughout the Republic, the area of irrigated land is 4,278.8 thousand ha; of which arable lands make 3,309.4 thousand ha, or 77.3 % of the total irrigated area. Irrigated personal plots total only 501.4 thousand ha, or 11.7 %.

During 2000-2003, the cultivable land decreased by 3.2 percent, and salty land increased by 0.6 percent. A small reduction in the area of medium and strongly salted land was also observed. In 2003, among the total area of irrigated land, the area of unsalted land was 48.1 %, poorly salted - 30.0 %, medium saline - 17.6 %, and strongly saline - 4.2 %. The increase in the salty land in the Republic of Uzbekistan due to soil salinity in irrigated areas continues to be a major environmental problem. During the past 25-30 years, reclamation of saline lands was especially intensive. About 1 million hectares

were reclaimed, and the irrigated area was extended by 1.4 times. However, the intensive reclamation of rather saline and poorly irrigated lands increased saline areas by 0.8 times over the last 15-20 years. At present, salinity affects 2 million hectares, out of which 850,000 hectares are medium or heavily salted. Almost all of the territory of main Karakalpakistan (90-95 percent) is totally salted; and in Bukhara, Syrdaria, Kashkadaria, and Khorezm provinces 60-70 percent of the land is salted. In 2001 intensive land reclamation was terminated in the republic because of the extreme amount of irrigation required and because of the problems facing the Aral Sea.

## **ENVIRONMENTAL CHALLENGES TO IRRIGATION SYSTEMS**

The environmental problems in irrigated areas are escalating because of the lack of financial resources. According to a World Bank assessment, to restore and maintain the irrigation balance at a satisfactory level, it will be necessary to invest US\$350 per hectare of irrigated land, a level 20 times greater than existing financing resources. The main consequences of the low financing of irrigation activities are as follows:

- Silting of channels and reducing their outlet ability
- Increasing water losses from drainage and filtration channels and decreasing irrigation network efficiency
- Decreasing efficiency of existing drainage systems
- Decreasing water supply for irrigation
- Accelerated salinization of arable lands

The failure to address these problems will contribute to worsen the condition of irrigation and drainage systems, and will eventually decrease crop yields. For instance, if the salinity of 1 percent of the land increases from low to medium, the yield losses will amount to US\$12.5 million per year. The humus content of soils – the main indicator of soil fertility – has decreased by 30-50 percent. Forty percent of lands in irrigated areas are characterized by low to very low humus content (0.4-1.0 percent). The total area of low-productive arable lands (including heavily salted, gypsous, eroded, and stony soils) is 500,000 hectares. Low-productive arable land is present in almost all provinces, but the largest portions are concentrated in Kashkadaria province (134,000 hectares), Karakalpakistan province (70,000 hectares), and Samarkand province (60,000 hectares). Water and wind erosion and range degradation are also important issues for agriculture.

Since use of water resources are connected to the productivity and sustainability of the sectoral development, efficiency of using them had to be under the strong farming system, with creation special system of market

economy between water user and water providers and distributors. Main criteria should be water economy principle. Unfortunately the process of creating Water Users Association (WUA) and Water User Groups (WUG) in the republic is developing very slowly. Water value is not the same for all users. Some of the farmers whose plots are close to water distribution canals are in the best position than all others who are behind them. Hence, there is institutional and organizational problems regarding the agricultural policy changes in the rural area. In Uzbekistan all irrigation systems are under the governmental control and it is all state property. So the responsibility for maintenance repairing those systems lies with the government.

## **IRRIGATION SYSTEMS INFRASTRUCTURE**

One of the most effective irrigational systems in the world has been constructed and operated to guarantee water supply to all branches of economy of the Republic of Uzbekistan, and also to improve conditions on irrigated land. According to a survey which was provided by the special group of the Ministry of Economy and Ministry of Agriculture and Water Resources in January, 2004, the following irrigation infrastructure delivers water to land in the country:

- The main and inter-farm channels, total - 28064.8 km, of which 9,714.5 km are concrete faced. There are 7,697 km of main channels in this total, of which 649 km are concrete faced;
- Inter-farm irrigation network is 172,449 km, of which 13,067 km are concrete, drains total 22,795 km; There are 11,437 hydraulic control structures on the main and inter-farm channels of which 274 are large, with outlet capacity of more than 100 m<sup>3</sup> / sec., 13,334 structures have an outlet capacity between 10-100 m<sup>3</sup> / sec.;
- There are 19,904 water outlets to farms;
- On the main and inter-farm channels, about 21,005 stations that control water delivery; There are,
  - o 64,083 hydraulic engineering constructions on inter-farm irrigating network;
  - o 42,507,000 water control stations on an inter-farm irrigating network;
  - o 1,803 siphons and aqueducts on the main and inter-farm channels;
  - o 2,630,000 siphons and aqueducts on the on-farm irrigating network;

- 56 water basins and 10 sediment dams with a total reservoir capacity of 17,142 million in m<sup>3</sup>;
- 1,605 pump stations with 5,097 pumps with a total power demand of 3,831,000 kWh and pumping capacity of 6,870 m<sup>3</sup>/sec;
- 4,551 irrigation wells;
- 11,289 farm pump units.

Infrastructure on maintenance of an ameliorative condition of the irrigated land include:

- 31,962.2 km of main and inter-farm collector drains –, of which 5,174 km of mains have a capacity of more than 10 m<sup>3</sup> / sec. ;
- 67,323 km of inter-farm open collector drains;
- 37,751 km of inter-farm pipe drainage, of which 8,901 km are on state farms;
- 3,702 drainage wells.

(Ministry of Economy, 2005 and Ministry of Agriculture and Water Resources, 2005)

Also, the state farms have 11,286 km of inspection road, including 4,111 km with a sealed surface, 2.5 million m<sup>2</sup> of administrative and operational buildings, 3,995 km of phone line, 1,506 radio stations and other auxiliary structures.

The condition of irrigation and other systems on state farms is inspected annually by the Department of Irrigation. In the 2000-2003 inspections, 35-36 percent of the total length of main and inter-farm collector drains required repair and cleaning. The requirement for cleaning and repair of inter-farm collector-drainage increases year by year. In 2000, the requirement on clearing of collectors was 33 percent, and in 2003 it was 39 percent. The requirement for repair of the closed horizontal drainage is also increasing. In 2000 it was 28 percent, while in 2003 it was 40 percent. Sites requiring maintenance increased from 18 percent up to 21 percent, and sites requiring reconstruction increased from 9 percent up to 18 percent. Thus, while the state irrigation system is supported approximately at one level, the condition of the inter-farm irrigation network worsens year by year.

For the whole country, the range of required repair and clearing of inter-farm collector drains completed during 2000-2003 was between 55 and 66 percent. In the Republic of Karakalpakstan it was only between 25 and 36 percent, in the Dzhihazak area between 40 and 57 percent, in Syr-Darya between 29 and 77 percent, and in the Khorezm area between 21 and 66 percent. Repair work was constrained by the available budgetary funds for operation and maintenance of the state irrigation systems.

The operational life of irrigation pump stations is 10 years. However, of the 5,097 state pumps only 18 percent are replaced after 10 years, 11 percent are replaced between 10 and 15 years, 24 percent between 15 and 20 years and 46 percent over 20 years. Pump stations Alat and Karakul in Bukhara area, have been in operation between 40 and 45 years. The water intakes of pumping stations have seriously deteriorated, as have working chambers and rotors, and inlet and pressure pipelines.

Repair work is conducted by pump stations, and factories ("Suv mash", "Rotor", "EIREM", divisions "Uzsuv tamir", etc). Replacement units and spare parts are brought from Russia. However, the age of pump stations and units increases the cost of restoration. The pumping capacity, and especially the efficiency, is reduced. Currently of the 23 large pump stations in the country, 19 (83 percent) require reconstruction. Of the 730 medium sized pump stations, 371 (51 percent), and of 852 small pump stations, 267 (31 percent) need to be re-built.

Annually, by governmental decision, funds are allocated to the water management investment program for construction and reconstruction of irrigation infrastructure, for reconstruction to improve ameliorative capability of existing irrigation structures, and to develop new irrigated land. For this purpose 27,059 million rubles was allocated in 2001, in 2002 - 42,821 rubles, in 2003 - 26,017 rubles, and in 2004 the allocation was 18,000 million rubles. The priority is given to construction of new water reservoirs (Arnasay, Rezaksay and Kenkulsay) and other important water-bodies. Because capital investment is limited, the amount of water-related reinvestment work is also reduced. In 2001 about 11,471 ha was reconstructed, and the ameliorative condition of 18,412 ha of old irrigated land was improved, and 1,847 ha new land was reclaimed, and also 114 km of the main collectors were reconstructed, but in 2003 these parameters were reduced to 711 ha, 1810 ha, 44 ha and 35 km.

## **GOVERNMENT RESPONSES TO IRRIGATION SYSTEM CHALLENGES**

The government of Uzbekistan has taken a number of decisions on development of small hydropower engineering, to increase the safety and operational reliability of large and especially important water-economic objects, to improve the ameliorative condition of the irrigated land, and to increase water security, etc. However, because of limited investment, these decisions were not implemented.

Recently, the Government made a special effort to attract foreign investments to improving irrigation, drainage and solve water-economic

problems. The World Bank for Reconstruction and Development has started implementing the "Uzbekistan Drainage Project" to divert drainage from Southern Karakalpakstan, for a total sum of 74.55 million US dollars, including a loan of 60 million US dollars from IBRD.

The project on "Support of the agricultural enterprises", for a total sum 43.46 million US dollars is also being implemented and includes an irrigational component on "Rehabilitation of inter-farm irrigation-ameliorative networks", funded from an IBRD loan for 9.52 million US dollars. Memorandums for 6 projects, for a total sum 424.3 million US dollars are signed with the Asian Development Bank, out of which ADB loans comprise 335.9 million US dollars.

Projects have been initiated under investments of Eximbank of People's Republic of China totaling 648.2 million US dollars in foreign investments for the period till 2007. Russia is lending 100 million US dollars for rehabilitation of Karshinski machine channel pump stations. USAID is providing grant aid for technical assistance for basin management of irrigational systems and water-user associations. The company VRL from France together with local institutions is developing proposals for water supply service tariffs. Swiss Aid, and the International Water Management Institute are carrying out a regional grant project on integrated water resources management in the Fergana valley. Work has also started to prepare proposals for integrated water resources management in the lower reaches of the Amu Darya and Syr-Darya, and on other projects.

Despite various difficulties, the state annually allocates funds for operation of the state water-economic infrastructure, and also for capital construction of ameliorative improvements and reconstruction of existing irrigation land, to construction of water reservoirs, pump stations, channels and other water systems. In 1990, 389.5 million rubles were allocated for operation of the state water systems in 1995 it was 8,638.6 million, in 2000 – 71,407 million, in 2003 – 184,157 million, and in 2004 – 257,924.7 million. Within this allocation, the share of funds for the electric power annually increased, (75.5 % in 2004) while the funds for the repair of water-economic system has decreased.

Irrigation systems, agricultural co-operatives and associations of water-users, were financed by their own means and a significant part of an irrigating network of farms were repaired manually, by "volunteer work". Farms, providing agricultural produce for the state needs are given loans to finance water user associations and also funds to repair and clear inter-farm irrigation-ameliorative systems.

Foreign investments and grants are widely involved in reclamation of irrigation systems. Unfortunately all of those projects do not have enough monitoring of the results of implementation. Government needs to conduct special research on the effectiveness of those projects, funds and grants.



Till recently in Uzbekistan, as well as in other countries CIS, management of water resources was carried out by an administrative-territorial principle. Department of water management of the Ministry of Agriculture, its regional (13 units) and aerial (163 units) territorial services of a water management, more than 40 managements of inter-district channels and other water-economic organizations were engaged in water resources management.

The administrative-territorial principle of management had the following basic problems:

- Complexities in planning water use, management and the analysis of efficiency of use of water resources;
- Complexities in proportional water delivery to water-users on water sources;
- Intervention of incompetent supervising persons in water resources management;
- The weak contractual relation between water-economic bodies and water-users;
- Complexities in the control for target and efficient control of budgetary funds;
- Turnover of staff .

Reform is required in the field of management and use of water resources for meeting the water needs of the population, agriculture and other sectors of the economy.

It is known from world experience, that one of the main ways of the solution of the given problem is introduction of the integrated management and use of water resources which includes:

- transition to a hydrographic principle of management of irrigational systems;
- the correct account of all water resources and water-users;
- introduction of a market principle in water use, i.e. transition to paid services for water-supply;
- management of water resources through the participation of representatives of water-users and the public.

Introduction of a market principle in water use in the majority of the countries, including neighboring countries as Kazakhstan, Kyrgyzstan and Tadjikistan shows, that it allows saving water resources up to 20 percent.

As is known, the hydrographic principle of management of irrigational system and water resources enables rational planning and use of water. Such principle of management of water resources in Uzbekistan has been introduced earlier on river basin of Zerafshan. Zerafshan valley water management has been created, to serve Dzhizak, Samarkand, Navoi and Bukhara areas.

Taking into account the positive experience of introduction of the integrated water resources management, on the basis of the Decree of the President of Republic Uzbekistan from March, 24, 2003, by the decision of the Cabinet of Ministers from July, 21, 2003 No. 20, the management of irrigational systems and water resources in the country has been changed from administrative territorial principle on basin to hydrographic principle, which provides introduction of a market principle in water use.

According to the above policy decision, 10 basin management units of irrigational systems have been organized on the basis of the water-economic organizations and services, which include 11 management units of the main channels (systems), and 52 management units of irrigational system. The primary goals of basin management units of irrigation systems are:

- The organization of target and rational use of water resources on the basis of introduction of market principles and mechanisms of water use;
- Carrying out of a uniform technical policy in water management on the basis of introduction of high technologies;
- The organization of uninterrupted and duly maintenance of water to consumers;
- Maintenance of technical reliability of irrigational systems and water-economic constructions;
- Rational water resources management on territories of basin and increase its efficiency;
- Maintenance of the authentic account and the reporting of use of water resources in a section of water-consumers.

In order to be effective, the management and operation of the state water-economic pump stations, power and communication, and collector-drainage systems, have been transferred to a hydrographic principle of management.

In connection with transition to basin principle of water resources management, changes and additions have been entered by decision of Parliament. The Ministry of Agriculture and Water resources has developed the following prime normative documents on regulation of water relations, between the water-economic organizations, their relations with primary water-users, and also relations between primary and secondary water-users:

- A project about the limited water use in Republic Uzbekistan;
- A project on regulations about stimulation of water-use, for economical use of water resources;
- The Draft of the program measures about introduction of market principles in use of irrigation water.

The following has been reconsidered according to transition to a basin principle of water resources management:

- The order of an establishment of a limit of water use;
- The order of the conclusion of the contract on water use;
- The order of registration of contracts and the control of their performance.

The governmental decisions to create public structures at the request of the interested ministries such as the specialized organizations, help leading scientists and experts to find solution of problems of targeted and rational use, protection of water and land resources, and for further deepening of reform of a water management. Council on rational use of land and water resources, development of irrigation and improvement of soil fertility has been created at the central office of the Ministry of Agriculture and Water Resources. The structure of Council includes outstanding scientists and experts, and also practical workers in the field of use of land and water resources. A Committee on irrigation and drainage has been created. The structure of Committee includes heads of the interested ministries and departments, and also leading scientific and famous experts of sectors of economy, who will develop programs on use and protection of water and land resources.

At the Ministry of Agriculture and Water resources there is a scientific research institute "SANIIRI", Tashkent institute of irrigation and land improvements, "Uzgirovodhoz" which perform research works on water management. Besides, there is "Cotton Growing" institute at the Research-and-production center on agriculture, which carries out research works on irrigation techniques.

The basic directions of research are:

- Development of methods to increase efficiency of water and the irrigated land, development of strategy and tactics, development of the irrigated land and perfection of operation of hydro-ameliorative systems;
- Studying of river processes, methods of regulation of a drain of the rivers (water-intakes, water basins, pump stations, channels and hydraulic engineering constructions), irrigation canals and drainage networks supplying up to a range of farms;
- Studying of ecological processes connected to use of the water resources, including estimation of consequences of drying of Aral sea, and development of proposals on its improvement;
- Questions of improvement of quality of river waters and reuse of a drainage waste drain.

The institute has developed several plans during the last few years. These include:

1. Actions on management of runoff processes and bank protection constructions in areas of non-dam water-intakes, and of coastal territories from intensive washout.

2. Criteria, algorithms and programs for optimization of models of management of water-distribution process on objects of river basins, main, inter-farm and on-farm.

3. Algorithms of calculation for estimation, forecasting and definitions of necessary repair - rehabilitation works on drainage systems, on the basis of the theory of reliability.

4. A technique of forecasting of volume of irrigation-waste waters from the irrigated land. The device is developed for supply of drainage-waste waters repeatedly for irrigation of the foothill land. The recommendation on a reuse of drainage-waste waters of the foothill land is developed.

5. An optimum variant of payment of water-economic services by water-users, with the minimal losses of irrigated agriculture and decrease in state budgetary financing of a water management has been developed.

6. Technologies of furrow irrigation have been improved and the elementary methods of the water-savings and soil protection were proposed to farmers. Self-pressure head systems of a drip and sprinkler irrigation of vineyards and a vegetable - melon cultures on foothill land are developed.

Development and proposals of institutes are considered on scientific and technical council of the ministry and recommended for use in the corresponding organizations of water management.

In relation to pursued reforms in agriculture and water management, priority directions of research include:

- Strategy of water resources management, development of legal and normative base, introduction of market attitudes in water and agriculture
- Perfection of management and the account of water resources both on basin systems, and at WUA level;
- Perfection of technical operation of water-economic systems, and land improvements of the irrigated land in new conditions of reforming;
- Development of curriculums, methodical manuals and the organization of training of experts of a water management and water-users.

## **FUTURE CHALLENGES FOR IRRIGATION MANAGEMENT**

Water-security of the irrigated land during the summer period has sharply worsened after the formation of the sovereign states in region, and change of an operating mode with irrigation power of large water basins in Kyrgyzstan and Tadjikistan. A growing population, and development of

different sectors of economy increase in demand for water resources. This requires restoration of an irrigational mode of operation of Toktagul and other cascades of water basins on Syr-Darya river.

Besides, it is important to find opportunities of construction of new water basins, for accumulation winter flows and to speed up the constructions of Rezak, Kengkulsay, Jidalisay and other water basins.

Management of irrigational systems and water resources in the Republic is transferred on a basin principle, and the condition for stage-by-stage realization of a market principle in water use is created. The project of the program, measures on introduction of a market principle in water use, and also the project of regulations of incentives for water-users, for economical and rational use of water resources needs to be prepared. It is necessary to adopt the Governmental decisions, to start carrying out experiment and to start gradual realization of a market principle in water use, and also the mechanism of stimulation for economical and rational water use.

The rational utilization of the trans-border water resources in the Central Asia is the other most urgent issue facing the country. With the trans-boundary water-sharing challenges, the system of the effective water utilization and the energy consumption has attained a new context. It became one of the main sources of potential conflict bundles, which creates real threats to the regional security of the Central Asian states.

Water deficiency complicates the relations of the Central Asian states and might lead to the economic, social, and political destabilization in the region. The main contradictions existing between the Central Asian states are in the sphere of mutual water utilization, such as: quantity of water utilized for the energy production and directed to irrigation; temporary schedule of water utilization; mechanisms of compensation for accumulation and storage of water; principals of water distribution among the consumers; and quality of water.

**REFERENCES:**

Ministry of Agriculture and Water Resources. 2005. Statistical Bulletin (in Russian), Various Years. Tashkent.

Ministry of Economy. 2005. Statistical Bulletin (in Russian), Various Years. Tashkent.

## CHAPTER 18

# THE SUSTAINABLE DEVELOPMENT OF WATER USER'S ASSOCIATIONS IN UZBEKISTAN

Sandjar Djalalov

*Center for Efficient Economic Policy, Uzbekistan*

## INTRODUCTION

Uzbekistan is situated in an arid zone and agriculture without irrigation is impossible. The role and importance of irrigated cultivation are illustrated by the following figures: irrigated land contributes 60% of the gross agricultural product; irrigated crop production contributes about 20% of the national income; the share of production assets from irrigated agriculture accounts for as much as 20% of the total assets of the national economy. Approximately 17% of electric energy is used for agriculture and irrigated agriculture provides employment for about 30% of the total working population of the Republic. Apart from favorable climatic conditions, there are sufficient labor resources due to low migration of the rural population (Djalalov, 2000).

In the near future the shortage of water for agriculture will increasingly constrain economic development of the country. The reasons for this are as follows: increasing shortage of water resources related to interstate distribution; reduction in irrigation capacity of Aral-basin rivers due to global changes in climate; human impact on the environment; quality of water; salinity of irrigated land and inefficient use of water and land resources.

The present system of water utilization in irrigated agriculture results in considerable losses in all stages of the water flow, from water intake, irrigation in the fields and overflow disposal. The loss rates vary according to the type of construction of water supply, overflow disposal system, irrigation

method and watering technique, as well as organizational, economic and other factors (Wegerich, 2000).

The attempts of introducing water charges and self-supporting attitudes in the Soviet period, without institutional changes at the farm level, privatization and liberalization of marketing system proved disastrous. After the disintegration of Soviet Union, under influence of the technical help rendered by international organizations a new institutional structure at a level of farms was created. This was called the Associations of Water User's (WUA) (Rosegrant et al., 1995).

The purpose of this chapter is to document the research on the external and internal factors of Association, influencing sustainable development of Water User's Association in Uzbekistan.

The research utilized a mix of both quantitative and qualitative methods including interviews conducted in four regions of Uzbekistan. The Djizak, Syrdarya, Bukhara and Tashkent regions represent different natural, climatic and economic zones of rural Uzbekistan. The first survey was conducted in Jizzakh region in the year 2000. The survey design was a random sample of eight hundred sixty private arable farms. Jizzakh region is allocated in the south east of the country. The second survey was conducted in Syrdarya and Bukhara regions located in central and western parts of the country. The survey concentrated on results from field studies of different forms of ownership and organizational units in Uzbekistan agriculture. The survey was conducted in 2002 and covered 1200 farms. Investigation and analysis of on-farm management, finance and credit, water management and poverty in different types of farming has been conducted based on survey results. The third survey was conducted in the fall 2003 after adopting policy of Water Users Association development in the country. The Rural Rapid Appraisal (RRA) method was used in the farm survey conducted in the Tashkent region. Informal interviews and discussions were conducted with the farmers; employees WUA and workers of state water agencies. Special attention was given to the following questions: the basic motives that induced the farmers to join WUA, desire to pay for water, participation of the farmers in a management and activity of WUA, decision of disputed situations and factors limiting activity of WUA.



## TYPES OF FARMING AND WATER MANAGEMENT IN UZBEKISTAN

### On-farm Water Management

Irrigation and irrigated agriculture in Central Asia has been developed over a long time. Before the revolution, the characteristics of water use and procedures for water distribution varied substantially with local conditions. However, the different types of water distribution system complied with the basic principal regulations. Though this paper would not go into a detailed description, but it is necessary to emphasize that water management was based on the following main regulations of the *shariat* and *adat*:

- Water of unbounded sources is common property;
- Water in artificial individually established reservoirs, is owned by these individuals, in accordance to their property rights.
- Sale of water without land is prohibited;
- In case of shortage, water it is allocated evenly through irrigation channels;
- Water is allocated either by shares or by turn;
- Each water user should participate in repair and maintenance work of irrigation systems.

Water use is based on the principle of self-management. Special managers, who are paid in kind, are selected by the population to monitor proper operation of the main and secondary irrigation channels. Every water user has to spend his labor-time on operation and maintenance of irrigation scheme (Mass von Den Top et al., 1998).

During the Soviet period ancient relationship and customs were destroyed and replaced by centralized system of water management. After expropriation of all land and establishing Soviet type of farms - *kolkhozes* and *sovkhozes*, the new type of water services was formed, which has become a part of *kolkhozes*. The main functions of the Service for Irrigation and Land Improvement are as follows: Control of quality and timing of crop irrigation, soil washing and additional watering; elaboration of plans and technologies for irrigation; determination of watering schedule; provision of on-farm water circulation; control of wells for vertical and horizontal drainage.

The Service for Irrigation and Land Improvement was, however, subordinate to the manager of the farm. Hence it did not have the power to make some voluntary decisions, like irrigation outside the planned time to

compensate for unfair water distributions. The structure and functions of existing institutions, with its lack of incentives for individuals, are not likely to achieve efficient water use and operation of the system. Private farmers' evaluation of irrigation service activity in Jizzakh region (2002) was not too high. Only 3.5 % of farmers decided to give them an excellent mark for the service quality, 31.5% of farmers marked good, with the biggest share of farmers, 35.1%, being satisfied with irrigation activity, however 27.7 % of respondents were not-satisfied. The rating of “*satisfaction with irrigation*” vary by regions and types of farming. The evaluation corresponds with characteristics of water allocation and delivery time. As results of different type farm survey in Syrdarya and Bukhara regions (2003) shows, the satisfaction of farmers with this aspect of water allocation is quite low. (Table 1). The respondent answers correlated with the location of farms. The farmers whose land located at the beginning of irrigation scheme are most satisfied, while farmers in the middle or at the end have a far lower opinion of the management of water delivery in their locales.

*Table 1. Rating Satisfaction of the Organization of Irrigation Water Delivery*

	Agricultural Cooperatives (Shircat)		Private Farm	
	Bukhara	Syrdarya	Bukhara	Syrdarya
Entirely Satisfied	12%	21%	4%	38%
Somewhat Satisfied	51%	9%	46%	24%
Somewhat Dissatisfied	35%	27%	34%	23%
Entirely Dissatisfied	2%	40%	11%	14%
Difficulty Answering		3%	5%	1%

*Source: Syrdarya and Bukhara Farm Survey Results 2002.*

Farmers' marks usually depend on the on-time water delivery and necessary volume of water to the field. It is therefore considered that institutional reforms are required to provide the incentives to help achieve this. One of the ways to achieve more efficient water-use under water scarcity conditions is to establish a Water Users Associations (WUA).

## **DEVELOPMENT OF WATER USERS INSTITUTIONS**

From 1996, WUA have begun their activity in Kazakhstan and Kyrgystan, where the legislative and legal base for their activity is created. In

Uzbekistan, a stepwise approach was chosen to reform agriculture, starting with the experiments with WUA since 1999. The main objective of the WUA is to unite farmers for common maintenance and operation of irrigation systems, hydra-technical installations and -constructions, and for the regulation and use of water resources and performing other irrigation activities.

The WUA is a legal entity acting on the principles of total financial autonomy, responsible for the results of its activities and for the fulfillment of its obligations in relation to the state water organizations, founders and other institutions.

The main functions of the Water Users Associations are as follows:

- To develop relationships with water bodies and other partners so as to conclude contracts;
- To organize primary accounting for water and control over water used by its own members;
- To arrange for water take-off, water distribution and draining of water in compliance with the terms of the license for the right of water use, and approve norms, plans and limits for water use and contracts on water supply; and
- To undertake technical services and maintenance of the irrigation systems of farms and other water users incorporated in the Association, and of special buildings and constructions located within those irrigation systems;

The main advantage of WUA as compared to state organizations is the provision of more efficient services for water supply, and the adjustment in design and construction of irrigation projects to meet local needs. In quantitative terms, it results in an expansion of irrigated areas, higher yields and increased income of farmers. One of the main, and quite important, factor is a reduction of the financial burden of the government and even a reduction in the negative effects on the environment.

High cost of organizations charged with the operation and maintenance of irrigation systems, alongside the impossibility of the government to cover such costs, accelerated numerous programmes for transfer of control over irrigation systems to WUAs. Systems that require considerable government subsidies for their implementation are unlikely to be maintained by the WUA unless one or more of the following conditions are fulfilled:

- water users can perform all required functions with lower costs than state organizations;
- farmers are willing to pay more to the WUA than to state organizations in terms of better services;
- WUA mobilizes other resources such as interests on bank accounts, rent for other assets, etc.

There are three WUA associations “Djambul – ota”, “Qarasha” and “Aganay” in Tashkent region which were selected for the project study. Primarily information was received in the pilot study. The Qarasha WUA was created at the base of “Olga” Agricultural Enterprise, which was reorganized to the 53 private farms with total area 1487 Ha of irrigated land. The crop pattern mainly consisted of wheat and vegetables. The Djambul ota WUA was created on the base of “Polititdel” former kolkhoz. Total sown area is about 1253 Ha and quite diversified. The Aganay WUA was created by a governmental decree and includes 115 farmers on the 1928 Ha of irrigated land. The production pattern is more diversify including cotton, wheat, grapes and vegetables. The purpose to establish a WUA was to undertake technical services and maintenance of the irrigation systems of farms and other water users incorporated in the Association. All three WUA faced difficulties in receiving water, lack of water measurement equipment and shortage of money. However, Qarasha WUA was operating more successfully, than Aganay WUA and Jambul ota WUA in spite of similar working conditions.

## **INTERNAL FACTORS AFFECTING THE WUA SUSTAINABILITY**

### **Land Allocation in Research Farms**

The continuous reorganization of agricultural cooperatives to the private farms has defined the structure of modern-day WUA. Surveyed Water User’s Associations consist of private farms and did not include households and *dekhkan* farms, though the area of *dekhkan* farms has made 0.25 Ha, the average area household has made 0.8 ha. The share of *dekhkan* farms and households is about 15 – 25 % of irrigated land. The area of farms differs in the large range - from 2 up to 112 ha. The land is rented out for 10 years, though the contract of rent can be for 50 years. The land leasing and creation of private farms is carried out under the control of local bodies of and regional authorities (*hakimiyat*). As portrayed, land was not allocated on a competitive basis by the specially developed criteria. Many cases of unregistered subleasing of land were present, where the tenant of land transferred 5 to 20 % of the sowing areas under a sublease. Cost of rent changes depended on growing crops.

## Demand and Supply for Water on Farm Level

After getting independence, several attempts to improve the institutional structure of water management took place. However, no big change was observed in management. The hierarchical structure that was established in the 1930s still serves as the basis. The water is delivered to the farms according to highly standardized norms for water demand to meet the state production target. In the surveyed farms, farmers do not have a right to define independently their demand for water according to the structure of sown areas. Local authorities determine the sown areas on the basis of state orders. Irrigation norms for different crops are estimated depending on soil, relief and climatic conditions. A schedule of water use, during vegetative and non-vegetative periods, and a plan of divisible water supply are worked out. However, in practice, farms do not keep to the schedule and rates for watering. Demand for water is at its maximum during the growing period (summer months) and considerably less during non-vegetative period (winter months). Winter water demand is based on the requirement for washing and watering depending on the level of salinity and soil conditions. Factors influencing water demand are determined by biological consumption of growing plants and natural climatic conditions.

The survey results in the Syrdarya and Bukhara regions (2002) indicate insufficient water delivery. Farming in Syrdarya regions are mainly based in the new virgin lands with permanent water deficit particularly towards the end of irrigation systems. Therefore in spite of fulfilling the production targets, agricultural enterprises have not received enough water (Table 2). Private farmers claimed that they received a better and timelier delivery of water than *shircat* farmers. This is likely due to the much smaller sizes of their fields and relative ease in satisfying their demand for water resources. In Bukhara region *shircat* farmers reported anything close to adequate water supply.

*Table 2: Irrigation Water Delivery in Private Farmers Fields*

	Agricultural Cooperatives (Shircats)		Private Farms	
	Received Enough Water	Delivered on Time	Received Enough Water	Delivered on Time
Bukhara region	71%	70%	63%	26%
Sirdarya Region	29%	29%	62%	58%

*Source: Syrdarya and Bukhara Farm Survey Results 2002.*

The survey results in Tashkent region (2003) shows the coefficient of water supply determined by the relationship between required and actual water supply. Water supply depends on type of crops. Aganai WUA water demand and supply analysis shows that 100% of water supply was received for market-oriented and own-consumption crops such as vegetables, potatoes and maize in vegetation period 2003. Cotton and wheat, the state order crops had 50 % water supply, the lowest supply was pointed out in irrigation kenaf – 20% - 30 %.

### **Interests of the Farmers on Creation WUA and Farmers Participation**

As it is already noted, the state has acted as the initiator of organizing WUA, that corresponds to the model, accepted in Uzbekistan. Farmers heard the basic information about WUA from telebroadcastings and media. However, initiative from below on creating WUA did not occur. This could be due to following reasons: firstly, mentality; private farm represents inert weight, interested only by manufacture and selling of production. However, so far there was no any independent initiative on making cooperatives for marketing. The farmers' get accustomed that all initiatives come from above. Secondly, the heritage of the Soviet system of collective managing, encouraging impersonal and frequently irresponsible system of managing has played the role. At the same time, almost all respondents were glad, that the old system has been liquidated and is occupied by new structures.

The basic stimulus of farms towards ensuring participation is the reception of the maximal profit from irrigated agriculture. The other stimulus was the opportunity of using better engineering for repair and rearrangement of irrigated systems. The basic incentive, to ensure participation of farmers in water-use management, is obtaining higher profits from irrigated lands. The survey of farmers ranking the effectiveness of incentives is presented in Table 3:

In cases of lack of water, extraordinary application for water or disputed situation with the neighbors, the farmers addressed problem directly to the chairman of WUA. The participation of the farmers was reduced only to the decision of essential practical questions connected with water waste or water use. Because of lack of information, or because of more serious problems, farmers were mostly not interested with the future of WUA or constitutional structure of the association. One of the functions of WUA is training waterusers. Before independence the inter-farm seminars introduced villagers to latest achievements in science and engineering in the area of irrigation and drainage. The sociological research marks, that now such seminars are not carried out due to lack of funding. The chairman of WUA "Djambul" noted about the necessity of realization of seminars for the members of association with the purpose of detailed study of tasks and functions of the members WUA.

## **Chairman Elections and Management of WUA**

According to the charter of WUA, a post of the chairman is present. RRA interviewers couldn't attend the meetings of WUA because all elections were carried out in the spring of 2003 after adoption of governmental decree about creation WUA. In the elections both farmers and representatives of rayon water agencies participated. The representatives of households were not invited to the assembly.

It is necessary to note, that the elections to posts in WUA are open and carried out on a democratic basis. The choice of the chairman is the most important factor for steady development of WUA. The chairman should have authority, have managerial abilities and understand questions of water resources management at farm level. Another survey show that the farmers have widely varying opinions on any one topic regarding the functioning of the WUA.

Table 3: Ranking the Farmers Basic Incentives to Participate in WUA (%).

Private Farmers incentives	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	No answer
Increased yields and farm profits	26.9	5.7	47	0.7	0.1		19.6
More efficient and guaranteed supplies of water	39	38.3	2.5	0.7	0.4		19
Speedy resolution of conflicts	12.4	36.1	27.6	3.5	1.2	0.1	19.2
More autonomy to farmers	1.9	1.3	1.3	67.4	6.5	2.1	19.4
The potential for technical improvement	0.7	0.3	0.8	6.9	68.7	2.9	19.4
Cost savings	0.1	0.1	0.4	1.1	3.6	66.8	27.4

Source: Private Farm Survey in Jizzakh Region (2000)

The management of WUA is carried out by staff and employees including the main hydro-technicians, bookkeeper and receptionist. The functions of WUA actually have remained without change – water allocation and drainage system, except for new function – a tax for water resource services. In the event of a non-regular situation demanding additional engineering and qualified experts, WUA can contact different organizations. The survey has shown that the majority of the farmers estimate working of the WUA as satisfactory.

WUA is a non-governmental, non-profit-making organization that does not have the rights to make profit on services rendered to exterior organizations. The basic sphere of activity remains community farm level. In earlier researches (Kai Wegerich, 2000) the domination of the former officials kolkhoz and state farms in decisions on management of WUA was evident .



The research carried out in the Tashkent region confirmed the importance of their role in matters of the WUA which, at the same time, was supervised by the chairman of WUA.

## Conflict Resolutions

The disputed situations connected with water use usually arise from water shortages. In multi-water year, and in condition of sufficient water supply, there are no conflicts and water is equally allocated among farmers. In water-shortage years, the farmers on their own initiative organize night watches for water theft. However, despite such measures, water stealing is frequent. Water supply to private farms depends on the location of the cultivated areas in relation to irrigation system. If sowing areas are located near the beginning of irrigation system, the water supply is good. As distance increase water supply falls. Water supply of farms located at the end of irrigation system is irregular. The interviews show that even in water-scarce years the farmers located in the beginning of irrigation systems have enough water resources for irrigation of rented lands that it is impossible for the farmers located at the end.

The tension usually arises between *shircat* administrations, which transmit limited amount of water to the private and *dehkan* farms. State order crops – cotton and wheat, the majority of which produced on the *shircat* land are in priority for water allocation. *Shircats* often do not allocate enough water to the private farmers, which are dependent upon them for water delivery. The “Rural Enterprise Support Project” sponsored by the World Bank investigated sources of conflict in water allocation by interviewing private farmers in Choresm region (northern part of Uzbekistan). Rayselvodkhoz personnel (rayon water agency) also mentioned that, especially in the peak season, *shircats* often demand water above the limit, which strains their relationship. It is common for *shircats* to try to ease this strain by bribing rayselvodkhoz officials with vodka, lavish hospitality, or, if more water is needed, a sheep.

Studies from Jizzakh area revealed that in many cases farmers themselves solved conflict situations. However, the share of cases when farmers did not succeed to reach compromise is great, and in these cases the arguing parties were compelled to resort to a third party to solve a disputed situation. According to the survey, in 5.2 % of cases the rayon agency representative, in 23.5 % cases the kolkhoz irrigator, in 10.5 % cases the kolkhoz chairman and in 6.9 % cases aksakals (respected old man in the neighborhood) helped to solve the conflicts.

It should be mentioned that dispute situation caused by shortage of water, arises because of absence of water utilization account in households backyard and dekhkan farms land. Natural conditions in the Tashkent region is favorable for cultivating market-oriented crops like raspberry, which is on great demand with the urban population. It is estimated about 15 -20 % of the delivered water "disappears" without leaving a trace on kitchen gardens of the peasants. The absence of system of punishment for self-government and theft of water causes extreme difficulty for managing rational water use among the farmers.

## Willingness to Pay

Before, agricultural policy in irrigated agriculture was based on free water resource utilization. It has worked on the agricultural producers mentality of receiving free water resources and services. However, according to the survey in Jizzakh region, from 860 farmers 99.5 % agreed to pay for water if water is delivered in necessary volume and on time.

The basis for WUA sustainability is made by financial stability of the enterprise created at the expense of member payments. Before the creation of WUA all water users paid the water tax, which was a symbolical sum - 0.11 soum/ha. Based on Jizzakh survey results in year 2000 the expense for water service (at irrigation norm 6000 m<sup>3</sup>/ha) was about 264 sum/ha for irrigation cotton and 176 sum /ha for grain (at irrigation norm 4000 sum/ha).

Currently in Uzbekistan applied payment by hectare payment for water service provided by WUA is practiced. The calculation in researched farms was 5615 sum/ra. (5.7 US dollars per Ha). Instead of hectare payments, the farmers offer to determine size of a payment for water at a rate of 3 % from cost of total production, explaining it absence of money on the account because of a delay of payments. In all three researched facilities, the chairmen of WUA consider the tax of payment for services as a serious problem. So the chairman of WUA Karasha has noted that in 2003 15 % of payment for services WUA was assembled only. The basic reason for non pay, as the chairman considers, is the delay of payment for grain on the part of procuring organizations. As the association is a self-financing organization, the deficiency of the budget will have an effect for payment of the salary to the employees and development WUA.

The RRA has shown that the farmers do not have desire and opportunities to pay without liberalization of the prices on strategic cultures cotton and grain; and liquidations of state order system. In addition, lack of measurement equipment makes implementing water charges almost impossible. Measuring

water use by eye and submitting report to the top level organizations in cubic meters are merely estimates.

## **Free Riders**

The "Free rider" problem represents using water resources without corresponding payment and represents a rather serious problem in the countries where WUA has received wide distributions. The roots of the problem's occurrence are different, from absence of desire to pay up to absence of an opportunity to pay. From the three WUAs surveyed, the problem of "free rider" have confronted association AGANAY.

The 10 ha of apple-tree garden were under intermediate crops cultures by tomatoes and potatoes, growing in inter-rows. On a question: "Why you use WUA service, i.e. watering your sown area, but are not willing to pay?" The Farmers have answered, that because of strong frost the apple trees were destroyed, and the intermediate crops were sown by the own initiative and in the contracts of rent were not specified.

Another case of "free riding" took place in association AGANAY. The farm was created on non- irrigated lands. With the purposes of increasing efficiency of use of lands the farmer bore artesian water wells. According to the instructions for use of underground water, it is necessary to receive the license in a special state agency Hydrogeodesy and pay for wateruse. However, during all vegetation period, despite of pressure from the WUA side, the farmer refused to register a well, to receive the license and to pay for water. Farmers mentioned that irrigation was made with waste water from drainage systems.

## **EXTERNAL FACTORS NEGATIVELY IMPACTING WUA SUSTAINABILITY**

### **Limitation of Water**

The limiting factor in irrigated agriculture development in Uzbekistan is the increasing shortage of water resources. There are two reasons that mainly caused the lack of water resources. Firstly, the irrational interstate distribution of water resources of the rivers Syrdarya and Amudarya for the Central Asia region. The conflict between the upstream states (Kyrgystan, Tajikistan) and downstream states (Turkmenistan, Uzbekistan, Kazakhstan)

has caused flooding of coastal grounds and sharp shortage of water in the period of vegetation. Secondly, losses of water resources on all irrigation and drainage construction system, beginning from a source irrigated, including channels of different levels. It is necessary to note that losses of irrigated water considerably separates depending on a type of a hydro structure, presence of facing on channels, ways and engineering pour, and also organizational, economic and other factors. 20% of irrigated water is lost during inter-farm irrigation system. The losses in on-farm irrigation system are higher in absolute and relative terms and according to the experts reach 40-50 % of the delivered water. Additionally 10 % of water is lost on temporary channels.

## **Institutions and Water Management**

At present in the Republic of Uzbekistan (RU) water affairs, water acts and water codes such as the laws "On water and water use", are regulated by laws and resolutions of the Cabinet of Ministers. According to the law "On water and water use" water is state property and a common national resource of the RU and it is subject to rational use and protected by government. Enterprises, institutions and organizations with all forms of ownership, private farms, and citizens of the RU as well as of other countries may be water users. All agricultural water users have to have equitable rights for water use. In practice it is different as farmers have mentioned that Agricultural cooperatives have priority rights at all times during the year.

The farmers didn't get any recommendations regarding irrigation norms but in the vegetation period farmers get information about the timing from the main *Kolkhoz* irrigator. The farmers know all the characteristics of soil and landscape. They usually use furrow-irrigation which has been used for thousands of years. In the Soviet period, extension services tried to implement different types of irrigation techniques with different irrigation equipment. Due to the free supply of water, farmers were not interested in saving water or implementing water saving technologies. Farmers also received a lot of information about new methods of irrigation from seminars and training courses.

Currently, there are two major groups of water users in irrigated agriculture: large water users such as agricultural cooperatives (former collective farms) with areas of over one thousand hectares, and small water users such as independent private farms with areas from 1 to 100 ha. Land reform implementation should secure the supply of irrigation water, drainage and operation, and maintenance of irrigation and drainage systems at farm

level. Farmers themselves take measures for operation and maintenance of the on-farm irrigation systems.

Farm's access is regulated by the district water organization. The quantity of water required by farmers is determined on the basis of the cropping pattern. On the question "Who controlled water deliver in your irrigated land?" 96.7% said Kolkhoz (Agricultural Cooperatives) irrigator, 0.9 % stated that it was Rayon Irrigator. Nobody could get water from alternative sources. The district water organization has the right to reduce water supply in case of decreased volumes allocated by the regional water organization. In practice, the procedure for water use has not changed. The hydra-technician of the farm concludes a contract with the water organization on water supply in which a certain amount of water for farmers is specified. 66 % of farmers gives the report to the water Rayon agency, 18% to the *Kolkhoz* main irrigator. However, the interests of collective farm management ensure that priority is given to irrigation of its own crops followed by irrigation of those of independent farmers. This plays a crucial role during the growing season in terms of shortage of water. Insufficient irrigation results in crop losses and farms become unprofitable and may even result in a cessation of farming activities. To maintain and operate the on-farm irrigation and drainage systems, investment is required. It is unlikely that private land users will invest in land improvement and water infrastructure without security of land tenure and freedom in choice of production.

## **Land Salinization**

Due to inefficient drainage system, too much use of water, and mono-cropping patterns, land salinization is a big problem in the surveyed regions. The level of soil salinity impacts the productivity of agriculture on the irrigated lands. On strong-salinity lands farmers lost about 50-70 % of their yield and on the low-salinity land farmers lose about 30-40% of their yield.

Proper maintenance of the irrigation and drainage system is critical to prevent salinization process. Salt usually accumulates every year on farmers land; therefore canals and drainage channels must be cleaned to maintain their flow capacity. During the off-season (non-vegetation period) most of the farmers (78.3%) has "washed" the land using large amounts of water. Soil condition in Bukhara region provides bad natural drainage than in most other areas of Uzbekistan. Farmers have shown more initiative in cleaning and repairing irrigation and drainage systems (Table 4). In Syrdarya region agricultural cooperatives have done less work than private farmers, probably because of less incentives and more obligatory part of planned production.

*Table 4: Repair or Cleaning of On-farm Irrigation and Drainage System in the Last 3 years  
(Percent of Respondents)*

	Agricultural Cooperatives (Shircats)		Private Farms	
	Irrigation	Drainage	Irrigation	Drainage
Bukhara region	68%	60%	56%	54%
Syrdarya Region	27%	24%	51%	44%

*Source: Syrdarya and Bukhara Farm Survey Results 2002.*

Private farmers clean the irrigation channels and open collectors by hand. More sophisticated repair, requiring the use of machinery and experts, are carried out under contracts by contractor organizations. At present, due to their difficult financial situation, private farmers are not able to pay for the services of construction organizations. In response to their plight, the Government plans to finance programs targeted at the reconstruction of on-farm irrigation systems, which have fallen into disrepair. The reduction of government expenditure for construction and maintenance of hydromeliorative scheme on farm level assisted to adopt several government decrees directed for institutional reforming of the water management on farm level.

## **Restrictions in Macroeconomic Policy**

Current macroeconomic policy is a major cause of agriculture's current problems. The fiscal policy directed to the government revenue from the difference between state procurement price and international sales price for cotton (cotton excise tax), is an important part of budget. The basis for the cotton excise tax is that farmers are paid only a part of the value of their cotton production. Similar transfers occur in most commodity sectors. There is compensation to farmers in the form of both direct and implicit subsidies (e.g. artificially cheap farm inputs distributed by the state's commodity associations) and indirect subsidies (e.g. special concessions on land taxes and very cheap supplies of irrigation water). In addition, the objectives of current exchange rate policy are to maintain an artificially high value of the sum in order to restrain the costs of imports and to extract further value from cotton export receipts. These objectives are in direct conflict with the development of export-oriented industries. The official exchange rate increase has decreased the gap between curb and official rates. However, because producers and processors do not receive the true value of their exported product, they have less incentive to produce it and more incentive to

circumvent official controls. The result has been a continuation of the traditional transfer from agriculture to the rest of the economy. In the case of exchange rate policy, the transfer also has the appearance of being away from rural areas to the cities, which is likely to cause social tension.

Uzbekistan has developed and implemented a policy of self-sufficiency in grains through import substitution. Significant progress has been made in reducing imports of grains. However, import reduction in grains and flour, had major impacts on the current grains policy: reduced cotton export earnings as areas have been converted from cotton to wheat production; reduced livestock production as areas have been converted from livestock feed to wheat production. In addition, losses in export earnings and transfers from other sectors reduce the capacity for imports of other food products and of farm inputs, spare parts, and new technology.

## **State Order**

Administrative control over production and marketing has brought a decline in yields. Furthermore, current state order system does not stimulate increased productivity and more efficient use of natural resources and inputs. The system of advance payment that is practiced widely and advancing credit for the purchase of farm inputs to produce cotton and grain is also part of the state order. Some informal production regulation occurred in most major commodity sectors (meat, wine, fruit and vegetable processing). State agencies in some cases compel farmers to produce quantities of product and sell them at low prices.

## **Financial Issues**

The private farms credit survey showed beyond doubt that the most effective form of short-term credit available to the private farmer is in the form of deferred payments, largely arising from the centralized advance payments systems especially for cotton and cereals. Still, there is a negative side to this in that such systems tend to lock private farmers into cropping patterns that are not necessarily in their own interests. Also, the farmers need to be free to choose their own input suppliers and to pay for what they actually use, rather than having a “standard norm” deducted from a settlement account.

Most private farmers report serious problems in obtaining credit, and receiving payments in general. It is commonly claimed that farms face serious restrictions on their access to cash and in their use of cash. In

particular, farms may withdraw only the cash required to pay wages; any withdrawals must stay within 5% of their overall bank balance.

In the past, farmers have seen themselves as mainly self-financing their farming activities. The formal credit system has not made a lasting impression on them and even the Farmers' Association credit scheme and the Business Fund has had little impact. Only 28.6 % of the 860 farmers covered by the survey reported having direct access to advance payment schemes for cotton production and 15.7 % for wheat. Meanwhile, 3 % received loans for equipment purchases from outside. Of the 15 farmers that filed successful loan applications, only 4 held their loans for a period of more than one year, confirming the suspicion that longer term formal finance is especially difficult to obtain.

## **THE LONG-TERM SUSTAINABILITY OF WUA**

The establishment of WUAs has social advantages. Associations represent the interests of farmers through the process of democratization and delegation of authority. That social capital is considered to be a substantial benefit despite difficulties for its quantification. However, the establishment of the institutional structure of WUAs in itself cannot solve all the problems associated with the economic transition, in which farmers do not receive the true market values for their products. It may therefore be necessary for the WUAs to receive financial support from the government in the form of privileged credits and subsidies during an initial period.

The development of local autonomy and increased competence will change the character of government involvement. It will alter from one of control to one of assistance. Surveys show that 66.8 % of private farmers say total control by the WUA including regulatory functions is common in practice with the exception of the most remote districts where state organizations are not effective.

Long term sustainability and financial viability are of great importance for the existence of WUAs. The internal and external factors discussed above depend in government agricultural policy that impact sustainability of WUA. Sustainability is not necessarily based on the principle of self-financing of the organization, which implies existence without external assistance and resources. In the initial period of their existence, WUAs often receive assistance for their establishment and development. Thereafter they are expected to act without any help and external interference. In practice the associations often cannot independently arrange for financial viability. WUA's are not able to operate in a budgetary deficit situation, which can lead to bankruptcy during the initial period of their



existence. Therefore, financial viability is a crucial factor for the balanced development of WUAs. If expenses are to be covered by fees from members, it is necessary to keep them at the lowest possible level.

On establishing the WUA, it is necessary to distinguish between organizational and technical roles. Organizational roles (such as the chairmanship) can usually be decided through democratic election. Normally the chairman is selected from amongst respected residents (such as acsacals and chairmen of rural societies). The private farmers have different opinions regarding the chairman position of WUA, with 16.2% of them recommending a kolkhoz chairman, 14.5 % of responses for Acsacal, 35.1% suggest the main kolkhoz irrigator and 10.2% support some others. Hired specialists can perform the technical roles for the operation of the irrigation systems. As the WUA starts managing larger scale and more complicated irrigation systems, accountants, lawyers and professional managers are required. Official monitoring of financial management and water use will also be necessary.

The successful performance of the WUA mainly depends on the skills of its employees. To improve the administrative skills it is necessary to organize special training courses covering accounting and legal aspects that form the basis of activities of the WUA. A training course for technical specialists should include a wide range of subjects from management of water resources to operation of special equipment. At present no training courses or consulting services are being provided in this area. During the central planning era, organizations involved in extension, training and the introduction of new technologies, were financed by the government. Nowadays such organizations no longer exist.

It is imperative that the areas of responsibility of the WUA be clearly defined. This responsibility starts at the point of entry of irrigation water to the farms represented by the WUA and ends with the irrigation of the last association farm at the lower reaches of the scheme. The costs associated with the delivery of water to the WUA, including costs of developing the source of supply, are the responsibility of the water authorities. On-farm delivery from the perimeter of individual farms is the responsibility of individual farmers. Development, repair and maintenance of drainage systems servicing the drainage outlets from individual farms, including vertical drainage systems are also among the responsibilities of the WUA.

The transition to a market economy in Uzbekistan creates conditions conducive to the establishment of a new water market. In the long run, a water license could become the subject of sale, exchange, mortgage or collateral. The question then arises, who or what organization should be able to acquire a license in the establishment phase of WUAs. Should there be a general license for the whole association (in this case it should be included in the budget of WUA), or should an individual water user be provided with a license? Licensing, as compared to applying tariffs for water take-off, is

normally characterized by more flexible and diversified government regulation. It normally involves a charge for the right to water use without restriction on the amount of water taken. However, it normally allows for the introduction of a form of direct tax based on the area irrigated and the cropping pattern adopted.

## **CONCLUSIONS AND POLICY RECOMMENDATIONS**

### **State Support**

The government is expected to play a substantial role to ensure long term sustainability of WUAs. Although the role of the government would change as WUAs undertake additional obligations, the support of WUAs by the government would continue. The main government functions, ensuring stable development of WUAs, include the following:

- definition and legalization of the rights for water,
- determination and regulation of external factors affecting the organization of water use,
- technical training of employees of WUAs,
- assistance in the development, reconstruction and financing of large scale irrigation projects, and
- activities associated with the protection of the water resource base.

However, the establishment of the institutional structure of WUAs in itself cannot solve all problems associated with the economic transition. It may therefore be necessary for the WUAs to receive financial support from the government in the form of privileged credits and subsidies during an initial period.

### **Legislation Support**

Existing legislation does not have provisions to define the rights to irrigation water of newly emerging private water users. To define such rights for on-farm water distribution it is necessary to employ traditional practices based on adat and shariat. To give equal rights to private farms and other water users it is necessary to define more precisely in law their relationship, given the peculiarities of private farms. A precise definition of property rights in relation to water and physical infrastructure will serve as an important

instrument in the process of transferring management responsibilities and associated costs from Government to user associations.

## **Water Charges and Membership Fees**

Calculations of water charges should be based on the budget requirement of the WUA to cover operational costs. These costs will be met with fees charged to members. The transition to a market economy in Uzbekistan creates conditions conducive to the establishment of a new water market. In the longer run a water license could become the subject of sale, exchange, mortgage and collateral. The question then arises, who or what organisation should be able to acquire a license in the establishment phase of a WUA. Should there be a general license for the whole association (in this case it should be included in the budget of WUA), or should an individual water user be provided with a license? Licensing, as compared to applying tariffs for water take-off, is normally characterised by more flexible and diversified government regulation. It normally involves a charge for the right to water use without restriction on the amount of water taken. However, it normally allows for the introduction of a form of direct tax based on the area irrigated and the cropping pattern adopted.

## **Recommendations to Improve Water Policy in Uzbekistan**

The following steps need to be undertaken so as to increase the efficiency of water use in Uzbekistan:

- The system of water management needs to undergo fundamental institutional reform, with the establishment of sustainable Water Users Associations (WUAs).
- To ensure long term sustainability of Water Users Associations it is necessary:
  - o to create an economic environment for profitable agricultural production;
  - o to secure ownership rights to agricultural production and freedom in its marketing;
  - o to liberalize the marketing and pricing systems; and
  - o to provide government support in the form of subsidized credit and tax exemptions to members of WUA at its inception period.

Introduction of water charges is required so as to reduce the financial burden on the government and at the same time to provide a mechanism to

ensure the more efficient use of water resources. The tariff for water should be based on the budget requirements of the WUA.

A legal basis for water use needs to be established, which takes into account new systems of production and ownership and changes in the institutional structures in water management including the establishment of WUAs. The legal status of private water users and the legal basis for the right to water need to be established.

Related legislation should be drafted with a view to encouraging the development of WUAs.

## REFERENCES

- Douglas L. Vermillon. Impact of Irrigation Management Transfer: A review of the Evidence. International Irrigation Management Institute Research Report. 11
- Djalalov S. 2000: Irrigated Agriculture in the Condition of Water Shortages. *Tashkent. Published by Chinor ENK. 200 pp.*
- Freeman, David M. 1989. Local organizations for social development. Westview Special Studies in Social, Political, and Economic Development. 1989 257 pp.
- Freeman, David M. 1992. Creating a Supportive Policy Environment for Irrigation System Turnover and Joint management. 25 pp.
- Wegerich, Kai. 2000. Water User Associations in Uzbekistan and Kyrgystan: Study on Conditions for Sustainable development. Ocasional Paper # 32 Water Issues Study Group. School of Oriental and African Studies, University of London. 2000. 23 pp.
- Rosengrant, Mark W. Renato Gazmuri Scleyer and Satya N. Yadav. 1995. Water Policy for efficient agricultural diversification: market – based approaches. Food Policy, Vol. 20, No. 3. pp. 203 – 223, 1995.
- Top, Van den, M. Sullivan, A. Harvey, D Ritsma, S. Mansurov, S. Djalalov, L. Mosina, T. Mamadvaliev. A. Abduganiev, A. Khudjabekov 1998. On-farm Management and Charging of Irrigation Water. Tashkent: The Food and Agricultural Policy Advisory Unit. TACIS Program of the European Commission.
- Thurman, Mike. 2001. World Bank report: *Agriculture in Uzbekistan: private,dekhkan and shirkat farms in the pilot districts of the rural enterprise support project.* 101pp.

**PART IV**

***POLICY REFORMS, POVERTY AND FOOD  
SECURITY***

## CHAPTER 19

# FOOD SECURITY AND POVERTY IN CENTRAL ASIA

Suresh Chandra Babu

*International Food Policy Research Institute, USA*

Valerie Rhoe

*International Food Policy Research Institute, USA*

## INTRODUCTION

The initial rise in Central Asia's food insecurity is an indirect result of a poor macroeconomic environment, which is illustrated by the initial fall in national output and high inflation rates (Babu and Reidheid, 2000). For example, from 1990 to 1995, annual gross domestic product (GDP) growth fell 11.9 percent for Kazakhstan, 14.7 percent for Kyrgyz Republic, 18.1 percent for Tajikistan, 10.6 percent for Turkmenistan, and 4.4 percent for Uzbekistan (World Bank, 1997). However, Kazakhstan's GDP grew 10, 13, 9.8, and 9.2 percent, respective to the years between 2000 and 2003 (World Bank, 2002a; World Bank, 2004a). Kyrgyz Republic has been experiencing 5 percent growth since 1996 (World Bank, 2002b). Tajikistan has had a remarkable turn around with a cumulative GDP growth of 30 percent between 2001 and 2004 (World Bank, 2004b). Turkmenistan has also been experiencing 18 percent growth since 1999 (World Bank, 2004c). Uzbekistan had 4 percent annual growth between 1996 and 2003 (World Bank, 2004d).

Although the nature and the extent of the problem varies from country to country, the welfare of the population as a whole has clearly been deteriorating at the household level. There is country specific as well as region specific issues that have contributed to the deteriorating household

welfare situation and will continue to aggravate unless these issues are addressed.

The Central Asia region is in the midst of transitioning from a command economy to a market-oriented economy, where the initial causes of geography, history, price and output distortions, which led to the worsening economy no longer explains the current conditions. The speed of market reforms that disciplined old industries and encouraged the entry of new companies can help explain why different transitioning countries have recovered their economy and alleviated poverty and why some transitioning countries still suffer from high levels of poverty (World Bank, 2002f).

The countries within Central Asia have undertaken economic reforms at various speeds. With the break-up of the Soviet Union, trade collapsed and in response Central Asian countries initially closed their borders to trade in hopes to protect their citizens. Closed borders have led these countries to alter their production patterns from their comparative advantage crops to other crops in order to feed their people. The closed borders lead to misuse of natural resources and high levels of food insecurity and malnutrition.

In addition to obstructions to regional and international markets, domestic markets are in an uproar. Domestic food markets are not well developed. Land markets are non-existent. However, there is some private land, but where this exists the rights to the land are not well-defined.

Another challenge that the region is facing is the degradation of natural resources. It is nowhere acute as in its access to adequate quantity and quality of water. The salinization of the Aral Sea has reduced its area by 50% of its original size in the 1960s and is now three times saltier (Micklin, 1993). The salinization of the Aral Sea has also left 35 million people unable to have access to its water (Cai et al, 2001).

With markets not well established and food insecurity rising, these countries face the challenge of providing for their people through safety net programs. This region originally received safety net support from the Soviet Union, but with its dismantling came the removal of the region's safety net programs. During this transition time, the people of this region have struggled to meet their food intake needs. Therefore, the region needs to reconsider providing basic support through targeted programs to protect the poor and food insecure households.

The region has taken steps at various levels to induce development, but after 14 years the region still faces high levels of poverty and food insecurity. Therefore, there is a need for better understanding of policy reforms in the region. To grasp this understanding, issues addressing technology, institutions, and policy innovations need to be further analyzed along with the challenges and constraints that the region faces. The first step in this process is to understand the nature, extent, and causes of poverty.



This paper compares three Central Asian countries with three different extant data sets and develops policy options that are country specific as well as regional. In order to analyze the food security and poverty situation facing these countries, a conceptual framework is laid out to guide the discussion. Then the extent of poverty, food insecurity, and malnutrition for these three countries and the region as a whole are discussed. Transitional economies pose challenges in understanding why poverty exists, since the determinants of poverty as established by conventional wisdom does not fully explain Central Asia's poverty. This inconsistency is therefore explored after determining who are the poor. Next, policy options are discussed. The paper concludes that the policy solutions to food insecurity, poverty, and malnutrition are different for Central Asia, which is still in transition from the command economy to a market economy.

## CONCEPTUAL FRAMEWORK

A food policy-focused conceptual framework which identifies the causal factors of nutrition security and the food policy linkages to them. This framework was originally developed and successfully used for explaining child malnutrition; however, it was revised to incorporate food policy challenges facing Central Asia (Smith and Haddad, 2000; UNICEF, 1998; Haddad, 1999a). Given the role of nutrition in the human life cycle, this framework attempts to encompass the life-cycle approach to nutrition security. In addition, it includes the causes of nutrition security at both the macro and micro levels. Achieving food security at the macro level requires economic growth resulting in poverty alleviation and increased equity in the distribution of income among the population. In a predominantly agrarian economy, economic growth is driven by increases in agricultural productivity, and therefore, depends on the availability of natural resources, agricultural technology, and human resources. These are categorized as potential resources. Agricultural technology and natural resources are necessary, but by themselves are not sufficient to generate dynamic agricultural growth. Both policies that appropriately price the resources and allocate them efficiently along with stable investment in human and natural resources through political and legal institutions are necessary. These basic factors determine a set of underlying causes of nutrition security, i.e., food security, care, and health. These three underlying causes are associated with a set of resources necessary for their achievement. Resources for achieving food security are influenced by both policies and programs that increase food production, income for food purchases, and in-kind transfer of food through formal or informal support mechanisms. Resources for the provision of care depend on the policies and

programs that increase the caregivers' access to income, strengthen their control of income use, and improve their knowledge, adoption, and practice of care. Care is the provision by households and communities of "time, attention, and support to meet the physical, mental, and social needs of the growing child and other household members" (ICN, 1992). Child feeding, health seeking behavior, care, and support for mothers during pregnancy, and breastfeeding are some examples of caring practices. Resources for health could be improved through policies and programs that increase the availability of safe water, sanitation, health care, and environmental safety.

As mentioned earlier, food security that ensures a nutritionally adequate diet at all times and adequate care and health environment through biological utilization of food, jointly determines the nutrition security of individuals. Thus, the immediate causes of nutrition security are dietary intake of macronutrients (energy, protein, and fat), intake of micronutrients, and the health status of individuals. Adequate nutrition security for children results in the development of healthy adolescents and adults and contributes to the quality of human capital. Healthy female adults with continued nutrition security during pregnancy contribute to fewer incidences of low birth weight babies, thereby minimizing the probability of the babies becoming malnourished. In the case of adults, improved nutrition security in terms of timely nutrient intakes, increases labor productivity (given opportunities for productive employment) thus resulting in reduced poverty. This lower poverty increases the potential resources needed for attaining nutrition security.

This conceptual framework forms the basis for discussing the policies and programs that exist and other potential strategies for attaining food and nutrition security and poverty reduction in Central Asian countries.

## **FOOD AND NUTRITION SECURITY IN CENTRAL ASIA REGION**

The food insecurity and nutritional challenges facing the countries of Central Asia can be attributed largely to unfinished policy reforms and changes in the institutional structure of the countries. On the production side, the policy reforms followed since independence have directly affected food availability at the household level through three factors. The first is poor implementation of land reforms, which reduced access to land for a large share of rural households, to the point where the available land holdings were too small to support subsistence agriculture (Babu and Tashmatov, 1999).

The second factor affecting the production of food in the Central Asian countries is the incomplete reform of input markets, which has not

overcome the disruption in the outside supply of commercial agricultural inputs (such as seeds, fertilizers, and pesticides) caused by independence (Babu and Tashmatov, 1999). Furthermore, the declining levels of investment in productivity-enhancing agricultural research must be reversed to meet the increasing food requirements.

The third factor affecting food and agricultural production in Central Asia is the reform of output markets. Prior to 1990, a significant portion of the output generated in the Central Asian republics, particularly cotton and wheat, was destined for guaranteed markets in other Soviet republics. After independence, the demand for these products greatly diminished, at the expense of numerous jobs. This further reduced the income levels of the households dependent on agriculture.

On the consumption side, institutional reforms have affected Central Asian food consumption in two ways. First, the food and nutrition programs that ensured minimum quantities of food have been eliminated. This elimination has further diminished the availability of food at the household level. For example, before independence, school meals, milk kitchens, and preschools helped combat (and sometimes mask) levels of children's poverty. After 1990, these subsidized public assistance programs ended abruptly, resulting in a decline in children's nutritional status (Bauer et al., 1998).

Second, the package of market reforms included the removal of food subsidies such as those on essential food commodities. With partial market liberalization and removal of price controls for most food commodities, the relative prices of food have changed considerably. This has shifted the diet of all, particularly the poor, toward cheap sources of calories. As market reforms proceed further, with the removal of subsidies on nonfood commodities, changes in relative prices faced by the poor will have serious implications for their food security (Popkin, 1994).

Poverty and food insecurity in Central Asia rose dramatically after independence. In the late 1980s, only 15% of the combined population of four Central Asian countries could not afford the basic goods. In the early to mid 1990s, 66% of the population of these same four countries was poor (Table 1). The decreasing levels of consumption in the republics were accompanied by changes in diet composition (Pomfret, 1995). In particular, spending on nonfood items fell more than spending on food; and while expenditures on bakery products and vegetables changed little, meat and dairy product consumption fell (Table 2). Overall, protein consumption declined sharply (Pomfret, 1995).

*Table 1: Poverty in Four Central Asian Countries Before and After Independence*

Country	Percent of Poor		Total number of poor (millions)	
	1987–88	1993–95	1987–88	1993–95
Kazakhstan	5	65	0.8	11.0
Kyrgyz Republic	12	88	0.5	4.0
Turkmenistan	12	61	0.4	2.4
Uzbekistan	24	63	4.8	13.3
Total	13.25*	69.25*	6.5	30.7

*Source: Milanovic 1998.*

\* Average

*Table 2: Per Capita Meat Production in Central Asia (kg per year)*

Country	1992	1997
Kazakhstan	55.1	45.0
Kyrgyz Republic	48.1	35.8
Tajikistan	15.0	8.5
Turkmenistan	35.3	26.7
Uzbekistan	24.7	27.4

*Source: Goletti and Chabot, 2000.*

## Kazakhstan

The Kazakhstan Living Standard Measurement Survey (LSMS) data for 1996, illustrates this country's food security and poverty situation during transition. Over 48 percent of Kazakhstan's population was living below the calculated total poverty line (calculated using the Food Energy Intake Method, see chapter 21 for description of methodology) of 154.93 tenge per day (US\$ 2.30) (Rhoe et al, 2005). The extent of poverty measured by the poverty gap and squared poverty gap for households living below the calculated total poverty line was 0.176403 and, 0.0881787 respectively. More than a decade after independence, 24 percent of the population still lives below the minimum subsistence level (2002) as defined by the World Bank (World Bank, 2004a)

Several attempts have been made to assess the malnutrition level of Kazakhstan. UNICEF and WHO statistics show that 4% of children were moderately or severely stunted in 1995-2000 and 2% were moderately or severely wasted (UNICEF, 2002).

In the five years leading up to independence, total food consumption increased by almost 5 percent, with increases for most food categories, but this rise was reversed after independence. Table 4 shows the average annual consumption of basic food products in Kazakhstan from 1990-1997 (Baydildina et al., 2000). During this period, the average annual consumption of basic food products fell 32.6 percent. The consumption of cereal products, the cheapest source of calories, is the only food category that increased. Such changes in consumption composition were coping strategies—attempts to maintain nutrition levels in the face of decreasing incomes and shortages of supply. Meanwhile, the already existing low levels of consumption before independence and the limited scope for substitution in the calorie-intensive diet, led to nutritional risk when small changes in consumption occurred.

*Table 3: Kazakhstan Average Per Capita Food Consumption (kilograms per year)*

Food Item	1990	1995	1996	1997	Difference 1990-1997 (%)
Meat and Meat Products	73	52	50	50	-31.5
Fish and Fish Products	10.3	4.8	4.6	3.5	-66.0
Dairy Products	311	229	211	196	-37.0
Eggs (pieces)	225	97	70	69	-69.3
Vegetable Oil	11.2	7.6	7.4	6.5	-42.0
Vegetables & Melons	76	56	52	55	-27.6
Potatoes	86	70	67	68	-20.9
Sugar	38	18.5	17.6	18.1	-52.4
Fruits & Berries	23	11	10	9	-60.9
Cereal Products	148	185	185	200	+35.1
Total*	1001.5	730.9	674.6	675.1	-32.6

*Source: Baydildina et al, 2000.*

In 1996, 20.5 percent of the total population fell below the recommended intake of 2,200 calories per day (Table 4). For the poorest expenditure quartile, 70.1 percent of the population was unable to consume the energy required for a typical day. In 1996, 4.0 percent of the Kazakhstan population fell below the recommended daily allowance (RDA) for protein per day. For iron, the portion below RDA was 4.0 percent, while vitamin A inadequacy was 10.9 percent. However, these percents are much higher for

people in the poorest expenditure decile. Twenty-two percent, 20.6 percent, and 36.7 percent of the population in the poorest expenditure decile was inadequate in protein, iron, and vitamin A, respectively. In addition to differences between expenditure deciles, differences arise between urban and rural settings. Estimates derived from the Kazakhstan LSMS data illustrates that rural households suffer from higher inadequacies in calories, protein, iron, and vitamin A (Table 5). Approximately 19 percent, 3 percent, 2 percent, and 8 percent of urban households do not satisfy the RDA requirements for calories, protein, iron, and vitamin A, respectively, while 23.3 percent, 6 percent, 6.3 percent, and 14.6 percent of the rural population suffer from inadequacy in these nutrients.

Table 4: Estimates of Food and Nutrition Insecurity by Expenditure Class in Kazakhstan 1996

	I	II	III	IV	V	VI	VII	VIII	IX	X
Expenditure Decile										
Calorie inadequacy (% below 2,200 kcal/day)	70.1	43.8	21.7	19.0	12.4	9.4	6.6	8.7	5.8	7.4
Protein inadequacy (% below 45 g/day)	22.0	4.9	4.2	3.5	0	1.4	0.7	2.1	0	1.4
Iron inadequacy (share below 10 mg/day)	20.6	5.7	5.6	1.5	2.1	2.1	1.0	0	0.5	0.5
Vitamin A inadequacy (share below 1000 iu/day)	36.7	25.8	13.2	10.2	3.9	4.7	3.9	1.6	2.4	6.3

Rhoe et al, 2005

Table 5: Estimates of Food and Nutrition Insecurity in Rural and Urban Kazakhstan, 1996

	Location		
	Rural	Urban	All
Calorie inadequacy (% below 2,200 kcal/day)	23.3	18.7	20.5
Protein inadequacy (% below 45 g/day)	6.0	2.8	4.0
Iron inadequacy (share below 10 mg/day)	6.3	2.1	4.0
Vitamin A inadequacy (share below 1,000 iu/day)	14.6	8.2	10.9

Source: Rhoe et al. 2005.

## Kyrgyz Republic

Kyrgyz Republic's poverty as a whole continues to rise during the 1990s. In 1993, 44% of the population lived in poverty. By 1997, poverty rose to 49%. However, severe poverty fell 5%. What is interesting about Kyrgyz Republic's poverty during this time period is that the percent of poorest in the lowest expenditure quartile decrease, while the percent of poor in the other three expenditure quartiles increased (Table 6). In 2002, the percent of the population below the national poverty line calculated by the World Bank was 44% (World Bank, 2004b)

The available data for Kyrgyz Republic indicate a decline in household food security following independence.

Table 6: Estimates of Poverty during Transition in Kyrgyz Republic, 1993 and 1997

	Expenditure quartile				
	I	II	III	IV	All
1993					
Poverty, head count (%)	90	59	24	2	44
Severe poverty, head count (%)	67	17	1	0	21
Expenditure share of food	0.51	0.62	0.67	0.65	0.61
1997					
Poverty, head count (%)	81	73	36	7	49
Severe poverty, head count (%)	49	14	2	0.1	16
Expenditure share of food	0.63	0.59	0.58	0.58	0.59

Source: Babu and Reidhead, 2000

In the Kyrgyz Republic, official estimates of household consumption fell by 44 percent during 1990–93 and by another 5 percent in 1995 (other estimates predict slightly higher consumption due to the prevalence of a significant shadow economy) (Pomfret 1998). The Kyrgyz Republic LSMS data for 1993 and 1997 illustrate the trend in food security during transition. In 1993, the average per capita calorie intake was 2,092 calories per day, with 59 percent of the population falling below the recommended intake of 2,200 calories per day (Table 7). For the poorest expenditure quartile, a full 84 percent was unable to consume the energy required for a typical day. These figures improved slightly by 1997, when the average daily calorie intake increased to 2,160. This average increase translated to gains across the board as the share of households experiencing calorie inadequacy improved to 40 percent.

Similar gains were seen in the intake of protein and vitamin A. In 1993, 43 percent of the Kyrgyz Republic population fell below the RDA for protein of 40 grams per day. By 1997, the number improved to 32 percent. For

vitamin A, the portion below the RDA improved from 50 to 26 percent. Iron inadequacy remained unchanged between the two periods, although iron intake levels did drop among households in the second expenditure quartile.

Table 7: Estimates of Food and Nutrition Insecurity in Kyrgyz Republic, 1993 and 1997

	Expenditure quartile				
	I	II	III	IV	All
<b>1993</b>					
Calorie intake (kcal/person/day)	1,125	2,072	2,650	3,046	2,092
Calorie inadequacy (share below 2,200 kcal/day)	0.84	0.61	0.45	0.32	0.59
Protein intake (grams/person/day)	36	62	77	91	63
Protein inadequacy (share below 45 g/day)	0.71	0.39	0.28	0.19	0.43
Iron intake (mg/person/day)	12	23	27	37	24
Iron inadequacy (share below 10 mg/day)	0.67	0.37	0.27	0.16	0.38
Vitamin A intake (iu/person/day)	846	1,515	1,865	2,399	1,697
Vitamin A inadequacy (share below 1,000 iu/day)	0.74	0.52	0.43	0.33	0.50
<b>1997</b>					
Calorie intake (kcal/person/day)	1,398	1,934	2,464	3,026	2,160
Calorie inadequacy (share below 2,200 kcal/day)	0.74	0.45	0.22	0.10	0.40
Protein intake (grams/person/day)	55	69	87	104	77
Protein inadequacy (share below 45 g/day)	0.50	0.37	0.22	0.13	0.32
Iron intake (mg/person/day)	10	14	21	29	19
Iron inadequacy (share below 10 mg/day)	0.68	0.50	0.31	0.12	0.40
Vitamin A intake (iu/person/day)	2,215	2,504	3,139	3,930	2,848
Vitamin A inadequacy (share below 1,000 iu/day)	0.39	0.28	0.21	0.10	0.26

Source: Babu and Reidhead, 2000

The increase in the level of poverty seems to have been borne by the lower middle-income households in the second and third expenditure quartile. This concentration is partly due to reduced food entitlements and increasing unemployment among this group (Bauer, Green, and Kuehnast 1997). Interestingly, the share of total household expenditures spent on food varied little between the years of the data or across expenditure quartiles. This may be explained by the reallocation of resources to high-calorie and low-cost food staples in the households within the poorer expenditure quartiles.

Food security and nutritional status of the Kyrgyz population seems to be improving following a drastic decline in the first few years after independence. Nevertheless, the levels of food and nutrition insecurity remain high, particularly among the poorer segments of society. Such inequities may also exist in other demographic segments. For example, Bauer et al. (1998) observed a similar trend in calorie intake by Kyrgyz children, which decreased from 1,194 to 1,076 calories per day between 1993 and 1996.



The percent of Kyrgyz pre-school children that were wasted worsened from 8 percent in 1993 to 9 percent in 1997. The data also revealed that in 1997, one Kyrgyz child in four suffered from stunting, while one child in seven exhibited signs of undernutrition. The data unfortunately does not permit time-series comparisons for the latter two parameters. However, high levels of stunting (which reflects long-term malnutrition) and undernutrition (which reflects short-term malnutrition), particularly among the lower expenditure quartiles, suggest that child malnutrition is a serious and continuing development problem in the Kyrgyz Republic (Table 8).

Table 8: Estimates of Malnutrition in Children in Kyrgyz Republic, 1993 and 1997

	Expenditure quartile				
	I	II	III	IV	All
<b>1993</b>					
Weight-for-height	0.10	0.07	0.09	0.07	0.08
<b>1997</b>					
Weight-for-height	0.12	0.08	0.06	0.09	0.09
Height-for-age	0.32	0.33	0.24	0.18	0.26
Weight-for-age	0.20	0.14	0.11	0.11	0.14

Source: Babu and Reidhead, 2000

NOTE: All amounts indicate the share below minus two standard deviations from the international norm.

Available anthropometric data suggest that although household food security indicators have improved slightly in recent years, child malnutrition levels are very high and, as shown by wasting indicators, have actually deteriorated. Continued monitoring of child malnutrition is required to understand the impact of the economic transition on human welfare.

## Tajikistan

Tajikistan's poverty remains the highest amongst the Central Asian countries. Over 95% of the population lives below the food poverty of 25,666 Tajik Roubles. However, the percent of poor drops to 89.2% when the total poverty line is taken into consideration. The poverty line was calculated by the LSMS team for Tajikistan. The team defined total poverty as per capita monthly expenditure of 32,083 TR. It is calculated based on a provisional SSA minimum consumption basket, with the food share making up approximately 80% and non-food share 20%. The severity of poverty is also lower when the total poverty line is used instead of the food poverty line (Table 9).

Child and women malnutrition is another problem that Tajikistan faces. A National Nutrition Survey of Tajikistan taken in 1999 and 2000 suggest that malnutrition is rising for children less than 5 years of age and their caregivers (McLachlan, 2002). The extent of undernourishment varies around the country, with chronic malnutrition rising 5 percent since 1994 to 35 percent. The country's Global Acute Malnutrition ranges from 10.4 percent in the valley region to 5.9 percent in the mountain regions, which is not significantly different. However, there are significant difference amongst the regions with regards to stunting. Stunting in the city is 23.9 percent compared to 46 percent in the mountains (McLachlan, 2002).

Table 9: Poverty Measures for Tajikistan in 1999

	Food Poverty Line	Total Poverty Line
Poverty Line (Tajik Rouble/ person/ month)****	25,666	32,083
Headcount ratio (H)	95.5%	89.2%
Aggregate income gap (G) (Tajik Rouble per day)*****	24,839,086	29,617,027
Poverty Gap (PG)	0.4839	0.4616
Squared Poverty Gap (PG <sup>2</sup> )	0.3411	0.2760

Source: Authors' Calculations, based on Tajikistan's 1999 LSMS data.

\*\*\*\* 1 \$US = 1,200 TR

\*\*\*\*\*Sample Size 2000 Households

## ANALYSIS OF DETERMINANTS OF POVERTY IN CENTRAL ASIA

The relationship between poverty and various economic and social variables has been examined in a number of studies. The variables incorporated by various studies have included nutritional status, household income, employment asset holdings, food consumption expenditures, household size and composition, education level, landholding size, livestock quantity, agricultural goods produced, access to services in their analysis, and sex of household head, marital status, gender, ethnic group, number of working hours, nature of employment, employment of hired labor, and type of education in addition to many of the variables previously mentioned, and residency location (Coulombe and McKay, 1996; Datt and Jolliffe, 1999; Datt et al, 2000; Fofack, 2002; Geda et al, 2001; Greer and Thorbecke, 1986; Grootaert, 1997; ; Hamdok, 1999;Kakwani, 1993; Okojie, 2002; Sadeghi et al., 2002; Sen, 1976; Srinivasan, 1988).

## POVERTY IN CENTRAL ASIA REGION

The Central Asian region is similar in many ways, but differences exist as in all other regions. Some countries have implemented reforms faster than others. Some countries have been in conflict during part of the transition. These factors may help to explain why the determinants of poverty in Kazakhstan, Kyrgyz Republic, and Tajikistan may be similar, but are not

the same as well as why the conventional determinants of poverty explain less of the reasons behind poverty in Central Asia than in non-transition economies.

With much of Central Asia's population living in rural areas and depending on agriculture, it is not surprising that living in rural areas would increase one's probability of being poor. Also, the more people who live in the household would have a negative impact in getting out of poverty. A common thread amongst these countries was more education would help lift the people out of poverty.

These variables only explain a small part of the underlying causes of poverty in Central Asia. To fully understand the causes of poverty in transitioning economies, poverty research needs to consider the differences between transition and other developing countries. The next three subsections look at the determinants of poverty in Kazakhstan, Kyrgyz Republic, and Tajikistan, individually.

## **Kazakhstan**

The determinants of poverty have been analyzed by classifying households as poor or non-poor according to its total poverty line derived through the Food Energy Intake Method. The estimated logit model shows that the education level and age of the household head have significant negative effects on poverty. Significant positive relationships exist between household poverty level and household size as well as household poverty level and residency of the family – rural or urban. This model captures some of the poverty determinants in Kazakhstan. Due to missing data, some variables such as access to health care and communal farms were not included, which could explain the lower  $R^2$ . Another explanation is that the data is not capturing the effects of universal health care, education, and housing (Table 10).

Table 10: Logit Parameters of the Probability of Being Poor in Kazakhstan (Z-154.93)

Variable	Parameter Value	Significance
Constant	-.759	.056
Livestock value	-.001	.430
Land holding size	-.001	.485
Household size	.685	.000
Dependency ratio	.357	.071
Source of income	.169	.376
Age of household head	-.011	.014
Education/training level	-.136	.000
Family loan	.117	.333
Residency (Rural vs. Urban)	.385	.001
Access to market	.000	.886

Source: Rhoë et al, 2005

\* Tenge per person per day

## Kyrgyz Republic

The incidence of poverty since independence has not been evenly shared by all members of society. For example, in Kyrgyz Republic, the Gini coefficient of income inequality worsened to a very high 0.66 in 1993, before falling slightly to 0.51 in 1996 (Pomfret, 1998). An analysis of Kyrgyz Republic's poverty profile using household survey data has shown that poverty is highest in rural areas, in female-headed households, in households with large numbers of children, and for those with less education (Pomfret 1998). Furthermore, Bauer, Boschmann, and Green (1997) found that a greater burden from increasing poverty fell on ethnic Kyrgyz and Uzbek households, urban pensioners, and women. Recent field surveys suggest that income inequalities between the rich and vulnerable groups continue to worsen (Bauer, Boschmann, and Green, 1997).

## Tajikistan

The preliminary results illustrate that the determinants of poverty under the food poverty line and total poverty line for Tajikistan are almost the same (Table 11). However, the strength of the determinant is stronger when using the food poverty line. Households that have more access to land are more likely not to be poor. Also larger households as well as households that have a higher number of unemployed are more likely to be poor. Furthermore, rural people have a higher probability of being poor than urban residents. The education level of the household head is not significant when only looking at food poverty, but when total poverty is considered, the education level of the household head negatively and significantly influences poverty.

## POLICY OPTIONS

Policy options will vary according to the country, but there are a few policy options that the region can adopt. First, domestic policies need to consider where the poor reside. Having higher probability of being poor in rural areas versus urban areas should influence policy and program actions. Policies should encourage appropriate farming methods, the development of markets, transportation infrastructure, and building of non-farm enterprises in the rural areas.

Sustaining the high level of education that existed before independence is important. The socialist based education system has crumbled in the region and although there are laws requiring children to attend school for a certain number of years (9 years in Tajikistan), many children are not attending school. Kyrgyz Republic has implemented policy reforms faster than the other Central Asian countries. Their experience has shown that policy reforms impact groups differently. Therefore, Central Asia may need to implement programs that target vulnerable groups such as female-headed households, ethnic groups, and urban pensioners (Bauer et al, 1997).

The collapse of state institutions and poor economic conditions has resulted in rising unemployment. To curb this unemployment, governments need to encourage new businesses to develop and needs to continue to discipline old businesses to become more efficient. To reduce the negative impacts of restructuring for efficiency, safety nets could be in place.

The region needs to move away from food self-sufficiency to intra-country, regional, and international trade to meet their food needs. Lack of trade within Central Asia is prohibiting food surplus-producing regions of a

county to trade with other regions of the country or other countries, which is detrimental to both sides. Central Asia needs to open its markets to regional and international players, but ensure that vulnerable populations are not worsened by implementing targeted safety net programs.

Table 11: Logit Parameters of the Probability of Being Poor in Tajikistan

Variable	Food Poverty Line (Z=25666*)		Total Poverty Line (Z=32,083*)	
	Parameter Value	Significance	Parameter Value	Significance
Constant	-2.343	0.236	-0.191	0.902
Livestock value	0.000	0.392	0.000	0.158
Land holding size	-0.003	0.000	-0.002	0.000
Household size	0.680	0.000	0.346	0.000
Dependency ratio	0.198	0.675	0.376	0.273
Age of household head	0.012	0.231	0.007	.337
Education/training level	0.020	0.715	-0.068	0.097
Residency (Rural vs. Urban)	0.661	0.011	0.445	0.010
Number of unemployed in HH	-0.310	0.010	-0.159	0.016
Gender of HH head	0.149	0.628	0.120	0.579
Displaced persons	0.478	0.573	0.123	0.856

Source: Analysis by authors using 1999 Tajikistan LSMS data

Tajik Roubles per month per person

## CONCLUSIONS

Central Asia faced the initial conditions that the other transition economies faced, but Central Asia continues to lag behind Central and Eastern Europe (CEE) and other Commonwealth of Independent States (CIS). Experience from other transitioning economies suggests that disciplining existing institutions and encouraging new businesses to develop can help grow the economy. However, growth does not always lead to equal reduction in poverty and food insecurity. Therefore, it is essential to understand why

such high levels of poverty exist in Central Asia. This analysis has illustrated that the conventional wisdom on determinants of poverty do not fully explain poverty in Central Asia.

Since the traditional variables are unable to explain why poverty exists, then the typical solutions are not applicable. For example, many times poverty can be partially explained by the household head's characteristics. However, the available data suggests that the gender of the household head is not significant (Paci, 2002).

To better understand, what is impacting poverty in these countries, one needs to think outside the traditional box of poverty determinants. Information about state and private employment, status of communal farms, displaced persons, and access to social programs may better explain poverty.

Not only may policy approaches differ, but also how the policies should be implemented may differ. The mindset of business and competition is different in transition economies. Profits were not acceptable under a command economy, therefore, creating a competitive environment and changing one's social construction to become competitive takes time and education. Therefore, for successful market development, the people of Central Asia will need to understand the concept of competition.

Central Asia can reduce its poverty and food insecurity if policies and programs take into consideration the unique needs of Central Asia's transitioning economies.



## REFERENCES

- Babu, Suresh C., and W. Reidhead. 2000. Poverty, food security, and nutrition in Central Asia: A case study of the Kyrgyz Republic. *Food Policy* 25 (6): 647-660.
- Babu, Suresh C., and Alisher Tashmatov. 1999. Attaining food security in Central Asia—Emerging issues and challenges for policy research. *Food Policy* 24 (1999): 357–362.
- Baydildina, Adilya, Aynur Alishinbay, and Mamshuk Bayetova. 2000. Policy reforms in Kazakhstan and their Implications for Policy Research. In *Food Policy Reform in Central Asia: Setting the Research Priorities*, Babu, S. and Tashmatov, A. Washington, D.C.: International Food Policy Research Institute.
- Bauer, Armen, David Green, and Kathleen Kuehnast. 1997. *Women and gender Relations: The Kyrgyz republic in transition*. Manila, Philippines: Asian Development Bank.
- Bauer, Armen, Nina Boschmann, and David Green. 1997. *Women and gender relations in Kazakstan: The social cost*. Manila, Philippines: Asian Development Bank
- Bauer, Armen, Nina Boschmann, David Green, and Kathleen Kuehnast. 1998. *A generation of risk: Children in the Central Asian republics of Kazakstan and Kyrgyz Republic* . Manila, Philippines: Asian Development Bank,.
- Cai, X., D. C. McKinney, and M. W. Rosegrant. 2001. Sustainability Analysis For Irrigation Water Management: Concepts, Methodology, and Application To The Aral Sea Region. EPTD Discussion Paper No. 86. Washington, D.C.: International Food Policy Research Institute.
- Coulombe H, McKay A. 1996. Modeling the Determinants of Poverty in Mauritania. *World Development* 24: 1015-1031.
- Datt G, Jolliffe D. 1999. *Determinants of Poverty in Egypt, 1997*. FCND Discussion Paper No. 75. International Food Policy Research Institute, Washington, D.C.
- Datt G, Simler K, Mukherjee S, Dava G. 2000. *Determinants of Poverty in Mozambique, 1996-97*. FCND Discussion Paper. No. 78. International Food Policy Research Institute, Washington, D.C.
- Fofack, H. 2002. The Nature and Dynamics of Poverty Determinants in Burkina Faso in the 1990s. Poverty Working Paper 2847. World Bank, Washington, D.C.  
<[http://econ.worldbank.org/files/15281\\_wps2847.pdf](http://econ.worldbank.org/files/15281_wps2847.pdf)>
- Geda, A., de Jong N, Mwabu G, Kimenyi M. 2001. Determinant of Poverty in Kenya: A Household Level Analysis. Working Paper. Institute of Social Studies, The Netherlands.

- GOSKOMSTAT and Institute Berlin for Statistical Data Analysis. 1996. Living Standard Measurement Survey - Kazakhstan 1996. GOSKOMSTAT and Institute Berlin for Statistical Data Analysis, Almaty and Berlin.
- Greer J, Thorbecke E. 1986. A Methodology for Measuring Food Poverty Applied to Kenya. *Journal of Development Economics* 24: 59-74.
- Grootaert C. 1997. The Determinants of Poverty in Côte d'Ivoire. *Journal of African Economies* 6:169-196.
- Haddad, L. 1999a. Women's status: levels, determinants, consequences for child nutrition and implications for interventions and policy. Draft Paper. Washington DC: International Food Policy Research Institute.
- Hamdok AA. 1999. A Poverty Assessment Exercise in Zimbabwe. *African Development Review* 11: 290-306.
- ICN (International Conference on Nutrition). 1992. Caring for the socioeconomically deprived and nutritionally vulnerable. Major Issues for Nutrition Strategies Theme Paper no. 3. Rome: Food and Agriculture Organization of the United Nations and World Health Organization.
- Kakwani N. 1993. Measuring Poverty: Definition and Significance Test with Application to Côte d'Ivoire. In *Including the Poor: Proceedings of a Symposium Organized by the World Bank and the International Food Policy Research Institute*, Lipton M (ed), and Gaag J (ed.) International Bank for Reconstruction and Development, Washington D.C.
- McLachlan, Evan. 2002. National Nutrition Survey of Tajikistan. Action Against Hunger.
- Milanovic, Branko. 1998. *Income, inequality, and poverty during the transition from planned to market economy*. Washington, D.C.: World Bank
- Okojie, CEE. 2002. Gender and Education as Determinants of Household Poverty in Nigeria. Discussion Paper No. 2002/37. World Institute for Development Economics Research, Finland. <<http://www.wider.unu.edu/publications/dps/dps2002/dp2002-37.pdf>> (Accessed 9/29/2002)
- Micklin, P. P. 1993. The shrinking Aral Sea. *Geotimes* 38(4): 14-18.
- Paci, P. 2002. How Do Men and Women fare in Transition Countries? A New World Bank Report. *Transition Newsletter* 13 (6).
- Pomfret, Richard. 1998. *The transition from a market economy, poverty, and sustainable development in Central Asia*. CIES Seminar Paper 98-08. Adelaide, Australia: Centre for International Economic Studies.
- Popkin, Barry. 1994. A subsistence income level for Kyrgyz Republic . School of Public Health, University of North Carolina at Chapel Hill. Mimeo.
- Sadeghi, JV, Toodehroosta M, Amini, A. 2002. Determinants of Poverty in Rural Areas: Case of Savejbolagh Farmers in Iran. Working Paper 0112. World Bank,

Washington, D.C. <<http://info.worldbank.org/etools/docs/pa2-jav.pdf>> (Accessed 9/29/2002)

- Sen AK. 1976. Poverty: An Ordinal Approach to Measurement. *Econometrica* 43: 153-169.
- Smith, L. and L. Haddad. 2000. Explaining child malnutrition in developing countries – a cross-country analysis. Research Report No 111. Washington DC: International Food Policy Research Institute.
- Srinivasan TN. 1988. Undernutrition: Concepts, Measurements and Policy Implications. Oxford University Press, Oxford, United Kingdom.
- UNICEF. 1998. The State of the World's Children. New York.
- UNICEF (United Nations). 2002. Kazakhstan.  
<[http://www.unicef.org/status/Country\\_1Page89.html](http://www.unicef.org/status/Country_1Page89.html)> Updated February 2002  
(Accessed January 2003).
- World Bank. 1997. *World Development Indicators, 1997*. World Bank, Washington, D.C.
- World Bank. 2002a. Kazakhstan Country Brief.  
<<http://lnweb18.worldbank.org/ECA/eca.nsf/Countries/Kazakhstan/AA764F8A0C5D56AC85256C250060D43C?OpenDocument>> Updated September 2002 (Accessed January 2002).
- World Bank. 2002b. Kyrgyz Republic Country Brief.  
<<http://lnweb18.worldbank.org/eca/eca.nsf/Countries/Kyrgyz+Republic/3D00E03A802774EB85256C2500613D31?OpenDocument>> Updated September 2002  
(Accessed January 2002).
- World Bank. 2002f. Transition - The First Ten Years: Analysis and Lessons for Eastern Europe and the former Soviet Union.
- World Bank. 2004a. Kazakhstan Country Brief.
- World Bank. 2004b. Kyrgyz Republic Country Brief.
- World Bank. 2004c. Turkmenistan Country Brief.
- World Bank. 2004d. Uzbekistan Country Brief.

## CHAPTER 20

# **POLICY REFORMS AND POVERTY IN CENTRAL ASIA WITH SPECIAL FOCUS ON KYRGYSTAN\***

Suresh Chandra Babu

*International Food Policy Research Institute, USA*

William Reidhead

*World Wildlife Fund International, Geneva*

Debdatta Sengupta

*International Food Policy Research Institute, USA*

## **INTRODUCTION**

After a long controlled and central planning as part of the Soviet Republic and then suddenly becoming independent nations, the countries of the Commonwealth of Independent States (CIS) are currently experiencing consecutive years of positive growth. Though substantial progress is still needed in this direction, most of the CIS countries now have the pre-conditions needed to achieve the MDGs (Social Monitor, 2003). Yet, in the wake of economic reforms, increasing poverty, food insecurity and malnutrition present a major development challenge to the governments of the Central Asian republics.

To address the food security and poverty challenges through policy and program interventions, the governments must answer several fundamental

---

\* Substantially revised and updated version of the paper published earlier in the journal *Food Policy* Vol 25 (6) 2000 (reprinted with permission).

questions: Who are the food and nutrition insecure and where are they located? What sources of information are needed to identify the food and nutrition insecure? What policy options exist to improve household food and nutrition security? What elements of food policy reforms require immediate attention and what are the information needs? What type of monitoring systems should be in place to respond to welfare changes caused by policy reforms?

This paper attempts to provide insights into these questions in Central Asia. Using Kyrgyzstan as a case study, it presents the available evidence on the nature and trends in poverty, food security, and malnutrition. Kyrgyzstan was chosen because it can be seen as representative of the Central Asian republics. It also has the best data available including the Living Standard and Measurement Survey (LSMS) which Kyrgyzstan has been conducted at regular intervals.

The paper is organized as follows: The next section reviews changes in the levels of poverty, a major cause of food insecurity during the period of economic transition. In the third section, available evidence on household food and nutrition security and nutritional status in the Central Asian republics is presented. The fourth section documents the nutritional status of women and children. The fifth section describes the need for policy analysis to identify various price and non-price interventions to reduce poverty, food insecurity, and malnutrition. The last section concludes.

## **ECONOMIC TRANSITION AND POVERTY**

Following the collapse of the Soviet Union, the countries of Central Asia began a transition characterized by a shift to market-based economy along with broad economic reforms. This transition was based partly on the necessity of reacting to the sudden political changes and partly on pressures from multilateral and bilateral aid agencies to adopt structural adjustment policies (Mudahar 1998). Since 1990, these countries have exhibited varying degrees of progress in their attempts to transform their economies. For example, Kyrgyzstan has been the most progressive in economic reforms, while Uzbekistan has been slow to embrace the market-based approach. Regardless of the path chosen, all five Central Asian republics have experienced similar hardships, which have translated in the aggregate to increased food insecurity and malnutrition in the short-run.

In many of the CIS countries inequalities are still high, the income level and living standards still low. Public expenditure on health is still low due to increasing amount of money being channelized towards debt servicing.

## Levels of Poverty and Inequality

As different countries have followed somewhat different transition paths with varying speed, the effect of transition on the levels of poverty and income inequality has varied widely. The poverty rates in all the Central Asian republics—which were already higher than the rest of the Soviet Union before its breakup—worsened during the decade of the 1990s (Pomfret 1998). However, in the later half of the 1990s, the poverty indicators improved for most countries in this region. Table 1 gives the percentage of population below the national poverty line for selected countries in Central Asia. Though compared to the 1980s decade, it is higher for almost all countries; decrease in the population below the poverty line is clearly visible in most CIS countries.

Table 2 gives an overview of the trends in poverty rates in four Central Asian countries from before the breakup of the Soviet Union, to several years after independence. During this period, the level of poverty quadrupled in the region. With the exception of Uzbekistan, the level of poverty in these countries increased from less than 15 percent before independence to more than 60 percent after. In Uzbekistan, which had the highest level (24 percent) before the Soviet breakup, poverty increased 2.5 times by the mid-1990s (Green and Bauer 1999; Pomfret 1998; and Howell 1996).

An analysis of Kyrgyzstan's poverty profile using household survey data has shown that poverty is highest in rural areas, in female-headed households, in households with large numbers of children, and for those with less education (Pomfret 1998). Furthermore, Bauer, Boschmann, and Green (1997) found that a greater burden from increasing poverty fell on ethnic Kyrgyz and Uzbek households, on urban pensioners, and on women. Recent field surveys suggest that income inequalities between the rich and vulnerable groups continue to worsen (Bauer, Boschmann, and Green 1997).

Although household-level data for poverty analysis are largely lacking in Central Asia, nationally representative surveys of diet and nutritional status were undertaken in Kyrgyzstan in 1993 and 1997 as a part of the LSMS series conducted in collaboration with the World Bank. These surveys covered 1,900 households in 1993 and 2,900 households in 1997. LSMS data for Kyrgyzstan were provided with permission from the National Statistical Committee of the Government of Kyrgyzstan (NATSKOMSTAT). More information about obtaining LSMS data can be found at <http://www.worldbank.org/lsms>. These surveys represent the first such large-scale national surveys undertaken in Central Asia, and together allow for determining trends of household welfare during the transition period.

In an analysis of poverty, expenditure capacity of households across the population is considered an important indicator. Inequality in the

distribution of income is reflected in the percentage shares of income or consumption accruing to different segments of the population ranked by income or consumption levels.

In 1993, the overall percentage of households in Kyrgyzstan unable to purchase a characteristic basket of food was 44 percent (Table 3). A characteristic food basket is defined as the basket of foods needed to meet basic nutritional standards. Note that this figure differs from the estimate in Table 1, which is based on a different poverty line estimation method. Milanovic (1998) employs an absolute standard (120 international dollars per month), rather than the food basket method used here (Popkin 1994). However, this figure varied substantially between the lowest and highest expenditure quartiles; in the bottom expenditure quartile, a full 90 percent were classified as poor, compared with 2 percent in the highest. In the same year, more than 20 percent of the population suffered from severe poverty (Households with expenditures below half of the amount needed to purchase the poverty food basket are classified as severely poor). In 1997, the overall share beneath the poverty line worsened to almost 50 percent; however, the portion under severe poverty conditions improved somewhat, with the greatest improvement experienced by the bottom quartile. The increase in the level of poverty seems to have been borne by the lower middle-income households in the second and third expenditure quartile. This is partly due to reduced food entitlements and increasing unemployment among this group (Bauer, Green, and Kuehnast 1997).

With the continuance of economic reforms, the situation in Kyrgyzstan improved after 2001. For example, in Kyrgyzstan, the Gini coefficient of income inequality worsened to a very high 0.66 in 1993, before falling slightly to 0.51 in 1996 (give new figures) (Pomfret 1998). Inequality of income as given by the GINI co-efficient decreased for Kyrgyzstan during the period 1998-2001 (Social Monitor, 2003). However, the incidence of poverty is not evenly shared by all members of the society. The top 20% of the population in Kyrgyzstan in 2002 had access to 43 percent of the income while the bottom 20 percent had access to only 7.7 percent (WDI, 2005). The trend was however, mixed for other republics. According to surveys conducted by the World Bank (Table 4), income inequality is lowest in Uzbekistan (GINI co-efficient 26.8, survey year, 2000) and highest in Turkmenistan (GINI coefficient 40.8, survey year, 1998). Kazakhstan and Tajikistan are at 32.3 and 32.6 respectively, Kyrgyzstan fares below them at 34.8 (GINI coefficient varies between 0 and 1. 0 implies that there is perfect equality while 1 implies that all the income is in the hands of one person).

The primary reason for the increases in poverty in the Central Asian republics during the years immediately after their independence is the deterioration of the macroeconomic environment, as characterized by decreases in national output and high inflation. Because of the lack of

subsidized inputs and assured markets for their products, many firms have reduced their output or stopped production altogether. For example, in Kyrgyzstan in 1993, one-quarter of enterprises incurred losses, and in 1994, 12 percent of firms ceased operating (Howell 1996). These firms have had to lay off large numbers of workers, resulting in high levels of unemployment among the poorer expenditure quartiles. Much the same has been true for government workers; and even those who kept their state jobs have often suffered from delays in the payment of salaries and allowances (Howell 1996).

The above paragraphs describe the incidence and the causes of increased poverty during the economic transition in the Central Asian republics. However, beyond a few broad measures, the empirical evidence needed to fully understand the welfare problems and to suggest policy interventions is quite limited. Another important obstacle to policy making is the lack of quality data across the years. The government estimates during the Soviet era were inflated to project the idea of a prospering economy. The trend still continues in some Central Asian countries. On the other hand, existence of a large underground economy implies that a large part of the expenditure goes unreported and unaccounted for. In the next two sections we review the existing information and provide new evidence on household food security and nutrition.

## **FOOD AND NUTRITION SECURITY ISSUES**

### **Self-sufficiency vs. Food Security**

Prior to their independence, the Central Asian republics were economically interdependent on each other and on the Soviet republics in general. In terms of grain, certain countries were net exporters (for example, Kazakhstan) and certain countries were net importers (for example, Tajikistan). Following independence and the dissolution of their existing trading arrangements, the Central Asian countries faced a choice between self-sufficiency in food production and food security through a combination of own production and regional trade. Unable to benefit from comparative advantage through regional trade arrangements, each country chose to address the problem of food self-sufficiency through increased grain production to meet internal needs. For countries that were previously net importers, that has meant increased domestic grain production accompanied by increased market prices and farming of marginal lands. For countries that were previously net exporters, that has meant reductions in grain production and net decreases in



prices and national export revenues. The former has hurt consumers, and the latter has been to the detriment of farmers and national accounts. Both categories of countries have suffered in terms of food security.

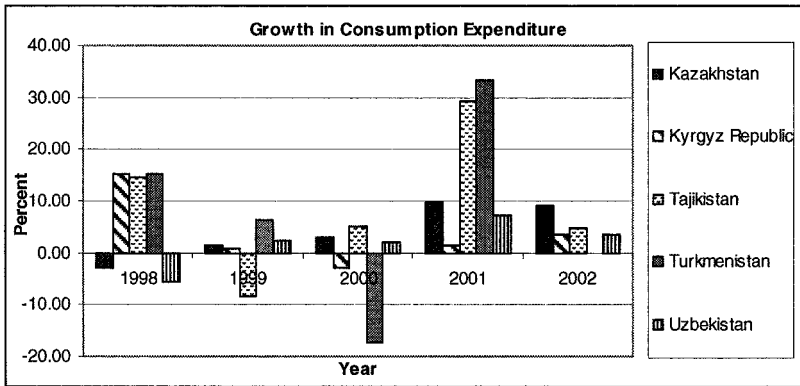
## **Measures of Household Food and Nutrition Security**

Because of the limited number of household surveys in the Central Asian republics, there is a dearth of information on food security at the household level. Nevertheless, available data indicate a decline in household food security following independence. In Kyrgyzstan, official estimates of household consumption fell by 44 percent during 1990–93 and by another 5 percent in 1995. Other estimates predict slightly higher consumption due to the prevalence of a significant shadow economy (Pomfret 1998). Table 5 gives the average consumption in Kyrgyzstan by population deciles during the period 2000–01. Between these two years, the overall consumption in the country increased by 8 percent. However, interestingly, it increased at a greater rate among the poorer section of the society than the richer section.

Regional difference in Kyrgyzstan was large and had significant effect on consumption in 1993 and 1996 (Pomfret, 2000). The decreasing levels of consumption in the republics were accompanied by changes in diet composition (Pomfret 1995). In particular, spending on nonfood items fell more than spending on food; and while expenditures on bakery products and vegetables changed little, meat and dairy product consumption fell.

In recent years, however, the CIS countries seems to be making significant progress towards poverty reduction in the region. Overall protein intake in Kyrgyzstan increased from an average of 51.1 gr in 1998 to 58.2 gr in 2002. Consumption of fats remained more or less constant at 45.6 between the same period. Final consumption expenditure in the CIS countries also shows an increasing trend in the post 1998 period. The following graph shows the trend in final consumption expenditure.

Figure 1: Growth in Consumption Expenditure in Central Asia



Source: World Bank, 2004

The Kyrgyzstan LSMS data for 1993 and 1997 illustrate the trend in food security during transition. The FAO study on “Intensified monitoring of food security in CIS low-income, food deficit countries” also provides substantial data on indicators of food and nutritional security for Kyrgyzstan. Table 6 presents a comparison of selected indicators of food and nutrition security between 1993 and 1997 using LSMS data. In 1993, the average per capita calorie intake was 2,092 Kilocalories per day, with 59 percent of the population falling below the recommended intake of 2,200 Kcal/per day. For the poorest expenditure quartile, a full 84 percent was unable to consume the energy required for a typical day. These figures improved slightly by 1997, when the average daily calorie intake increased to 2,160. This average increase translated to gains across the board as the share of households experiencing calorie inadequacy improved to 40 percent.

During the second half of the transition process (after 2000) the figures, however, show remarkable improvement for the country. During 1998-2000 the average Dietary Energy Supply for Kyrgyzstan increased to 2830 Kcal per day (FAO, 2002). This figure increased marginally during the 1999-2001 to 2860 kcal/day (FAO, 2003). However, the share of non-starchy food in daily diet decreased marginally from 34% in 1998-2000 to 32% during 1999-2001.

Gains were seen in the intake of protein and vitamin A. In 1993, 43 percent of the Kyrgyz population fell below the recommended daily allowance (RDA) for protein of 40 grams per day. By 1997 that number had improved to 32 percent. For vitamin A, the portion below the RDA improved from 50 to 26 percent. Iron inadequacy remained unchanged between the two

periods, although iron intake levels did drop among households in the second expenditure quartile.

Food security and nutritional status of the Kyrgyz population seems to be improving following a drastic decline in the first few years after independence. Nevertheless, the levels of food and nutrition insecurity remain high, particularly among the poorer segments of society. Even in 2002, the calorie intake of the bottom 20 percent of the population still fell below the required minimum of 2,200 kilocal/day. The top 20 percent, however, had an average intake of 2,724 in the same year. Table 7 shows the breakup of calorie intake for Kyrgyzstan. Such inequities may also exist in other demographic segments. For example, Bauer et al. (1998) observed a similar trend in calorie intake by Kyrgyz children, which decreased from 1,194 to 1,076 calories per day between 1993 and 1996.

## National and Regional Food Insecurity

Though significant progress has been made, national and regional-level data clearly indicate that high level of food insecurity exists in Central Asia. The number of undernourished people decreased from 1.3 million during the 1993-1995 period to 0.4 million during 1999-2001 (FAO, 2003). In other countries of the CIS the situation is not the same. During the same periods the number of undernourished people increased in Kazakhstan, Tajikistan and Uzbekistan (FAO, 2003). Post-independence, the self-sufficiency in food grains policy has increased area under wheat cultivation in Kyrgyzstan. For example, Kyrgyzstan traditionally imported about one-third of its wheat supplies from other Soviet provinces. Since independence, it has had to make up the difference by expanding domestic production on its state and collective farms. Between 1991 and 1993, the area planted on these farms expanded from 194,000 hectares to 316,000 hectares, with output rising from 465,000 tons in 1991 to 883,000 tons projected for 1993 (Duncan 1993). In 2004, with a total of 667,200 hectares cropped under cereals, cereal production in the country amounts to 869,100 tonnes, of which 798,100 tonnes is wheat. (*Kyrgyz Ministry of Agriculture*). During the first half of 2004, 24,582 tonnes of wheat, 419 tonnes of rice, 1,802 tonnes of maize and 255 tonnes of wheat flour have been imported, representing a total cereal-equivalent import of some 27,300 tonnes (NSC, 2004).

In Tajikistan, the World Food Programme estimated that in 1996, the demand for wheat was 760,000 tons, but supply was only 230,000 tons. This gap could only be partially filled by imports (Humboldt University 1997). Strategies to address the shortage have focused primarily on international aid. In 1994, German Agro-Action distributed free food and supplies to almost

200,000 people in northern and central Tajikistan (Humboldt University 1997).

## EVIDENCE OF NUTRITION INSECURITY

Although data on epidemiological evidence of child malnutrition in Central Asia are also in short supply, several attempts have been made to assess the problem in these countries. Most notable are estimates by UNICEF. In 1995, a national survey in Kazakhstan revealed that 15.8 percent of all preschool children were stunted (that is, a height-for-age parameter more than two standard deviations below international norms), with that number rising as high as 22.7 percent in some southern areas. In Uzbekistan a 1996 survey found a stunting rate of 31.3 percent in children under age three, and one district reported that 20.3 percent exceeded three standard deviations below the norm. In Tajikistan, a 1996 survey of several districts revealed stunting rates in excess of 50 percent (UNICEF 1998). Prevalence of underweight children under the age of five was 19% in Uzbekistan in 2001 (FAO, 2003).

In 2001, 60 percent of the rural and 54 percent of the urban children lived below the poverty line. In the age group of 0-5 years, 25 percent children in Kyrgyzstan are stunted and 10-11 percent are underweight (UNDP, 2003). There are stark differences between population segments in nutritional outcomes of children. The non-poor teenagers consumed 65.7 percent more calories than the poor.

Malnutrition among children in Kyrgyzstan is still high and needs special attention. According to the National Statistical Committee (NSC) of Kyrgyzstan 7 percent of children in the country under 11 years suffer from regular starvation. 33 percent of children in the age group of 4-6 years suffer from malnutrition. This ratio is twice as high for girls than for boys in the one-year age group. In the 5 year age group it is 1.6 times greater among girls than among boys. The weight-for-age is lower among rural children than among urban children (NSC, 2004).

Generally, adult malnutrition in Central Asia (as measured by the body mass index) is less severe than that of children and is comparable to that of most western countries. However, some smaller geographic pockets do exist where adult malnutrition should be considered a problem, for example, in the Issy-Kul oblast in Kyrgyzstan, as well as in isolated villages (Popkin and Martinchik 1999).

Among adults, the vulnerable group of most concern is women, particularly pregnant women and nursing mothers. Women tend to work in lower paying sectors where their income is likely to be lower than that of

men. This, combined with their greater nutritional requirements for child bearing and nursing, negatively affects their food and nutrient intake. A USAID-funded survey of several thousand women with small children in Kazakhstan showed this to be true. In Kzyl oblast, the study found the caloric intake of this group to be 69 percent of the recommended level and also found severe deficiencies in protein, iron, vitamin C, and vitamin A (Bauer, Green, and Kuehnast 1997).

In some areas near the Aral Sea, environmental factors have also contributed to micronutritional deficiencies, namely iron. Iron deficiency here is prevalent especially among pregnant women, who give birth to anemic children and face difficulties in breastfeeding (Bauer et al. 1998). As many as 80 percent of pregnant women in this region are anemic. Surveys by the National Institute of Nutrition in 1995 reveal that almost 50 percent of all women and up to 60 percent of pregnant women in Kazakhstan have at least some degree of anemia (Bauer, Green, and Kuehnast 1997). According to the USAID survey, mothers in southern Kazakhstan took in only 57 percent of the recommended level of protein.

In summary, available anthropometric data suggest that although household food security indicators have improved slightly in recent years, child malnutrition levels are very high and, as shown by wasting indicators, have actually deteriorated. Continued monitoring of child malnutrition is required to understand the impact of the economic transition on human welfare.

## **POLICY ANALYSIS NEEDS**

The governments of the Central Asian countries have recently begun to enact policies to combat the food and nutritional deficiencies in children and women. For example, the Government of Kyrgyzstan (1999) has developed a food security policy statement that identifies various strategies for addressing food and nutrition deficiencies among the population. Kazakhstan has made a priority of overcoming micronutrient deficiencies, particularly those of iron and iodine (WHO 1998). Thus, Kazakhstan has developed a plan of action for nutrition and sought approval for a national nutrition policy (NNP) and an action plan based on this policy. It also formed a Nutrition Council in 1995. Likewise, Uzbekistan developed a national food program (NFP) in 1992 (WHO 1998). Kyrgyzstan has been pursuing anti-inflationary policies since 1995. The annual inflation rates fell from the hyperinflation to modest levels in recent years. However, protecting the food insecure and the malnourished population by designing appropriate policies requires adequate policy analysis. That analysis in turn must be based on data

collected on the indicators and causal factors of food insecurity and malnutrition on a regular basis.

Designing policies that modify prices through food subsidies requires an understanding of the expenditure patterns of the households according to various income classes. The budget share of food and the contribution of specific food commodities to the nutrient intake of the households should be analyzed. Variations in the expenditure patterns due to geographical regions and rural/urban differences must be understood for targeting food and nutrition intervention programs according to geographical location. Analyzing the impact of various income and price policies on the consumption patterns of food insecure households will require estimation of demand parameters such as own-price elasticities, cross-price elasticities, and income elasticities for various food and nonfood commodities. This will also enable an understanding of the substitution among food commodities and substitution between food and nonfood commodities due to income and price changes. Designing food and nutrition policies without adequate information on these parameters may lead to negative or unintended consequences on the food security of vulnerable households.

The availability of reliable data for analyzing food and nutrition policies in Central Asia continues to be a challenge for the region. For example, the recently published Fourth Annual Report on the World Nutrition Situation (ACC/SCN 2000) does not provide information on the nutritional status of children in Central Asia. Recent studies conducted by UNICEF show trend in mortality rates among children in the CIS countries. Several other initiatives taken by Chronic Poverty Research Center has also been monitoring poverty and nutritional outcomes among children in the region.

More recently, LSMS data have become an alternative source of information on the welfare of the population.<sup>25</sup> The first LSMS in Central Asia was conducted in Kyrgyzstan as a multipurpose poverty survey (KMPS) that included information on food security and nutrition and was larger (2,000 households) and more systematic than the HBS. This survey was repeated in Kyrgyzstan in 1996 and annually afterwards. Kazakhstan and Uzbekistan also initiated LSMS surveys in 1997. These studies have also built upon the Household Based Survey conducted by the government. However, much of the data remain unanalyzed due to inadequate policy analysis capacity in these countries (Pomfret 1998). Furthermore, data collected through LSMS is not readily available for regular food and nutrition policy decision making at various levels. To overcome this difficulty, Kyrgyzstan has attempted to

---

<sup>25</sup> Both LSMS and HBS surveys are nevertheless vulnerable to a number of methodological implementation problems that may bear on the accuracy of the resultant information (Kandiyoti 1999).

establish a food and nutrition information system to address the policymaking needs of the food sector (Van de Walle 2000).

Designing and implementing appropriate policies that protect the poor and the vulnerable households from food insecurity and malnutrition requires attention to two sets of activities: (1) investing in the generation of periodic data on the indicators and causal factors of food and nutrition insecurity and (2) improving the capacity for food and nutrition policy analysis for designing intervention programs.

The Central Asian countries and Kyrgyzstan in particular need to develop institutional capacities for agricultural research and policy analysis. Better economic policies need to be accompanied by better monitoring so that its effectiveness is enhanced. Policies also need to be in place to ensure that economic growth is maintained inspite of heavy debt servicing burden.

## CONCLUSIONS

This paper analyzed the recent data on poverty, food security, and nutrition from Kyrgyzstan to provide an overview of the problem and to identify future policy and analysis needs. Several conclusions specific to Kyrgyzstan and general to other Central Asian countries emerge from this analysis.

With a GDP of US \$ 300, Kyrgyzstan was the second poor nation among the former Soviet republics coming only after Tajikistan during the early half of the 1990s. With a series of economic reforms in place, the country has made good progress over the years towards improving poverty and living conditions of its population. Like most other countries in the former Soviet Union (FSU) Kyrgyzstan went through cyclical highs and lows in sectoral and overall growth rates. However, at the turn of the century, growth rate trends seems to indicate that the worst is finally over for the country.

Robust economic growth has led to poverty declines across the country (World Bank, 2003). The poverty gap and absolute poverty indices also show comparable declines during 2000-01. Important from a food security standpoint, the economic growth was led by a dominant agricultural sector. The value added in agriculture in 2001 was 58 percent higher than its 1995 level (World Bank report on Kyrgyzstan, 2003). The share of the sector in GDP also increased from 41 percent to 45 percent during the same period. Economic growth during 2000-01 has been claimed by the government as being pro-poor. Evidence from the Household Based Survey suggests that consumption increased across all levels of the population.

However, poverty in Kyrgyzstan is still a predominantly rural phenomenon and progress has been slow in poverty reduction in the rural areas. Increase in food production has been accompanied with increase in food prices. This is expected to help the rural population who are agricultural producers. The analysis of the Kyrgyzstan data shows the existence of poverty in Kyrgyzstan though situation has been improving and improvement has been made in the degree of severity. The data also shows that household food and nutrition security continues to be a problem. Some improvement can be seen in several of the indicators of nutrition security consistent with coping strategies and shifts in consumption to maximize calorie and nutrient intake in the face of income and supply constraints. However, room for improvement clearly remains, particularly for vulnerable groups. We found persistently high numbers for several child malnutrition indicators (particularly weight-for-age). Comparing these figures with the observed improvement in many adult nutrition security indicators suggests that children are not benefiting from the reforms to date and will require special attention in future measures.

Although much progress has been made in moving toward a market economy and in implementing land reforms to increase the food security of individual rural households, the process is not yet complete. Land markets are not yet functional, and the development of the financial sector remains in its infancy. The domestic market reforms to increase food production have also been slow. Food sector reforms, particularly the removal of school and preschool nutrition programs and the elimination of food subsidies, have increased the vulnerability of poor households to food security and malnutrition. And because of the poor trading arrangements among the Central Asian republics, food trade has completely stopped and food self-sufficiency has become a major food security objective of these countries.

Major strategies to improve the welfare of the Central Asian republics will require further deepening of the reform process to improve the functioning of markets for inputs, outputs, labor, and credit. The government of Kyrgyzstan, with help from international development organizations, has launched the Poverty Reduction Strategy. Development of the private sector in the product and financial markets is essential. Private sector investments have started especially in the health sector, which remains more or less constant around 50 percent. Improving productivity-enhancing investments in agriculture in general and in food production in particular is important to meet the food self-sufficiency goals. Efforts to develop a regional trade arrangement for food commodities are urgently needed to improve the sustainable use of natural resources. Finally, food security and nutrition programs and policies that will protect the poor in the short run are required to preserve the quality of human capital and the investment in long-run economic growth.



Designing and implementing these strategies will require information-based policymaking. To this end, it will be necessary to increase the capacity for data generation, processing, and analysis of the various levels of the government. The importance of policy dialogue and debate within and among the countries in achieving food security in Central Asia cannot be overemphasized.

## REFERENCES

- ACC/SCN (United Nations Administrative Committee on Coordination, Subcommittee on Nutrition). 2000. *Fourth report on the world food situation: Nutrition throughout the life cycle*. Washington, D.C.: ACC/SCN and International Food Policy Research Institute (IFPRI).
- Babu, Suresh C., and Alisher Tashmatov. 1999. Attaining food security in Central Asia—emerging issues and challenges for policy research. *Food Policy* 24 (1999): 357–362.
- Bauer, Armen, Nina Boschmann, and David Green. 1997. *Women and gender relations in Kazakhstan: The social cost*. Manila, Philippines: Asian Development Bank.
- Bauer, Armen, David Green, and Kathleen Kuehnast. 1997. *Women and gender Relations: The Kyrgyz republic in transition*. Manila, Philippines: Asian Development Bank,.
- Bauer, Armen, Nina Boschmann, David Green, and Kathleen Kuehnast. 1998. *A generation of risk: Children in the Central Asian republics of Kazakhstan and Kyrgyzstan*. Manila, Philippines: Asian Development Bank,.
- Duncan, Alex. 1993. Kyrgyzstan: Agricultural trade issues. Draft report. Food Studies Group, International Development Centre, University of Oxford, Oxford, UK.
- FAO, 2002. The State of Food Insecurity in the World. Economic and Social Department. FAO. Rome.
- FAO, 2003. The State of Food Insecurity in the World. Economic and Social Department. FAO. Rome.
- FAO, 2005. Intensified Monitoring of Food Security. FAO Project. <[http://www.fnsproject.org/en/training\\_cropfo.html](http://www.fnsproject.org/en/training_cropfo.html)> Accessed June, 2005.
- Government of Kazakhstan. 1995. *Statistical yearbook of Kazakhstan 1994*. (in Russian) Almaty: GOSKOMSTAT.
- Government of Kyrgyzstan. 1999. National food security policy. Mimeo. Bishkek.
- Government of Kyrgyzstan. 2005. Kyrgyzstan Development Gateway. <<http://eng.gateway.kg>> accessed June, 2005.

- Green, David Jay, and Armen Bauer. 1998. The costs of transition in Central Asia. *Journal of Asian Economics* 9 (2): 345–364.
- Howell, Jude. 1996. Poverty and transition in Kyrgyzstan: How some households cope. *Central Asian Survey*. 15 (1): 59–73.
- Humboldt University. 1997. *From relief to rehabilitation: Towards food security in northern Tajikistan*. Seminar Series for Land Development #177. Berlin: Center for Advanced Training in Agriculture and Rural Development, Humboldt University.
- Kandiyoti, Deniz. 1999. Poverty in transition: An ethnographic critique of household surveys in post-Soviet Central Asia. *Development and Change*. 30: 499–524.
- Marcus, Rachel and J. Marshall, 2004. Tackling Childhood Poverty in Central and East Asia: Donor Approaches in Kyrgyzstan and Mongolia. The Childhood Poverty Research and Policy Centre. London.
- Milanovic, Branko. 1998. *Income, inequality, and poverty during the transition from planned to market economy*. Washington, D.C.: World Bank
- Mudahar, Mohinder S. 1998. *Strategy for rural growth and poverty alleviation (Kyrgyz Republic)*. World Bank Discussion Paper 394. Washington, D.C.: World Bank.
- Pandya-Lorch, Rajul. 1999. Prospects for global food security: A Central Asian context. Paper prepared for Central Asia Workshop on Food, Agriculture, and Natural Resource Policy Research: Setting the Priorities, July 19–21, Tashkent, Uzbekistan.
- Pomfret, Richard. 1995. *The economies of Central Asia*. Princeton, N.J.: Princeton University Press,.
- Pomfret, Richard. 1998. *The transition from a market economy, poverty, and sustainable development in Central Asia*. CIES Seminar Paper 98–08. Adelaide, Australia: Centre for International Economic Studies.
- Popkin, Barry. 1994. A subsistence income level for Kyrgyzstan. School of Public Health, University of North Carolina at Chapel Hill. Mimeo.
- Popkin, Barry, and Arseni N. Martinchik. 1999. Nutritional conditions of the Kyrgyz population, 1993. Carolina Population Center, University of North Carolina at Chapel Hill. Unpublished report.
- UNICEF (United Nations Children’s Education Fund). 1998. *State of the world’s children, 1998*. Oxford, UK: Oxford University Press.
- UNICEF, 2003. Social Monitor. The MONEE Project, CEE/CIS/Baltic States. UNICEF Innocenti Research Centre: Florence.

Van de Walle, B.. 2000. Kyrgyz Republic. National Food Security Information System. Brussels: Reseau Europeen de Securite Alimentaire (RESAL)

WHO (World Health Organization). 1998. *Comparative analysis of nutrition policies in WHO European member states*. Regional Office for Europe, Programme for Nutrition Policy, Infant feeding, and Food Security.

World Bank. 1992. Food and agricultural policy reforms in the former USSR: An agenda for the transition. Washington, DC: Country Department III, Europe and Central Asia Region.

World Bank, 2003. Kyrgyz Republic: Enhancing Pro-Poor Growth. A Report.

## Appendix

*Table 1: Percentage of Population Below the National Poverty Line in Selected Countries*

	1988	1995	1996	1997	1998	1999	2000	2001	2002	2003
Khazakhstan			34.6	43	43.4	34.5	31.8	28.4	24.2	
Kyrgyzstan	37			51		64.1	52	47.6	44.4	
Tajikistan	59					83				68

*Source: ESCAP, based on IMF and World Bank, 2002 and country studies in the three countries.*

*Table 2. Poverty in Four Central Asian Countries Before and After Independence*

	Poverty head count (percent)		Total number of poor (millions)	
	1987–88	1993–95	1987–88	1993–95
Kazakhstan	5	65	0.8	11.0
Kyrgyzstan	12	88	0.5	4.0
Turkmenistan	12	61	0.4	2.4
Uzbekistan	24	63	4.8	13.3
Total	15	66	6.5	30.7

*Source: Milanovic 1998.*

Table 3. Estimates of Poverty During Transition in Kyrgyzstan, 1993 and 1997

	Expenditure quartile				
	I	II	III	IV	All
1993					
Poverty, head count (%)	90	59	24	2	44
Severe poverty, head count (%)	67	17	1	0	21
Expenditure share of food	0.51	0.62	0.67	0.65	0.61
1997					
Poverty, head count (%)	81	73	36	7	49
Severe poverty, head count (%)	49	14	2	0.1	16
Expenditure share of food	0.63	0.59	0.58	0.58	0.59

Source: Authors' Calculations, based on Kyrgyzstan 1993 and 1997 LSMS data, National Statistical Committee (NATSKOMSTAT), Government of Kyrgyzstan.

Table 4: GINI Coefficients in Selected Countries

	1988	1993	1995	1996	1997	1998	1999	2000	2001
Khazakhstan	25.7	32.7		35.3					31.3
Kyrgyzstan	26	53.1			40.5	36	34.6	30.3	29
Tajikistan						34.7			
Turkmenistan	26.4	35.8				40.8			
Uzbekistan	25	33.3				45.4		27	

Source: World Bank, 2004

*Table 5: Average Consumption in Kyrgyzstan by Deciles 200-2001 (2000 Prices)*

Consumption Per capita			
<b>Decile</b>	<b>2000</b>	<b>2001</b>	<b>% change</b>
Poorest 1	2658	2945	10.8
2	3604	4017	11.5
3	4220	4669	10.6
4	4847	5395	11.6
5	5500	6056	10.1
6	6297	6846	8.7
7	7262	7892	8.7
8	8515	9342	9.7
9	10672	11515	7.9
Richest 10	17220	17769	3.2
Total	7084	7650	8

*Source: World Bank Kyrgyz Country Report, 2003*

Table 6: Estimates of Food and Nutrition Insecurity in Kyrgyzstan, 1993 and 1997

	Expenditure quartile				
	I	II	III	IV	All
1993					
Calorie intake (kcal/person/day)	1,125	2,072	2,650	3,046	2,092
Calorie inadequacy (share below 2,200 kcal/day)	0.84	0.61	0.45	0.32	0.59
Protein intake (grams/person/day)	36	62	77	91	63
Protein inadequacy (share below 45 g/day)	0.71	0.39	0.28	0.19	0.43
Iron intake (mg/person/day)	12	23	27	37	24
Iron inadequacy (share below 10 mg/day)	0.67	0.37	0.27	0.16	0.38
Vitamin A intake (iu/person/day)	846	1,515	1,865	2,399	1,697
Vitamin A inadequacy (share below 1,000 iu/day)	0.74	0.52	0.43	0.33	0.50
1997					
Calorie intake (kcal/person/day)	1,398	1,934	2,464	3,026	2,160
Calorie inadequacy (share below 2,200 kcal/day)	0.74	0.45	0.22	0.10	0.40
Protein intake (grams/person/day)	55	69	87	104	77
Protein inadequacy (share below 45 g/day)	0.50	0.37	0.22	0.13	0.32
Iron intake (mg/person/day)	10	14	21	29	19
Iron inadequacy (share below 10 mg/day)	0.68	0.50	0.31	0.12	0.40
Vitamin A intake (iu/person/day)	2,215	2,504	3,139	3,930	2,848
Vitamin A inadequacy (share below 1,000 iu/day)	0.39	0.28	0.21	0.10	0.26

Source: Authors' Calculations, based on Kyrgyzstan 1993 and 1997 LSMS data, National Statistical Committee (NATSKOMSTAT), Government of Kyrgyzstan.



*Table 7: Calorie Consumption by Population Quintiles in Kyrgyzstan*

	1998	1999	2000	2001	2002
Expenditure quintile (I)	1587	1573	1517	1620	1667
Expenditure quintile (II)	1753	1819	1769	1854	1927
Expenditures quintile (III)	1945	2034	1991	2051	2132
Expenditure quintile (IV)	2235	2292	2264	2337	2339
Expenditure quintile (V)	2717	2904	2811	2816	2724

*Source: FAO Project: Intensified monitoring of food security in CIS low-income, food deficit countries*

*Accessed June, 2005.*

## CHAPTER 21

# **FOOD SECURITY AND DETERMINANTS OF POVERTY IN CENTRAL ASIA: CASE STUDY FROM KAZAKHSTAN**

Valerie Rhoe,

*International Food Policy Research Institute, Washington, D.C., United States*

Suresh Babu,

*International Food Policy Research Institute, Washington, D.C., United States*

William Reidhead,

*World Wildlife Fund-International, Geneva, Switzerland*

## **INTRODUCTION**

In the wake of economic reforms, food insecurity, poverty, and malnutrition are major development challenges to the governments of Central Asian countries. In order to address this challenge through policy and program interventions, the governments must answer several fundamental questions: Whom are the people suffering from food and nutrition insecurity and where are they located? What sources of information are needed to identify the food and nutrition insecure? What policy options exist to improve household food and nutrition security? What elements of food policy reforms require immediate attention and what are the information needs? What is the level of poverty? Who are the poor and why? What type of monitoring systems should be in place to respond to welfare changes caused by policy reforms?

This chapter provides insights into these questions for Central Asia. Using Kazakhstan as a case study, it presents evidence on the nature of

poverty, food security, and malnutrition. This evidence is derived from the Kazakhstan 1996 Livelihood Standards Measurement Survey (LSMS). To increase our familiarity of the situation in Kazakhstan, the next section focuses on the food and nutrition security issues facing Kazakhstan. Then using the Food Energy Intake Method of deriving a poverty line, the poor are identified. Once the food and total poverty lines are identified, various poverty measures are calculated. Although knowing the extent of poverty is important, understanding how to alleviate it is essential; therefore, the determinants of poverty are analyzed using this identified poverty line. Finally, policy suggestions are provided.

## **FOOD AND NUTRITION SECURITY MEASURES**

With the collapse of interregional trade, the Central Asian countries adopted food self-sufficiency policies. In this section, we explore the changes in food security and nutritional status of Kazakh households.

### **Self-Sufficiency vs. Food Security**

Before their independence, the Central Asian Republics were economically interdependent on each other and on the Soviet Union. In terms of grain, certain countries were net exporters (for example, Kazakhstan) and certain countries were net importers (for example, Tajikistan). Following independence and the dissolution of their existing trading arrangements, the Central Asian countries faced a choice between self-sufficiency in food production and food security through a combination of own production and regional trade. Unable to benefit from comparative advantage through regional trade arrangements, each country chose to produce only the amount of grain needed by its population. For countries that were previously net importers, that has meant increased domestic grain production accompanied by increased market prices and farming of marginal lands. For countries that were previously net exporters, that has meant reductions in grain production and net decreases in prices and national export revenues.

In addition to grain production, self-sufficiency policies and economic conditions have led to a 30% reduction in livestock production between 1992 and 1997 (Pandya-Lorch and Rosegrant, 2000). From 1992-2002, the percent change in the decline in cattle and sheep for Kazakhstan was 54 percent and 73 percent, respectively (FAOSTAT, 2002). Along with the declining supply of meat, the demand for meat and meat products declined from 2.23 million tons to 1.75 million tons from 1992-1996. However, the

rising population and increasing urbanization is expected to increase the demand for meat and meat products (Pandya-Lorch and Rosegrant, 2000). Furthermore, the supply of fodder declined during the 1990s (Suleimenov, 2000). This reduction will ultimately affect the quantity as well as the quality of meat products that are produced and processed in Central Asia. Food self-sufficiency policies have not cured food insecurity in Central Asia.

## Household Food and Nutrition Security Measures

Although data on epidemiological variables are limited for Central Asia, several attempts have been made to assess the malnutrition level of these countries. UNICEF and WHO statistics show that 10% of children in Kazakhstan were moderately or severely stunted in 1995-2000 and 2% were moderately or severely wasted (UNICEF, 2002).

Table 1 shows the average annual consumption of basic food products in Kazakhstan from 1990-1997 (Baydildina et al., 2000). During this period, the average annual consumption of basic food products fell 32.6 percent. The consumption of cereal products, the cheapest source of calories, is the only food category that increased. Such changes in consumption composition were coping strategies—attempts to maintain nutrition levels in the face of decreasing incomes and supply shortages. Meanwhile, the already existing low levels of consumption before independence and the limited scope for substitution in the bread-intensive diet, led to nutritional risk when small changes in consumption occurred. This situation underscores the need for regular monitoring of food security and nutritional status as well as program interventions to protect vulnerable groups during periods of economic transition (World Bank, 1992).

The Kazakhstan LSMS data for 1996, illustrates this country's food security situation during transition. Selected indicators of food and nutrition security for 1996 are presented in Tables 2 and 3. In 1996, 20.5 percent of the total population fell below the recommended intake of 2,200 calories per day. For the poorest expenditure quartile, 70.1 percent of the population was unable to consume the energy required for a typical day. In 1996, 4.0 percent of the Kazakhstan population fell below the recommended daily allowance (RDA) for protein per day. For iron, the portion below RDA was 4.0 percent, while vitamin A inadequacy was 10.9 percent. However, these percents are much higher for people in the poorest expenditure decile. Twenty-two percent, 20.6 percent, and 36.7 percent of the population in the poorest expenditure decile were inadequate in protein, iron, and vitamin A, respectively. In addition to differences between expenditure deciles, differences arise between urban and rural settings. Estimates derived from the Kazakhstan LSMS data

illustrates that rural households suffer from higher inadequacies in calories, protein, iron, and vitamin A (Table 3). Approximately 19 percent, 3 percent, 2 percent, and 8 percent of urban households do not satisfy the RDA requirements for calories, protein, iron, and vitamin A, respectively, while 23.3 percent, 6 percent, 6.3 percent, and 14.6 percent of the rural population suffer from inadequacy in these nutrients.

*Table 1: Kazakhstan Average per capita Food Consumption (kilograms per year)*

Food Item	1990	1995	1996	1997	1990-1997 (%)
Meat and Meat products	73	52	50	50	-31.5
Fish and Fish Products	10.3	4.8	4.6	3.5	-66.0
<i>Dairy Products</i>	311	229	211	196	-37.0
Eggs (pieces)	225	97	70	69	-69.3
Vegetable Oil	11.2	7.6	7.4	6.5	-42.0
Vegetables and Melons	76	56	52	55	-27.6
Potatoes	86	70	67	68	-20.9
Sugar	38	18.5	17.6	18.1	-52.4
Fruit and Berries	23	11	10	9	-60.9
Cereal Products	148	185	185	200	+35.1
Total*	1001.5	730.9	674.6	675.1	-32.6

*Source: Baydildina et al, 2000, \* Calculated by authors*

Table 2: Estimates of Food and Nutrition Insecurity by Expenditure Class in Kazakhstan 1996

	I	II	III	IV	V	VI	VII	VIII	IX	X
Expenditure Decile										
Calorie inadequacy (% below 2,200 kcal/day)	70.1	43.8	21.7	19.0	12.4	9.4	6.6	8.7	5.8	7.4
Protein inadequacy (% below 45 g/day)	22.0	4.9	4.2	3.5	0	1.4	0.7	2.1	0	1.4
Iron inadequacy (share below 10 mg/day)	20.6	5.7	5.6	1.5	2.1	2.1	1.0	0	0.5	0.5
Vitamin A inadequacy (share below 1,000 iu/day)	36.7	25.8	13.2	10.2	3.9	4.7	3.9	1.6	2.4	6.3

Source: Authors' calculations, based on Kazakhstan 1996, Government Statistical Committee (GOSKOMSTAT), Government of Kazakhstan.

*Table 3: Estimates of Food and Nutrition Insecurity in Rural and Urban Kazakhstan, 1996*

	Location		
	Rural	Urban	All
Calorie inadequacy (% below 2,200 kcal/day)	23.3	18.7	20.5
Protein inadequacy (% below 45 g/day)	6.0	2.8	4.0
Iron inadequacy (share below 10 mg/day)	6.3	2.1	4.0
Vitamin A inadequacy (share below 1,000 iu/day)	14.6	8.2	10.9

*Source: Authors' Calculations, based on Kazakhstan 1996, Government Statistical Committee (GOSKOMSTAT), Government of Kazakhstan.*

## **DETERMINANTS OF POVERTY AND AN ANALYSIS OF POVERTY**

The relationship between poverty and various economic and social variables has been examined in a number of studies. Country, as well as state, village, and household-level data have been utilized in these studies to explain poverty. Earlier studies that analyzed the determinants of poverty employed descriptive techniques and have focused on the effects of movements in aggregated forces such as agricultural productivity and cost-of-living indices (Ahluwalia, 1978; Saith, 1981; Khan and Griffin, 1982). Several variables help measure the level of poverty within a particular region. One major indicator of poverty has been the level of nutritional status measured through energy and protein intake (Srinivasan, 1988; Datt and Jolliffe, 1999; Datt et al, 2000). Other criteria used to classify people as poor have been household income (Sen, 1976; Sadeghi et al., 2002), employment (Kakwani, 1993; Geda et al, 2001; Fofack, 2002) asset holdings (Grootaert, 1997; Geda et al, 2001; Fofack, 2002), and food consumption expenditures (Greer and Thorbecke, 1986; Fofack, 2002). Other studies have included household size and composition, education level, landholding size, livestock quantity, agricultural goods produced, and access to services in their analysis (Kakwani, 1993; Coulombe and Mckay, 1996; Grootaert, 1997; Datt and Jolliffe, 1999; Datt et al., 2000; Geda et al, 2001), and sex of household head (Kakwani, 1993; Hamdok, 1999; Okojie, 2002). Furthermore, a 1996 study tested the significance of marital status, gender, ethnic group, number of working hours, nature of employment, employment of hired labor, and type of education in

addition to many of the variables previously mentioned (Coulombe and McKay, 1996). In addition to including these variables, recent studies have disaggregated the data into regions and urban/rural areas (Kakwani, 1993; Coulombe and McKay, 1996; Grootaert, 1997; Datt and Jolliffe, 1999; Hamdok, 1999; Datt et al., 2000; Geda et al, 2001; Fofack, 2002).

In addition to various variables in measuring poverty, there are also various methods of calculating poverty. Factors associated with incidences of poverty have been identified through descriptive methods as well as analytical methods (Sen, 1980; Ali et al., 1994; Sahn and del Ninno, 1994; Ravallion, 1994; Ravallion 1998). The analytical studies analyzed the influence of aggregate factors as well as micro-level attributes of households on the distribution of rural poverty and nutrients intake (Datt et al, 2000; Wodon, 2000; Benson et al, 2002; Fofack , 2002).

## METHODOLOGY

The Food Energy Intake Method is used to calculate the total poverty line in this chapter. In this method, the poverty line is set by finding the consumption expenditure or income level at which food energy intake is just sufficient to meet pre-determined food energy requirements. Determining the food energy requirements can be difficult since requirements vary across individuals and over time for an individual. The basic idea is illustrated in Figure 1 which shows a calorie income function.

In Figure 1, the vertical axis is food energy intake, which is plotted against total income or expenditure on the horizontal axis. The function shows that as income (or expenditure) increases, food energy intake also rises, but more slowly. Thus, if  $k$  denotes food energy intake, with  $k = f(y)$ , then for a given minimum adequate level of calorie intake  $k_{min}$  (such as 2200 kcal per day), the poverty line is given by the following equation:

$$z = f^{-1}(k_{min}) \quad (\text{Equation 1})$$

This approach is parsimonious since it does not require any information about the prices of goods consumed. Let  $k$  denote the calories per adult equivalent for the household and let  $x$  the total household expenditure. Then, the cost of calories function can be represented by:

$$\ln x = a + b k \quad (\text{Equation 2})$$



Let the minimum calorie requirements be set at 2200 kcal per day. Then, the poverty line is given by:

$$z = \exp(a + b L) \quad (\text{Equation 3})$$

where,  $z$  denotes the cost of buying the minimum calorie intake  $L$  (which is assumed to be 2200 kcal per adult equivalent). Estimating equation (1) using ordinary or weighted least squares, one can determine the relationship between  $x$  and  $k$  (Babu and Sanyal, unpublished).

Table 4 presents the summary statistics and poverty measures for Kazakhstan derived from the Food Energy Intake Method. The total poverty line in Kazakhstan is 154.93 tenge per day or US\$2.30. Poverty measures derived on the basis of this poverty line indicate that 48.07 percent of Kazakh households are poor; the aggregate income gap ( $G$ ) is 54523.57 tenge per day; the Poverty Gap ( $PG$ ) is 0.176403, and the Poverty Gap Squared ( $PG^2$ ) is 0.0881787.

Table 4: Poverty Measures for Kazakhstan

Measure	Poverty Line
Poverty Line (tenge/person/day)*	154.93
Headcount ratio (H)	48.07%
Aggregate income gap (G) (tenge per day)**	-54523.57*
Poverty Gap (PG)	0.176403
Squared Poverty Gap (P <sup>2</sup> )	0.0881787

\*\* US\$ 1 = 67.30 tenge

\*\*\* Sample Size: 1995 Households

## DETERMINANTS OF KAZAKHSTAN'S POVERTY

Using the poverty lines identified in the preceding section, households are either classified as poor or non-poor. The probability that a household cannot afford its basic needs is conditional on several socio-economic factors such as education, land holding size, and age of household head. To estimate the relationship between these factors and the non-normal distribution of the chance of being poor a logit model was used. The relationship between the binary status variable ( $S_i$ ) and its determinants ( $Q_i$ ) is specified as:

$$S_i = \beta' Q_i + v_i \quad (4)$$

$$S_i = 1 \text{ for } x_i \leq Z, i = 1, \dots, N$$

= 0 otherwise

$(Q_i)$  is a vector of explanatory variables and  $\beta$  is the vector of respective parameters.

In this study, the explanatory variables are livestock value; land holding size; household size; dependency ratio; income source; age and education of household head, market access, residency, and financial support from family members. The logit procedure computes a maximum likelihood estimator (MLE) of  $\beta$  given the non-linear probability distribution of the random error  $v$ .

The determinants of poverty have been analyzed by classifying households as poor or non-poor according to the total poverty line derived earlier. The results are given in table 5. The estimated logit model shows that the education level and age of the household head have significant negative effects on poverty. Significant positive relationships exist between household poverty level and household size as well as household poverty level and residency of the family – rural or urban. This model captures some of the poverty determinants in Kazakhstan. Due to missing data, some variables such as access to health care and communal farms were not included, which could explain the lower  $R^2$ . Another explanation is that the data is not capturing the effects of universal health care, education, and housing.

Table 5: Logit Parameters of the Probability of Being Poor in Kazakhstan (Z-154.93)

Variable	Parameter Value	Significance
Constant	-.759	.056
Livestock value	-.001	.430
Land holding size	-.001	.485
Household size	.685	.000
Dependency ratio	.357	.071
Source of income	.169	.376
Age of household head	-.011	.014
Education/training level	-.136	.000
Family loan	.117	.333
Residency (Rural vs. Urban)	.385	.001
Access to market	.000	.886

*Tenge per person per day*

## POLICY IMPLICATIONS

The previous results increase our understanding of the determinants of Kazakhstan's poverty, which highlights several policy opportunities to eliminate poverty and food insecurity in Kazakhstan. One policy option is to ensure education opportunities are available for the upcoming generation of workers and incentive programs for attending primary and secondary education programs may be needed to ensure that children are attending school. Another education option is to set policies that provide and encourages continuing education for adult members of households in order for the head of the household and other working adults to improve the efficiency and output. The results suggest that those living in rural areas are more likely to be poor than those living in urban areas, with this in mind several policy option could be recommended. Policies that encourage farmers to diversify their agricultural activities, providing training that will support this diversification, and giving access to credit to purchase necessary inputs for this diversification could help those living in rural areas. . To maximize the benefits from increased agriculture diversification policy changes are needed that remove distortion from domestic markets. Furthermore, policies that encouraging non-farm agriculture employment through the generation of agribusiness and processing facilities would provide alternative sources of income for those living in rural areas. However, for these enterprises to be successful and for the poor to benefit from these new sources of income, the skill of the poor need to be strengthened, infrastructure for transporting agriculture process goods need to be maintained, and trade policies and

procedures need to be established that meets regional and international standards.

## CONCLUSION

This chapter analyzed the recent data on poverty, food security, and nutrition from Kazakhstan to provide an overview of the problem and to identify policy and analysis needs. Several conclusions specific to Kazakhstan and general to other Central Asian countries emerge from this analysis.

Although much progress has been made in moving toward a market economy and in implementing land reforms to increase the food security of individual rural households, the process is not yet complete. Land markets are not yet functional and the development of the financial sector remains in its infancy. The domestic market reforms to increase food production have also been slow. Food sector reforms, particularly the removal of school and preschool nutrition programs and the elimination of food subsidies, have increased the vulnerability of poor households to food insecurity and malnutrition. Furthermore, poor trading arrangements between the Central Asian Republics has resulted in the cease of food trade; therefore, food self-sufficiency has become a major food security objective of these countries.

Major strategies to improve the welfare of Central Asia will require further deepening of the reform process to improve the functioning of markets for inputs, outputs, labor, and credit. Encouraging the diversification of agricultural goods. Developing the private sector in the product and financial markets is essential. Improving productivity-enhancing investments in agriculture and food production is important to meet the food self-sufficiency goals. Efforts to develop a regional trade arrangement for food commodities are urgently needed to improve the sustainable use of natural resources. Food security and nutrition programs, and policies that will protect the poor in the short-run are required to preserve the quality of human capital and the investment in long-run economic growth. Finally, increasing the investment in agricultural research is needed.

Designing and implementing these strategies will require information-based policymaking. To this end, not only is it necessary to increase the capacity for data generation, processing, and analysis of the various levels of the government, a new comprehensive LSMS needs to be undertaken to analyze the progress made since 1996 and to better understand the new challenges facing Kazakhstan. The importance of policy dialogue and debate within and among the countries in achieving food security and reducing poverty in Central Asia cannot be overemphasized.

## REFERENCES

- Ahluwalia MS. 1978. Rural Poverty and Agricultural Performance in India. *Journal of Development Studies* 14: 298-323.
- Ali S, El-Laithy H, Hamza A. 1994. *Food Policy Reform in Egypt: Its Impact on the poor*. Research Brief 1. International Food Policy Research Institute, Washington, D.C.
- Babu, Suresh Chandra and Prabuddha Sanyal. Food security, poverty, and nutrition policy analysis: a manual on statistical methods and policy applications. unpublished.
- Baydildina, Adilya, Aynur Alishinbay, and Mamshuk Bayetova. 2000. Policy reforms in Kazakhstan and their Implications for Policy Research. In *Food Policy Reform in Central Asia: Setting the Research Priorities*, Babu, S. and Tashmatov, A. Washington, D.C.: International Food Policy Research Institute.
- Benson T, Kaphuka J, Kanyanda S, Chinula R. 2002. *Malawi: An Atlas of Social Statistics*. International Food Policy Research Institute and National Statistical Office, Government of Malawi, Washington, D.C. and Malawi.
- Coulombe H, McKay A. 1996. Modeling the Determinants of Poverty in Mauritania. *World Development* 24: 1015-1031.
- Datt G, Jolliffe D. 1999. *Determinants of Poverty in Egypt, 1997*. FCND Discussion Paper No. 75. International Food Policy Research Institute, Washington, D.C.
- Datt G, Simler K, Mukherjee S, Dava G. 2000. *Determinants of Poverty in Mozambique, 1996-97*. FCND Discussion Paper. No. 78. International Food Policy Research Institute, Washington, D.C.
- Food and Agriculture Organization of the United Nations. 2002. FAOSTAT. Rome: FAO.
- Fofack, H. 2002. The Nature and Dynamics of Poverty Determinants in Burkina Faso in the 1990s. Poverty Working Paper 2847. World Bank, Washington, D.C.  
<[http://econ.worldbank.org/files/15281\\_wps2847.pdf](http://econ.worldbank.org/files/15281_wps2847.pdf)>
- Geda, A, de Jong N, Mwabu G, Kimenyi M. 2001. Determinant of Poverty in Kenya: A Household Level Analysis. Working Paper. Institute of Social Studies, The Netherlands.
- GOSKOMSTAT and Institute Berlin for Statistical Data Analysis. 1996. Living Standard Measurement Survey - Kazakhstan 1996. GOSKOMSTAT and Institute Berlin for Statistical Data Analysis, Almaty and Berlin.
- Green D, Bauer J. 1998. The Costs of Transition in Central Asia. *Journal of Asian Economics* 9: 345-364.

- Greer J, Thorbecke E. 1986. A Methodology for Measuring Food Poverty Applied to Kenya. *Journal of Development Economics* 24: 59-74.
- Grootaert C. 1997. The Determinants of Poverty in Côte d'Ivoire. *Journal of African Economies* 6:169-196.
- Hamdok AA. 1999. A Poverty Assessment Exercise in Zimbabwe. *African Development Review* 11: 290-306.
- Kakwani N. 1993. Measuring Poverty: Definition and Significance Test with Application to Côte d'Ivoire. In *Including the Poor: Proceedings of a Symposium Organized by the World Bank and the International Food Policy Research Institute*, Lipton M (ed), and Gaag J (ed.) International Bank for Reconstruction and Development, Washington D.C.
- Khan AR, Griffin K. 1982. *Poverty and Landless in Rural Asia*. International Labour Organization, Geneva.
- Okojie, CEE. 2002. Gender and Education as Determinants of Household Poverty in Nigeria. Discussion Paper No. 2002/37. World Institute for Development Economics Research, Finland. <<http://www.wider.unu.edu/publications/dps/dps2002/dp2002-37.pdf>> (Accessed 9/29/2002)
- Pandya-Lorch R, Rosegrant M. 2000. Prospects for Food Demand and Supply in Central Asia. *Food Policy* 25 (6): 637-646.
- Ravallion M. 1998. *Poverty Lines in Theory and Practice*. LSMS Working Paper No. 133. World Bank, Washington, D.C.
- \_\_\_\_\_. 1994. *Poverty Comparisons*. Harwood Academic Publishers: Chur, Switzerland
- Sadeghi, JV, Toodehroosta M, Amini, A. 2002. Determinants of Poverty in Rural Areas: Case of Savejbolagh Farmers in Iran. Working Paper 0112. World Bank, Washington, D.C.. <<http://info.worldbank.org/etools/docs/pa2-jav.pdf>> (Accessed 9/29/2002)
- Sahn D, del Ninno C. 1994. *Living Standards and the Determinants of Poverty and Income Distribution in Maputo, Mozambique*. Working Paper 56. Cornell Food and Nutrition Policy Program, Ithaca, New York.
- Saith A. 1981. Production, Prices, and Poverty in India. *Journal of Development Studies* 17: 178-192.
- Sen AK. 1980. *Levels of Poverty: Policy and Change*. Staff Working Paper No. 401. World Bank, Washington, D.C.
- \_\_\_\_\_. 1976. Poverty: An Ordinal Approach to Measurement. *Econometrica* 43: 153-169.
- Srinivasan TN. 1988. *Undernutrition: Concepts, Measurements and Policy Implications*. Oxford University Press, Oxford, United Kingdom.

- Suleimenov M. 2000. Trends in feed and livestock production during the transition period in three Central Asian countries. In *Food Policy Reforms in Central Asia: Setting the Research Priorities*, Suresh Babu (ed.) and Alisher Tashmatov (ed.). International Food Policy Research Institute, Washington, D.C.
- Suleimenov M, Oram P. 2000. Trends in Feed, Livestock Production, and Rangelands During the Transition Period in Three Central Asian Countries. *Food Policy* 25 (6): 681-700.
- United Nations (UNICEF). 2002. Kazakhstan. <[http://www.unicef.org/statis/Country\\_1Page89.html](http://www.unicef.org/statis/Country_1Page89.html)> Updated February 2002 (Accessed January 2003).
- Wodon, QT. 2000. Microdeterminants of Consumption, Poverty, Growth, and Inequality in Bangladesh. *Applied Economics* 32: 1337-1352.
- World Bank. 1992. *Foods and Agricultural Policy Reforms in the Former USSR: an Agenda for the Transition*. World Bank, Washington, D.C.

***PART V***

***FUTURE CHALLENGES AND CONCLUSIONS***



## CHAPTER 22

# **INFORMATION AND COMMUNICATION TECHNOLOGY IN REFORMING NATIONAL AGRICULTURAL SYSTEMS IN CENTRAL ASIAN COUNTRIES: THE CASE OF GEORGIA<sup>1</sup>**

Tugrul Temel

*Food and Agriculture Organization, Rome*

Ajit Maru

*Hyderabad University, India*

Rainer Krell

*Food and Agriculture Organization, Rome*

## **INTRODUCTION**

Role of Information and Communication Technologies (ICT) in enabling technological, organizational, institutional and policy innovations has been highly recognized in developing countries. Yet, in transition economies such as Central Asian countries, the development and use of ICT in research and innovation systems remain unexploited. In poorer developing countries such as South Asia and Sub-Saharan African ICT has shown to have contributed to fostering development by increasing the access of information and knowledge to the decision-makers and end-users. In this chapter we present a case study of the role of ICT in Georgian agricultural sector in promoting technology generation, adoption and institutional and policy reforms.

It seeks to assess the needs of national agricultural research institutions and their relevant partners for innovative, appropriate, and efficient information and communication systems and linkages in Georgia.

Considering ICT as radio, television, printing press, telephony, fax, computers, and the internet, the chapter specifically aims:

- To assess the availability of local, locally adapted, and relevant international information (available electronically or in hardcopy) necessary for the development of improved agriculture research capacity, efficiency, and appropriateness in Georgia;
- To describe the strengths, potentials, and constraints of the present information and communication capacities (including human resources, knowledge and infrastructure, and relevant communication relationships) and policies and strategies in research and research knowledge transfer (content development, training/education, feedback with society);
- To compile an inventory of existing and preferred communication tools, channels, and actors; and
- To identify potential partners for the development of solutions, including, where possible, already active or interested donors.

A brief overview of ICT situation as they relate to the agricultural development and policy is given in the next section. A conceptual framework of ICT applications for agricultural research and policy reforms is given in section three. Section four presents an assessment of ICT in the agricultural sector in Georgia. Results of the needs assessment exercise and the discussions are presented in section five. Concluding remarks form the last section.

## **AN OVERVIEW OF THE ICT SITUATION IN GEORGIAN AGRICULTURE**

### **Institutional Developments**

In order to understand the role of ICT in enabling agricultural and policy reforms it may be useful to review the current ICT situation in Georgia. In Decree No. 456, the President of Georgia stated that ICT is a critical tool to promote and support future economic development, and that success strongly depends on the establishment of ICT infrastructure and its use within a relevant content. Starting from early 1999, the Government adopted various laws and established relevant governing bodies in order to create an environment conducive to the development and implementation of a national ICT strategy. At present, regulations that concern the liberalization of the telecommunication sector, the competitiveness of ICT trade, foreign direct

investment in ICT, and intellectual property rights are underway in order to pave the way for such environment to develop (GSDIT, 2002).

## **ICT Infrastructure**

The ICT infrastructure of Georgia consists of a radio and television network, fixed line and cellular telephony, internet services and wide and local area computer networks. Georgia has a relatively state-of-art radio and television coverage of the whole country. However, it inherited outdated and costly-to-maintain fixed telephony networks. Telephone penetration is relatively more adequate, but services are slow and maintenance is poor. The waiting period for the installment of a telephone line varies from a month to half a year. Twenty-six percent of telephone lines experience technical problems, and, on average, it takes 2 days to fix a problem. Combined with high international tariffs, these networks discourage Internet Service Providers (ISP) from establishing links with high bandwidths or dedicated Wide Area Networks (WAN). Local Area Networks (LAN) in organizations are emerging at slow pace.

There are no local firms producing computer peripherals (hardware and software). Personal computer equipment is most often imported from Asia. All the existing international companies are in sales business only, with some 32 hardware and/or software sales units. A large majority of people cannot afford hardware and software purchase. About 40 percent of private businesses are also having difficulties to purchase the needed hardware. Accounting and financial software are the only ones available in local language. Almost all other software is imported and none is locally adapted.

Content, an essential component of the national ICT strategy, is developing rapidly. In 2000, there were between 200-250 resident domains in Georgian language and 60 non-resident domains. More than 250 web servers and 4000 hosts were operating in Georgia. At present, the number of domains is 1129. Over 40 online Georgian newspapers are hosted on the web at <[www.opentext.org.ge](http://www.opentext.org.ge)>. A large majority are electronic versions of the leading Georgian newspapers, supporting only Georgian language. Furthermore, the media in Georgia is developing rapidly as well, including 17 radio stations with 2.4 million listeners, 45 television stations with 3.6 million audience, and 124 newspapers with around 170 thousand readers.

The Georgian Internet Sector (GeNet) is covered by 12 Internet providers. More than 70 percent of internet connections are provided by 4 major companies: 52 percent by SANET ([www.sanet.ge](http://www.sanet.ge)), 9 percent by Georgia-Online ([www.rustaviz.com](http://www.rustaviz.com)), 8 percent by ICN ([www.caucasus.net](http://www.caucasus.net)), and 8 percent Global-1 ([www.global-erty.net](http://www.global-erty.net)). Business, trade, companies, and services represent 42 percent, culture and education 20 percent, news 18

percent, sports and entertainment 14 percent, and others 6 percent of the content.

In the 1970s and 1980s, publications related to agro-information accounted for more than 5 percent of all the scientific publications in Georgia. This was over 500 publications per annum, including monographs, articles, patent specifications, reports, and dissertations. In the 1990s, this quantity fell to 50 indicating the decline of public agricultural information in Georgia.

At present, Georgia has about 150,000 computers for a population of 5.4 million, 90 percent of them have Pentium, and 8 percent have 486 and 386 processors. The stock of computers across sectors shows that the education sector ranks top with 9,000 computers, followed by the banking sector with 4,800, and the health sector with 1,050 computers. The stock of computers, the availability of internet services, networks, and web sites across the Ministries and relevant government departments indicate that the Ministry of Foreign Affairs, the Ministry of Interior, the Ministry of Labor, Social Security and Health, the Ministry of Economics, Industry and Trade, and the Ministry of State Property Management rank high compared with other ministries, though the number of computers in each ministry is not high (Ministry of Economy, Georgia, 2000).

## ICT Use

Internet availability, mostly through dial up connections, is low. To date, regular internet users amount to approximately 3.5 percent of the population. Public internet access is provided in some libraries, internet-cafes, and internet clubs. With an average monthly income of \$37, internet is not affordable for the majority of people. Access costs between \$0.30 and \$1.30 per hour. For small businesses, internet is also not affordable.

Almost all the government offices and most of the businesses (especially large ones) have some computers (though older generation computers). In the education sector, the situation is poor, with an average 0.3 computer per school. Of 3,464 schools, only 231 have computer labs with a total 1,059 computers. There is no LAN nor WAN in these schools. Full computer access in universities is usually restricted to staff.

Television is the most popular means of broadcast communications. Phones and faxes are commonly used by almost all the businesses. Ninety percent of accounting operations in government and business are carried out by computers. Typically, a business contact is established and maintained through personal contacts. E-mails are used to communicate with foreign partners.

## **ICT Human Resources**

Computer training and education in universities have started only recently. Tbilisi State University and Tbilisi Technical University offer courses in computer programming and informatics. Several private schools, donors, and commercial organizations also offer computer training and education. Mostly located in Tbilisi, there are about 30 organizations specialized in computer services, training, and education. In universities, teachers' computer literacy is elementary.

Georgia enjoys the highest population share of people with higher education degrees, compared to the levels in other countries of the former Soviet Union. Therefore, it is more likely for ICT education to rank high in every level of schooling. Currently, demand for labor with ICT skills is high in the health, finance, banking, and accounting sectors.

## **CONCEPTUAL FRAMEWORK FOR ASSESSING ICT IN AGRICULTURAL SECTOR**

In this chapter, ICT for agriculture is considered as radio, television, printing press, telephony, fax, computers and the Internet. The framework introduced in this section is used to assess the status of ICT infrastructure and application in a sample of 9 agricultural policy, research, education, and development organizations in Georgia. The assessment is done at the Organization and the National Agricultural Research System (NARS) levels.

### **Organization Level**

At the Organization level, five inter-connected layers are discussed, comprising infrastructure, content, applications, services, and management of ICT.

1. The ICT infrastructure layer includes hardware, software, skills, and connectivity. This is the layer that supports ICT applications and services of the institution.
2. The ICT content layer concerns the generation, dissemination, and use of relevant resources for ICT applications. This layer is essential for the applications and services layers to develop.
3. The ICT applications layer includes 7 basic systems that use ICTs to process data and information. These systems are:
  - Scientific and Technical Information Management System (STIMS) concerns the management of document acquisition and access. STIMS deals with the management of such

activities as cataloguing, circulation of hard copies, interlibrary loans, web-based on-line search, and full text access to scientific and technical documents.

- Research Data Management System (RDMS) concerns the organization and processing of data and information from research experiments by using either personal or networked computers or organized databases.
  - Research Management Information System (RMIS) deals with access, availability, and cost of resources for research programs, projects, and outputs.
  - Education Information System (EIS) covers course ware for on-campus or off-campus and distance education activities through formal, non-formal and open methods.
  - Extension and Outreach Information System (EOIS) deals with the provision of agricultural information to a variety of users outside the organization concerned. The information includes weather, market prices, electronic pamphlets, brochures, Frequently Asked Questions, catalogues of technologies, directories of experts, models, knowledge based systems and decision support systems. It would also include the public relations function of the organization such as a website.
  - Organization Management and Administrative Information System (OMAS) concerns the management of personnel and finance information through personnel databases, accounting and auditing systems, stores, and inventory systems.
  - Messaging and Communication System (MCS) deals with the connectivity among individuals, units and/or departments within the Institute and with the outside world. The ICT use for connectivity would include telephones, faxes, LAN, and Intranets.
4. The ICT services layer includes services derived from the 7 basic systems of the applications layer.
- Services from STIMS - on-line access to search electronic catalogues, selected dissemination of information (SDI), current awareness services (CAS), and access to on-line full text document within the Institute library or information centre.  
Services from RDMS - access to databases or to a system that connects databases and analysis of the data using analytical software.
  - Services from RMIS – research managers’ access to information on resources used for research as per program, project and output.

- Services from EIS - access to on-line courseware, course registration and schedules of educational resources for on- and off-campus, off-line and on-line courses.
  - Services from EOIS - access to on-line documents, current information such as weather, catalogues, indexes, directories of Institutes, experts, projects, project outputs, Frequently Asked Questions, decision support systems, models, information brokers, and knowledge based systems.
  - Services from OMAIS - access to on-line receipts and payments, applications for counting, inventory, auditing and personnel management, online personal and administrative help desks.
  - Services from MCS - supporting linkages and interactions between departments and/or persons in a common project cycle.
5. The ICT management layer relates to (i) the establishment, maintenance, and governance of ICT infrastructure, content, application, and services, and (ii) ICT use for linking units and/or departments within-organization to facilitate a structured flow of data and information.

## **National Agricultural Research System (NARS)**

ICT use at the NARS level can also be evaluated at infrastructure, content, application, services, and management layers by examining networks that use ICT to share and exchange data and information.

At the infrastructure layer, ICT that promotes NARS connectivity is essential. Connectivity can be established by a common directory for the network. This directory would include telephone and fax connections, E-Mail addresses and domains, Websites, FTP sites, a search engine for NARS information on electronic documents, and Wide Area Network.

Shareable ICT content should reflect the needs for successfully implementing agricultural policies and strategies and accomplishing priorities set for agricultural research and development. This layer is a gradient ranging from no ICT supporting and promoting policies and research priorities to effective use of ICT in agricultural research and development.

At the application layer, networks can be established for each of the 7 systems described above. For example, agricultural libraries can be linked through a common WAN or through independent Internet access. This would

need a common networked library application with a common (union) catalogue among all libraries and have the ability to exchange through library loans hard copy texts or electronic documents. The network would also need to have a consortium, as an organization, to share acquisition costs, documents, information and/or skills.

At the service layer, the goal is to organize and manage NARS in such a way to produce services that are of interest to all the actors in the system; for example, services derived from a virtual scientific and technical information library.

The management layer concerns the establishment, maintenance, and governance at the NARS level of ICT infrastructure, content, application, and services. This layer also deals with ICT use for linking actors in the NARS to facilitate a structured flow of data and information.

## **ASSESSMENT OF THE ICT SITUATION IN AGRICULTURE**

### **At the Organization Level**

Of the 9 organizations visited for the assessment of the ICT in the agriculture sector 7 belong to the public sector, one to the private sector, and one to NGO. Figure 2 shows the distribution of these organizations. The ICT situation in only two organization is presented here to exemplify the situation.



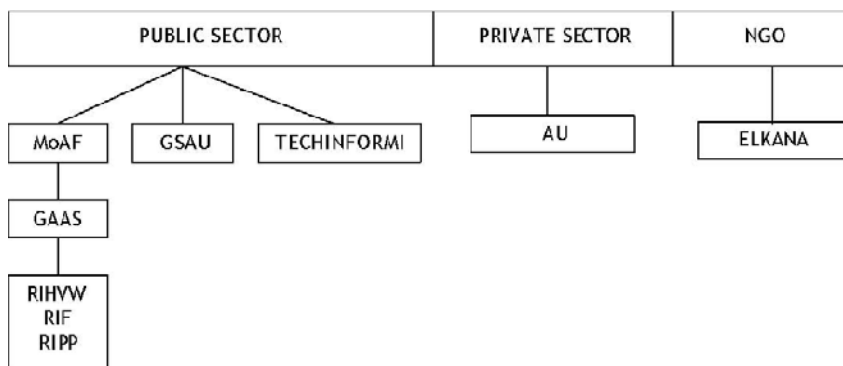


Figure 1. The Surveyed Organizations

### Ministry of Agriculture and Food

The Ministry of Agriculture and Food (MoAF) located in Tbilisi consists of about 61 departments. Almost all the departments in the MoAF operate independent of each other for ICT acquisition and use. The ICT inventory of the MoAF was made by visits to selected departments.

Computers and peripherals (printers, CD-ROM drives and scanners) are used in individual departments. The exact numbers of personal computers in the MoAF was not available. Some departments that use computers have their independent databases with a minimal communication or exchange of information across the departments. There is no central data storage facility or process. Staff’s access is limited because of senior officers’ control over the use of these tools or staff’s having poor technical skills. Telephones are available but the number of lines is limited. All ICT hardware and software used are imported and used without any local adaptation. Internet service is available but in most cases lack of foreign language skills especially English is the main obstacle for its effective use. Internet connectivity is through telephone and local area network. There are many operational problems as external technical support though available is of poor quality.

Information sharing and exchange between the departments within the MoAF has been weak. A LAN exists among the top administrative bodies in the MoAF. A plan for establishment of an Intranet is under way but without an information-sharing culture within the Ministry its usefulness may be limited. The internet connectivity is through a leased line and/or dial up connections. Web access is also available in some departments. In messaging and communication, E-mail use is made in departments that have an internet connected PC; telephone and fax (local, national, and international) facilities are more commonly used in communications.

There is a telecommunications network within the Ministry but it does not provide connection to every department. There is no telecommunications available for contacting regional departments. There is no direct electronic access to Ministry databases; however, several departments have access to international databases such those of FAO. In general, personal contacts, communications and face-to-face meetings are used to establish linkages within and between the Ministry and its partners.

There is no centralized source collection of scientific and technical information in the Ministry. Each department has its own collection. USAID has a project aimed at establishing a centralized information system. Currently, access to departmental information sources is through department officials. There is no standardized protocol for its access. At present, public ministerial staff's access to scientific information in the Ministry is not possible. Catalogues of documents are not computerized across the Ministry but some departments might have electronic catalogues of available documents. Around 60 percent of staff are qualified to use PCs and can manage access to information resources through PCs. Wherever access to Internet is available, it is possible to access and search international databases but lack of foreign language skills limits this use. The Ministry has a website <<http://www.maf.ge>>.

The Ministry library does not have any computer facilities. The Ministry does not also have any official arrangement with international publishers for the dissemination of research results or access to scientific and technical literature but several individual departments might have this arrangement. There are no standard procedures such as CAS or SDI services though there is a special department responsible for such activities. The department is not functioning at present.

The library is not properly functional and information flow from the Ministry to and from its regional offices is poorly organized. All information exchange is through paper copies and ICTs are not used in this exchange. There is no central information acquisition service at the Ministry. However, there are some departments financed through various grants possess some information. Since the culture of information and exchange with other departments is non-existent, scientific and technical information flow is poor. The scientists' poor foreign language skills and poor computer awareness also constrain information exchange and sharing within and outside Georgia.

Management information is available in hard copies in individual departments. Information on basic cost/benefit analyses, personnel information like CVs, and projected and actual expenditures in most cases is available only in hard copies. There is no standardized procedure to access this information. Personal contacts are the most common means for exchanging information between the departments.

In conducting research, computers and software, including MS Excel and MS Access are used but inefficiently due to lack of training. In general, only e-mails, faxes and telephones are used in project execution. Joint projects

developed with international organizations such as USAID, TACIS, and GTZ etc. are based in Tbilisi. ICT is especially used in coordination and implementation of these project activities.

From interviews with officials of some departments, it was apparent that their need for improved ICT infrastructure and its use especially in the establishment of a national agricultural information system was foremost.

## **The National Agricultural Research Systems**

At the National Agricultural Research System (NARS) level, ICT infrastructure is vital in facilitating and promoting the information exchange and sharing across the Institutions in NARS. By connecting the Institutions, this infrastructure further becomes instrumental in the speedy and timely generation, dissemination, and application of information.

Inter-Institution information exchange through ICT hardly takes place in Georgia. The main limiting factors behind this are poor electronic information content, the lack of necessary tools available, and the scarcity of skilled staff. Local demand for new scientific information is driven exclusively by international organizations, except for the Research Institute for Scientific and Technical Information. Most important of all, understanding of the system processes and their benefits at the institute level is poor among the actors in the NARS (Morganov and Zvidema, 2001).

Scientific and technical information collections available in libraries and/or information departments of the research institutes under the Academy and the MoAF are outdated. Most of these collections are in hard copies; rarely, some are available electronically but quality and access are poor. The libraries operate poorly, and there is no procedure for inter-library loans. Face-to-face meetings are the most commonly used means for accessing the information concerned. Relations with international libraries are not established due mainly to the lack of Georgian language content, staff with foreign language skills, and funding. But, international organizations such as the World Bank, FAO, USAID, and CGIAR centers sometimes become instrumental in accessing new information collections. Research Institute for Scientific and Technical Information has a reasonable collection of scientific and technical information, most of which are available electronically. However, there is no procedure to share and exchange these collections with other Institutions in the NARS. The Biological Farmers Association (ELKANA) has also some collections available electronically, but again exchanging them with others is not possible.

Research data have not been organized electronically for sharing across research institutes. ICT infrastructure is underdeveloped to organize and standardize the existing research data. Among the key constraints are the lack of proper hardware and software, the lack of skilled human resources,

and the lack of research priorities. Existing records are available in hard copies but they are not in standard formats. Old administrative procedures are still applied in facilitating the flow of such data between institutes or between departments within an institute. Data management, such as standardization, storage, transfer, and use, has not yet received adequate attention due to the lack of electronic research data. Again, research data that promise immediate use in joint project implementation are organized electronically by international organizations.

Organization management information, including basic cost/benefit data, human resources, projected and actual project expenditures, and physical resources, is also available largely in hard copy precluding its sharing or detailed analysis at the NARS level. Departments have their own databases, which need to be standardized for effective use in agricultural policy making. More importantly, limited information exchange between the Ministry of Agriculture and Food and the Academy of Agricultural Sciences diminishes the contribution of research to the policy design and vice versa.

Institutional linkages with farmers through an agricultural extension are virtually non-existent. Linkages, therefore, through radio, television and print medium are also weak. The existing linkages between foreign partners and research institutes are based on joint project development and implementation. Most recently, the World Bank and the Horticulture, Viticulture, and Winemaking Research Institute have completed preparations for a joint project aimed at the rehabilitation of the Institute, within a much bigger initiative to reform the Georgian agricultural sector. Similarly, ICARDA and the Institute of Farming are currently collaborating to prepare an inventory of plan genetic resources in Georgia. Linkages are also maintained with other international organizations, including USAID, TACIS, FAO, and universities and research centers in Israel, Turkey, Italy, USA, and Russia. Connectivity between national and international organizations is maintained by telephone, fax, and e-mail services. Electronic databases are rarely utilized in information exchange between the collaborating organizations, although databases of many international organizations are in public domain. These linkages facilitate the flow of resources from international to national organizations, including ICT hardware and software, funding, and information and knowledge.

The State Agrarian University has some relations with donor organizations, international research institutes, and foreign universities. These relations concern the organization of training programs and the development of project proposals. Contacts are maintained by free e-mail services, such as "Hotmail" and "Yahoo Mail". Usually, the University receives computers and funding from international organizations and donors.

The Biological Farmers' Association maintains relations with national and international research networks, using telephones, web, emails, and CDs. Its activities and ICT infrastructure are funded through grants and project acquisitions from international organizations, TACIS, DFID, Dutch-Cordaid,

Swiss Agency for Development and Cooperation, UNDP, and USAID-supported organizations. In establishing linkages with international organizations, ELKANA usually relies on personal contacts. It also interacts with national agricultural research institutes, universities, and the Ministry of Agriculture and Food to support and promote biological farming through consultancy and extension services. Workshops, seminars, and newsletters are the commonly used linkage mechanisms. ICT tools are used adequately in developing joint research projects, including telephone, web, and e-mail. The Association's activities are based on well-developed content.

The Research Institute has electronic connection to FAO, the WB, and TACIS, and in the context of joint project implementation it receives hardware and software applications, computers, and funding from them.

### **Implication of ICT Needs Assessment for Agricultural and Policy Reforms**

All the institutions that were contacted for the study indicated that they needed improved telecommunication and more computers with access to the Internet. The reasons indicated for this need were to establish research partnerships with regional, national, and international organizations, promote agricultural extension services, generate and access new agricultural information and knowledge. Among the areas identified for immediate use included access to on-line full text documents, electronic journals, national agricultural statistics, and national and international agricultural information.

Searching for international/regional partners for research collaboration and providing information to partners and supporting training programs, extension services, and agriculture clients were the key reasons for seeking information through ICT use by the Georgian State Agrarian University. Among the most important reasons for the Biological Farmers' Association to demand ICTs are on-line bibliographic searchable indexes and catalogues, on-line full text documents, electronic journals, and national agricultural statistics.

Information gathered by the present study clearly indicates that the Ministry of Agriculture and Food needs to improve ICT use in agricultural research and dissemination of information, broad agricultural development objectives such as poverty alleviation, food security, environmental protection, better health and education, etc, and for collaborative research. Specific areas for immediate use, according to the Ministry, were also on-line bibliographic indexes and catalogues with search facilities, national agricultural statistics, on-line full text documents, and electronic journals.

The use of ICT in agricultural research and development would depend on how fast the telecommunications infrastructure in Georgia develops. At present, this infrastructure appears to be very poor beyond Tbilisi

and in connecting various Institutes and organizations. It would also depend on how the national agricultural development priorities are set and a strategy developed. This would take some time to emerge.

There is potential for radio and television use for agricultural extension and providing farmers with agricultural information. The National infrastructure is quite developed with quality skills available for Radio and Television broadcasting. However, without institutional structures for generating relevant and useful agricultural content, this capacity cannot be put in use. Specific skills for agricultural journalism that uses audio, video and print medium may be required. Development agencies may be able to contribute significantly in this area of capacity building.

Under the current policy and ICT infrastructure in Georgia, it would be appropriate to focus in investing resources in a targeted manner to improve ICT use in one or more sub-sectors of agriculture, such as horticulture, viticulture and wine-making, so that it has an impact on agricultural development than in initiating a sector-wide program for improving ICT use and information management. This approach would require building the necessary ICT infrastructure, including hardware, software, skills, and telephony and Internet connectivity, in the Institutes related to the prioritized sub-sector, establishing an information center for the sub-sector, and creating organizational and individual capacity to use information effectively for improving the productivity of the sub-sector.

From this experience, wider ICT use can spread to the entire agricultural sector. Presently, the poor status of the entire ICT infrastructure in Georgia is a major constraint on rapid improvement even with major financial and human capital investment. Because of this, development should start with building content and equipping the Institutions in the targeted sub-sector with appropriate ICT needed to generate and access this content. Very rapid human capacity building would be required for this endeavor.

## CONCLUSIONS

Almost all the institutions covered by the study reported in this chapter indicated that they needed improved telecommunication and more computers with access to the Internet. The reasons indicated for this need were to establish research partnerships with regional, national, and international organizations, promote agricultural extension services, generate and access new agricultural information and knowledge.

The lack of national networking and cooperation between local and international organizations is perceived by all the Institutes as the two key constraints to be addressed immediately. These constraints, in fact, can be interpreted as a manifestation of a desire for the growth of information sharing culture. Such behavioral change is necessary if networks of experts

and organizations and partnerships between public and private organizations are to be developed. Currently, inter-organization information exchange hardly takes place due to lack of content, scarcity of skilled labor, and absence of interface organizations that would facilitate organizational linkages. This, in fact, qualifies international organizations and NGOs (domestic and/or international) to be active in this area. Other important constraints from the same table include poor language skills, scarcity of computers, poor telecommunication facilities, lack of content and political will, low computer literacy, and low level and poor computerization in organizations (UNEC, 2002; and Temel et al., 2003).

For long-term agricultural development in Georgia, research and education institutions need to capitalize on the high level of general education and adapt it to the current needs of the ICT sector before it totally deteriorates or escapes the country.

Potential partners for developing solutions to ICT problems that hamper agricultural research capacity and research knowledge transfer lie within the Agricultural Innovation System (AIS). In our context the AIS can be defined as a group of public organizations, private firms, NGOs, consumers' organization, farmers' organizations, and external assistance agencies that jointly and/or individually contribute to the generation, dissemination, and use of improved or new agricultural information and knowledge for agricultural development (Temel, Janssen, Karimov, 2003).

The review of the literature on ICT infrastructure and application in Georgia, suggests that, to implement the national ICT strategy, there is the need for:

*Sectoral action plans:* A national ICT strategy has been formulated, and institutions are in progress for its implementation, indicating the Government's commitment at the policy level. However, there has not been significant progress as to the financing of the strategy for actions to be taken on the ground. The absence of sector-specific frameworks and action plans for the strategy to be truly implemented on the ground risks funding possibilities from donors and international organizations and discourages private sector investment in the ICT area.

*Skilled labor force:* Statistics pinpoints a serious scarcity in skilled labor force. It should be clear from the outset that without qualified human resources, no investment in the ICT area will follow, and besides, the existing arrangements with international companies for modernizing the telecommunication infrastructure are highly likely to fail. The task is one that bears benefits to all segments of the society; therefore, the public and private sectors need to cooperate toward a skilled labor force. Elements of such cooperation are emerging: higher education institutions offer courses on informatics and computer programming and private companies support training of their staff. The Government can further speed up the building of a skilled labor force by providing economic incentives to encourage private investment. Economic instruments, such as tax-exemption of ICT-related

education cost, should be utilized aggressively, if individual decisions regarding ICT are to be influenced.

*Compatible institutional arrangements:* Intellectual property rights and international and national trade regulations should go hand in hand. These are the two sides of the same coin: An effectively operating intellectual property system cannot bring investment in the ICT area if trade regulations are prohibitive; and similarly, effective trade regulations cannot invite private investment in ICT if the intellectual capital is not protected. Such interdependencies among policy instruments are poorly understood; therefore, policy and decision-making capacities in newly established government units need to be improved.

In spite of high expectations from the agro-industry sector as to its contribution to economic development, progress in ICT infrastructure and use of agricultural organizations has been limited due mainly to the absence of agricultural and policy reform directions and the continuing reforms of agricultural policy and research organizations. The current poor content is just a reflection of all these adversities, and it can, to a significant extent, be remedied by:

*Promoting partnerships or coalitions:* of public organizations, private firms, NGOs, consumers, farmers, and external assistance organizations around rural development goals, including improved food security and reduced poverty. At present, many of these organizations operate in isolated domains because critical areas where they can join forces have not been identified yet. ICT infrastructure and use should build on the areas to be determined.

*Exploiting complementarity between traditional and ICT infrastructure:* Unfortunately, it is an empirical regularity that traditional infrastructure in transportation, electricity, and telecommunication facilities in rural areas, in particular in areas where agricultural activities constitute the main source of living, has been usually underdeveloped. This makes ICT investment in these areas more costly than would otherwise be and increases the divide between the rural and urban sectors further. A very negligible development in ICT use in agriculture in Georgia can partly be attributed to the lack of such complementarities, which can be boosted by broad-based rural development activities.

*Promoting investment in human resource development:* It is not enough to put ICT hardware on the ground. It must have an appropriately trained work force to use it. State-of-the-art technologies alone are not enough to attract new businesses. It should be accompanied by work force development.

Agricultural and policy reforms among the Central Asian countries including Georgia, requires a sharing of information on the successes and failures of the reform process. Information sharing is also essential between the countries and institutions in Central Asia and those in other regions. Given the weak ICT infrastructure it becomes a major challenge for the institutions



to learn, innovate and adapt to new policies and practices. This has major implication for the nature and speed of policy reform process in the region. Along with improving human capacity increasing the capacity exchanging knowledge is important for the successful design and implementation of agricultural and policy reforms.

## REFERENCES

- Georgian State Department of Information Technology. 2002. The concept of bridging digital divides between Georgia and advanced countries. The E-readiness assessment of Georgia. Georgia. Tbilisi.
- Ministry of Economy of Georgia. 2000. Main results and prospects of economical functioning of Georgia for 1999. Tbilisi, Georgia.
- Morgounov, A., and Zuidema, L. 2001. The Legacy of the Soviet Agricultural Research System for the Republics of Central Asia and the Caucasus (ISNAR Research Report 20). The Netherlands, The Hague: ISNAR.
- Temel, T., Janssen, W., Karimov, F. 2003. Systems analysis by graph-theoretic techniques: Assessment of the agricultural innovations system of Azerbaijan. *Agricultural Systems*, 77(2), 91-116, 2003
- United Nations Economic Commission. 2002. Towards a knowledge-based economy: Country readiness assessment report, Georgia. New York, USA.

---

<sup>1</sup> This study draws on a joint FAO-ISNAR project entitled "ICT Infrastructure and Use in Agriculture: Agricultural Policy, Research, and Education Organizations in Georgia." The reader is referred to the following website for the original report, [http://www.fao.org/sd/dim\\_kn4/docs/kn4\\_040902d1\\_en.docentire](http://www.fao.org/sd/dim_kn4/docs/kn4_040902d1_en.docentire)

## CHAPTER 23

# STRENGTHENING INSTITUTIONAL CAPACITY FOR POLICY REFORMS IN CENTRAL ASIA

Suresh Chandra Babu

*International Food Policy Research Institute, USA*

Debdatta Sengupta,

*International Food Policy Research Institute, USA*

Alisher Tashmatov

*Center for Efficient Economic Policy, Uzbekistan*

## INTRODUCTION

The lack of adequate information on the impact of alternative policy options facing Central Asian decision makers has been a major constraint towards deepening economic and policy reforms in the region. This is particularly so in the agriculture sector where policy reforms continue to be externally designed and hence lack local ownership. The externally enforced policy reforms based on inadequate policy research and analysis that do not involve local researchers and conducted in consultation with local institutions may not be appropriate for the current policy environment that the Central Asian countries are facing. Deepening of the economics and policy reform and generating momentum to reorient the nature, approach, and sequence of policy reforms will require research based information and a better understanding of the policy reform process in Central Asian countries. These requirements are particularly conspicuous in the food, agriculture, and natural resource sectors. Strengthening the national institutional capacity for analyzing the impact of policy alternatives in the Central Asian region is

important so that policy reforms and the speed with which they are implemented are consistent with the objectives and the social and political realities of the individual countries in the region. Involving local policy research institutions and researchers for identifying critical issues and challenges, setting priorities among them for food, agriculture, and national resource policy research and analysis and implementing joint research studies are among several ways to build local institutional and human capacity and to increase ownership of policy reforms and their implementation.

In this chapter we examine major issues and challenges confronting Central Asian countries in developing their institutional and human capacity for designing, implementing, and evaluating various policy reforms in the food and agriculture sector. In order to share information on the capacity challenges in the Central Asian region and to generate opportunities to conduct policy research and outreach activities several rounds of policy dialogue have been held with an informal network of policy researchers and institutions in the Central Asian region over the past decade (Babu and Tashmatov; Babu and Pinststrup-Andersen, 2001). In this chapter we summarize the issues and challenges that the institutions involved in policy research and analysis face in developing their capacity for effectively participating in the policy debate and policy reforms in Central Asia.

A quick review of existing literature on economic and policy reforms in the agriculture sector indicates that policy research in Central Asian countries should address several common questions in spite of the wide variation in their income levels and the nature of their economics and development problems. There is a basic need to understand why the food and agriculture sectors of some countries in Central Asia have registered higher growth than the other countries during the transition period since their independence in 1991. It is also useful to know to what extent these differences can be attributed to the policy choices that these countries made during the transition process. Policy lessons from the countries that have experienced rapid growth will be useful for the countries that have made slow economic progress. It is also important to understand the policy reforms undertaken by these countries and the process they adopted to create new institutions that have helped with this growth. For example, limited progress has been made in land reforms. In some Central Asian countries access to land for agriculture continues to be a major constraint for agricultural growth.

Building institutional capacity for policy reforms becomes imperative on several grounds. Available evidence on food security in Central Asian countries indicate that the food consumption per capita and calorie availability per day is lower than their East European counterparts. The quality of food consumed expressed in terms of share of calories from total consumption is about half as compared to Eastern European countries. There is evidence that the disparities between Central Asia and Eastern Europe in terms of food

security have grown wider during the past 10 years of transition. However, increasing poverty that is faced by several countries in the region has been responsible for the low quality and quantity of consumption. Rural households have increasingly moved in the direction of subsistence production with the share of food expenditure in household total consumption increasing dramatically in the last 10 years.

Several issues confront the food and agriculture sectors reforms in Central Asian countries. First, decrease in productivity of agriculture has made the food needs of the population an immediate concern. Second, increasing the competitiveness of the agriculture products that can be exported to European markets and the rest of the world remains a major challenge. Third, agroprocessing industries and institutions that help in increasing the export volume of agriculture products have not been well developed. Fourth, market reforms are needed in order to link farm producers with internal and external markets. Fifth, enhancing investments for agriculture research is also crucial for increasing the productivity of the agricultural systems. Sixth, developing the private sector for supply of inputs and processing outputs along with rural financial institutions is essential. While these agriculture development challenges are similar to those other developing countries face, designing and developing policy research programs in Central Asia will require a better understanding of the specific challenges and constraints faced by the agriculture sector in each of these countries. This in turn will require development of institutional capacity and the capacity of policy researchers and policymakers in the region.

## **ISSUES AND CHALLENGES IN DEVELOPING INSTITUTIONAL CAPACITY FOR POLICY REFORM**

Efforts have been made in the past 15 years to build institutional capacity for economic and policy reforms in Central Asian countries. While progress has been made in building overall capacity for macroeconomic reforms, capacity for specific policy reforms in the food, agriculture, and natural resource sectors remains a major challenge. An analysis of the institutional issues related to strengthening systems that involve agricultural research, policy analysis and extension systems reveal inadequate linkages between educational systems that contribute to the development of the capacity and the research towards developing policy reform options in the agriculture sector. The educational systems continue to work independently of the current challenges facing policy reforms.

Agricultural research institutions that deal with policy and economic reform issues have, in general, faced inadequate budget support in order to

maintain physical assets and human resources for conducting quality research that meets the needs of the policymakers. Due to inherent difficulty in connecting the policy research community in various institutions to the decision making systems in the sectoral ministries the limited information generated by institutions dealing with policy issues is not fully absorbed by policymakers. This is aggravated further by the poor demand for policy related information by the political decision-making systems. Thus, the poor linkage between the research and decision-making systems results in further deterioration of institutional capacity to conduct relevant policy research and analysis.

Policy research institutions that contribute to information generation in the spheres of agriculture, food, and natural resources continue to face inadequate research funding. This has resulted in the limited capacity within these institutions resulting in researchers trying to seek out research and consultancy projects that are not highly relevant for policymaking purposes. While researchers try to keep themselves busy by undertaking studies that are funded by the donor and NGO community the results of these studies do not find their place in the decision-making systems of the sectoral ministries. To rectify this weak linkage, international donors and agencies have helped the governments in Central Asia to build institutions that focus on restructuring of the agricultural sector. Yet, such institutions, while focusing on collecting information from the field with particular objective of reforming the sector, do not contribute to the overall policy reform process. This is partly due to the donor driven nature of the research agenda set within these institutions which are, in most cases, not fully in line with issues and challenges that the governments would like to pursue.

Since independence there has also been a loss of human capacity within the economic and policy reform institutions in most of the countries. Most of the talented individuals who gained new insights in policy analysis and research and have experience in working with collaborative partners outside of the region have moved on from these national institutions to the private sector agencies as well as the NGO communities, which have offered better working environments as well as salaries. Such a loss of human capacity remains unfilled in the national institutions responsible for policy reforms. Particularly in a political environment where information from outside of the system is not taken seriously for decisionmaking, strengthening of the local institutions in conducting appropriate research and policy analysis for meeting the goals of policy reforms is important.

Food, agriculture, and natural resource sectors have numerous different types of research institutions that are fairly unconnected to each other. For example, under the Ministry of Agriculture one would see a number of research institutes which have a policy mandate yet the capacity within these institutions is more than adequate in number do not have

sufficient exposure to policy analytical issues. Furthermore, the linkages among these institutions is not clear and the mandate under which they work, while interrelated, is not combined to effectively contribute to a common policy reform agenda for the countries. Such a lack of interconnectedness renders these research institutions ineffective as a whole.

A major impediment in developing adequate and high quality capacity for policy research and analysis is the challenge of integrating economic research institutions with university systems. Because of the division of research and education mandates by these institutions, it has become a challenge to encourage policy research in economic institutions and facilitate higher educational programs within the research institutions. This is not only a challenge in policy arena but also in research institution in other sectors.

Agricultural research institutions lack a particular focus in terms of new innovative curriculum development. Agricultural economics and policy related studies do not fully address current problems of policy challenges faced by the countries. While the university curriculum is slowly changing, it has yet to become fully in line with the policy and economic challenges faced by the countries.

In general, the leadership, management, and organization of the institutions are not highly orientated towards meeting the policy research agenda of the countries. This is partly due to the lack of strategic vision at the national level for policy reforms and partly due to ineffective management systems of the national institutions that lack professional motivation and support from the policy decision-makers.

In addition to the scarce human capacity for policy analysis and research, inadequate data for undertaking research and analysis towards developing policy options remains a major impediment for policy analysis. Collecting data from the farms and households in order to undertake macroeconomic and policy studies continue to face bureaucratic hurdles in terms of clearance from central and regional authorities. This reduces the enthusiasm of the researchers in undertaking original research that can contribute to policy reforms. Finally, policy researchers and analysts have not been given adequate recognition within the countries for their contribution in their institutions towards innovativeness. This lack of recognition and incentive to excel also stifles the enthusiasm of the remaining policy researchers in the national institutions.

## **POTENTIAL SOLUTIONS TO DEVELOPING INSTITUTIONAL CAPACITY FOR POLICY REFORMS**

The system of central planning followed during the Soviet era has been a primary determinant of the institutional development in Central Asian countries. The recent strategic needs of policy reforms in the form of market liberalization and other economic reforms require a different form of institutional capacity to meet the scope and scale of the agricultural reform process in Central Asia. While the institutional response to such a reform process has been initiated in selected institutions, the current configuration of the institutional capacity to meet the challenges of policy reform does not parallel the emerging challenges in the agricultural sector.

While limited capacity exists for undertaking economic analysis and farm management related problems, the social science and policy analysis capacity should be built in the institutions that deal with policy reforms and agricultural economics. Due to lack of exposure of the social scientists in Central Asia region to modern economic analysis and its applications to public policy the social scientists and economists in the agricultural research institutions remain largely focused on optimization problems at the farm and macro levels.

Every country in Central Asia will benefit from consolidation of the institutions that are working in economic and policy reform issues into a major center for agriculture policy reforms wherein the needed expertise for providing leadership in terms of research and analysis and outreach could be developed and maintained. Once such institutions are consolidated it is relatively easy to strengthen and maintain the required human capacity for conducting policy research. Furthermore, in order to better utilize the existing capacity and strengthen their role in policy reforms it may be necessary to revise the incentive system in terms of salaries, provision of research resources, and opportunities for further enhancing the career within the research and analysis framework.

The allocation of resources for funding research in policy research institutions does not match the policy research priorities and the needs for funds for implementing research activities by the national researchers. International agencies have been recommending the introduction of contract research for nationally agreed research priorities and the involvement of universities and academic institutions in the process of competing for research funds. This will enable separation of the consultancy activities undertaken by the researchers from the policy research activity of the research institutions and further enhance the research capacity of these institutions without stifling the limited human capacity towards external consultancy (Morgounov and Zuidema, 2001).



Institutional reforms related to the integration of research institutions under the sectoral ministries and the university system under the Ministry of Education is an important essential step towards optimizing resources as well as institutional capacity for policy research in the Central Asian countries. Teaching opportunities for the researchers in the national institutions and research opportunities for university teachers will enhance the interchange of their roles and enable development of the needed capacity for policy research and analysis.

National research institutions that deal with agricultural policy issues should follow a system of performance appraisal, institutional evaluation, and management review on a priority basis. This will develop a system of accountability and performance oriented research priority setting and implementation within these institutions. The leaders of national institutions will benefit from capacity strengthening related to project management and management of human resources. Such training has been limited within the national institutions and due to poor exposure to modern management methods of running national institutions the leaders have relied upon the Soviet style of management methods for managing the research institutions. At the national level the allocation of research resources should be based on the performance and excellence in terms of quality of research undertaken by the national institutions. Creating such competition among the institutions will develop a cadre of high quality researchers and leaders and consolidate them in a single organization to meet the specific policy research needs of the country.

Strengthening capacity for policy research and analysis within the national institutions and the universities will require enhancing the basic economic and social science research capacities and allocation of increased resources for generating basic data for socioeconomic research. Unless such effort is made the capacity of the existing institutions in producing high quality research for policy reforms and mainstreaming their research into the national decisionmaking will remain a challenge.

In addition to conducting research and increasing the capacity for implementing research programs, the national institutions and university systems should join together to create knowledge centers that will collect, process, and disseminate information related to policy reforms to the policymakers and function as clearinghouse for policy-related information in the country (Tegrul and Maru, 2005).

Documenting the design and implementation of specific policy reforms in Central Asian countries such as price policy reforms, reforms in the procurement systems, tax reforms, and customs reforms will provide lessons for policy reforms for other countries in the region. Success stories in the reform process will encourage policy researchers to undertake further research in their own context.

A major challenge in implementing institutional reforms for enhancing the capacity of national institutions for policy research is the funding for such reform activities. Resources should be mobilized by national institutions by making the case for their services within the sectoral ministries. Additional resources can be generated through reforming their budget allocation process, cost reduction, and reallocation of the existing resources on high return activities (Srivastava and Reinhard, 1996).

## **CONCLUDING REMARKS**

In this chapter there are a wide variety of issues related to strengthening institutional capacity for designing and implementing policy reforms in the Central Asian countries have been discussed. While countries in Central Asia are at various levels of the reform process, the issues related to human and institutional capacity for conducting research and analysis for enabling policy reforms remains equally a challenge in all of the Central Asian countries. While learning from each other is beneficial in understanding the process of institutional capacity strengthening, countries can benefit from other countries in Eastern Europe and the West on how institutions are organized to produce effective capacity for information generation and policymaking. Attaining the food security, poverty reduction, and sustainable natural resource management goals in the region will require developing national strategies and investing adequate resources to achieve those strategies.

Central Asia is the only region where poverty and food insecurity is likely to increase if appropriate policy and institutional reforms are not implemented. The agriculture sector continues to play a major role in the economic development of the countries in the region. Yet, the slow process of transformation of institutions to meet the policy challenges in the region continues to worry the international community. Capacity development, maintenance, utilization, and transformation within the national institutions for policy research, analysis, and implementation will be an essential part of the development process in the region. The role of institutional reforms of research organizations, universities, and educational systems to contribute towards increased capacity for research and analysis that enables appropriate policy reforms in the region can hardly be over emphasized.

## REFERENCES

- Babu, S. C. and A. Tashmatov. 2000. Food Policy Reforms in Central Asia – Setting the Research Priorities. International Food Policy Research Institute, Washington, DC.
- Babu, S. C. and P. Pinstrup-Andersen. 2001. Achieving Food Security in Central Asia. Food Policy, Vol. 25, No. 6. Special Issue. Pergamon Press.
- Morgounov, A. and L. Zuidema. 2001. The Legacy of the Soviet Agricultural Research System for the Republics of Central Asia and the Caucasus. Research Report 20. International Service for National Agricultural Research (ISNAR). The Hague, the Netherlands.
- Srivastava, J. P. and C. Reinhard. 1996. Agricultural Knowledge Systems in the Transitioning Economies: A Survey of World Bank Experience. CGIAR Secretariat. Washington, DC.
- Temel, T. and A. Maru. 2005. Information Communication Technology in Reforming National Agricultural Systems in Central Asia. (in this volume).

## CHAPTER 24

# **POLICY REFORMS IN CENTRAL ASIAN AGRICULTURE: A SYNTHESIS AND CONCLUSION**

Debdatta Sengupta

*International Food Policy Research Institute, USA*

Suresh Chandra Babu

*International Food Policy Research Institute, USA*

## **INTRODUCTION**

The Central Asia region presents an interesting set of countries in transition. Their attempt to overcome the challenges of transforming their economies - from a centrally planned and controlled system to being market oriented after the sudden break-up of the former Soviet Union - provide valuable lessons for policy reforms in developing countries. For the Central Asian countries, the break-up of Soviet Union came as a shock which plunged their economies from stable, prosperous ones, into a phase of high levels of inflation, unemployment, and poverty, along with low levels of economic development and political stability. After more than a decade of independence and reforms, the political, economic and social transformations within these countries are still underway.

Over the past fifteen years, the international community has developed policy packages for the newly-independent countries aiming towards economic growth and development. Interest is rife amongst the research and development community to follow the outcome of the reforms process in the region. In this chapter we synthesize the policy challenges and lessons learned from policy reforms in agriculture.

Though the countries were all part of the Former Soviet Union, independence brought their internal rivalry to the forefront. This effectively prevented the development of an intra-regional trading regime combining the different comparative advantages in agriculture of all these countries. Thus each country took up the arduous task of achieving food self-sufficiency at the cost of producing commercial crops. The mandate of food self-sufficiency also heightened the risk of tremendous damage to the natural resource base of the region. Numerous solutions have been offered to achieve sustainable development and to minimize the natural resource degradation in the region.

Though the economic and policy reforms have been broad-based, agriculture still continues to be the core of reform process in most countries of Central Asia. The chapters of this book bring together the important issues and challenges faced by the food, agriculture and natural resources sectors of these countries in their struggle to launch their economies on a dynamic growth path. The chapters illustrate the impacts of various policy reforms in the food and agriculture system and how they affect the production, market and welfare outcomes in Central Asia. In this context, the main themes covered through the various chapters include:

1. Status of various reforms (agrarian, political, economic) in the region.
2. Progress made in achieving poverty reduction and increased food security for the majority of the population.
3. Emergence and development of the private sector in agriculture, research and industry.
4. Institutional strengthening and establishing the essential linkages between research, policy and agriculture development.

The pace and intensity of reform measures varies amongst countries and so do their development outcomes. Countries like Kyrgyzstan have shown the effort to speed up their reforms process. Their efforts to improve trading systems and also the country's accession to the World Trade Organization are moves which portray a degree of urgency to move on with the reforms. On the other hand there are countries which have lagged behind. Reforms introduced under the pressure of international donor agencies have only changed the system on the surface while maintaining the intricacies of the earlier controlled version. Some chapters in this book provide the broad picture of reforms in the region; others delve deeply into country-specific analyses of each reform as it unfolds.

## **STATUS OF VARIOUS REFORMS**

Most Central Asian countries are still agrarian, though other sectors like the mining and extraction industry have contributed substantially towards

economic growth. The agricultural sector is the second largest economic sector in most countries in the region. During the years immediately following the break up of the Soviet Union, this sector received the major brunt of the economic downturn. The chapters in this book have analyzed the nature and extent of the slow down in Central Asian agriculture, albeit from a varying policy and institutional perspective.

The overall objective of the macro economic reforms has been the establishment of a socially oriented market economy. The policy challenges that these countries are facing on their way to such transformation relate to macroeconomic policy, food security and food self-sufficiency, production related policy, land reform and farm restructuring, irrigation and credit policies.

Mostly all countries of the Commonwealth of Independent States (CIS) have recognized the importance of orienting their economies towards international competition. Countries which have proceeded fastest with structural reforms and liberalization have also created the best quality institutions. However, as is the case with donor mandates in most developing countries, there has been evidence of direct implanting of developed-country institutional types into these countries. Such direct replication in the absence or lack of other supportive conditions in the CIS countries has often led to the failure of such models.

Transformation towards market oriented agricultural development along the lines of decentralization has been the dominant feature of post-independence reforms in CIS countries. However, liberalization of the economy does not mean complete dissolution of the powers of the government. It is necessary to redefine and clarify the government's regulatory functions, which should change according to the market economy conditions. It is on the one hand incorrect to exaggerate the role of the market and underestimate the role of government, and on the other hand overestimate the government opportunities, and refuse to recognize the role of market self-regulation. The role of government should actually increase during the transition period, and gradually decline afterwards.

The trends in land and labor productivity is another indicator of the status of reforms in the region. Though there were severe economic declines in the years immediately following the breakup, most of these economies have recovered sufficiently well over the recent years. In most countries, there was substantial diversion of resources from agriculture to other sectors to fulfill the directive of all-round economic growth. Such transfer of resources did have an effect in decreasing productivity of agricultural land and labor in the short run.

The livestock sector has been hit due to the increased food production mandate which reduced the acreage in fodder crops. This has negatively affected the livestock population in these countries. Livestock production has

now shifted from big state-owned farms to small household farms. Though these family farms have been rearing livestock for household use in the past, only recently they are developing into market-oriented livestock operations.

Water is an important resource for this region especially since it is increasingly in short supply. The misuse and misappropriation of the limited water resources in the region has caused degradation in the natural resource base available for agricultural production. Shrinking of the Aral Sea basin has been a major cause of concern for all the Central Asian countries. Several policy challenges have also emerged, posed by increased salinization of the Aral Sea and decreasing water availability for crop production. Locational advantages and disadvantages have played a major role till now for determining access to quality water for agricultural purposes. Upstream countries like Kyrgyzstan, Tajikistan and parts of Kazakhstan are in increasing conflict over water use with the down stream countries like Turkmenistan, Uzbekistan and the rest of Kazakhstan. Apart from the general decrease in water availability in the entire region due to a gradual drying up of the Aral Sea, the existing, outdated irrigation systems which connect these countries to the Aral Sea cause high leakage and result in a great deal of water loss in transition. Again, amicable solutions to trade in water needs to be arrived at especially in the wake of increased concentration on food production in the region. Interstate water management policies need to be in place to monitor the use of water resources by various countries. Each country must abide by a common set of rules so that an equitable distribution of water for irrigation and also for generating electricity is possible.

Alongside economic and agricultural reforms, political reforms are also necessary to ensure that power is not concentrated centrally as was the case in the Former Soviet Union. Devolving and decentralization of power to local governments as well as development of the household sector remain preconditions not only from the donor community, but also for the successful establishment of democratic governments. Unless political reforms are undertaken to increase the representation of the people in decision-making, the economic reforms will continue to trail behind at a much slower rate.

## **PROGRESS MADE IN ACHIEVING POVERTY REDUCTION AND INCREASED FOOD SECURITY**

Similar to most newly liberalized countries, poverty during the transition period increased across all the CIS countries. Central Asia is among the regions where the Millennium Development Goals are not likely to be achieved, and retrogression is expected in poverty reduction efforts. Food insecurity and malnutrition is also widespread among the rural population

especially women and children. The political and economic “shock” after the breakup of the Soviet Union plunged these countries into high levels of unemployment and poverty. The pace of reforms and the resilience of individual countries to a large extent determined the level of turnaround and economic growth achieved, but even with some reduction in poverty, current levels in the region are high. Tajikistan, which has been identified as the poorest country in the region has 64 percent of its population under poverty line even in 2004 (World Bank, 2004). More than a quarter of the population in Uzbekistan still lives below the poverty level and income inequality is rising (World Bank, 2003). Apart from poverty, the rising inequality has been a concern even in Kyrgyzstan where the reform process has been smooth and received with greater enthusiasm than in other countries. Rising levels of poverty has deteriorated the conditions of living of the rural poor in countries across the region. Apart from other fallouts, this has lowering their health outcomes as well (UNICEF, 2003).

Evidently, human welfare is one of the important underlying themes of several chapters of this book. A discussion of agrarian reforms in Central Asian countries would have to dwell on the challenges posed by rising poverty and malnutrition. Hence, most all chapters directly or indirectly base their reform strategy results on whether the economic and social situation has improved in the country. Incomplete reforms and the lack of political will have been seen as primary factors affecting agricultural development in the countries of the Former Soviet Union. Any scope of regional co-operation and trade are always challenged by and confronted with countries who are wary of each other’s political intentions within the system.

The downturn in production and productivity in agriculture has been a reason enough for poverty increase in the short run amongst countries like Uzbekistan, Kyrgyzstan and Kazakhstan. Farmer issues and producer responses to policy reforms also identify the incomplete reforms in the output market and lack of integration of the farming sector with the market as the primary cause of the persistent low productivity and high poverty in the region. The State’s decision on cropping pattern still exists in many countries, though it varies from country to country. Land privatization has achieved mixed results especially due to the politicized nature and high level of corruption involved in this process. This process is indirectly linked to the low levels of development outcomes achieved in this region.

Poverty outcomes for individual countries have been different. While a return to the autocratic regimes as in Turkmenistan has definitely been detrimental to economic growth and poverty reduction, the modest efforts and results achieved by countries like Tajikistan, Kazakhstan, Uzbekistan and Kyrgyzstan still warrant significant improvements. Low levels social indicators like access to safe drinking water, and sanitation have also affected infant survival rates and child malnutrition in these countries. However, we



can expect to see better results in coming years as the countries are now gradually providing better civic amenities to their populations.

Long-term effects of poverty reduction and improving social conditions of the masses can only be achieved through long-term investment commitments in agricultural research. The decline in investments in productivity and nutrition-enhancing agricultural research and production techniques needs to be corrected if the region is to meet the increasing demands in food requirements. The backward and forward linkages between agricultural research and the farming community should be effectively increased to improve agricultural productivity. Apart from increasing production, efforts should also concentrate on increasing the nutritional content in the food produced through crop diversification to reverse the trends in stunting and wasting among children in the region. In-keeping with the trends in water shortages and increased salinization, drought resistant varieties as well as varieties which are resistant to saline waters should also be developed.

## **EMERGENCE AND DEVELOPMENT OF THE PRIVATE SECTOR IN AGRICULTURE, RESEARCH AND INDUSTRY**

Liberalization of the economy and a gradual orientation towards market-based reforms has been the mandates of the donor community for Central Asian countries to get international assistance to rebuild their economies after the breakup of the Soviet Union. State Control of production and markets would have to give way to land reforms and farm privatization. Input and output market reforms would ensure that producers get the market price for their produce while consumers would also pay the market determined price. Some form of state subsidy to agriculture would be needed in the initial stages of the reforms. However, it is expected, that as production and hence profits from agriculture increases, such subsidies can gradually be phased out.

Decentralization of state control over production and privatization in agriculture are important for creating better initial conditions for reforms. Production levels under private farms in most countries have doubled after independence. However, the share of irrigated land under private farms did not grow as expected. The land use patterns in the private sector are still inefficient and this could be attributed, to a large extent, to the stronghold of the government on production in countries like Uzbekistan and also lack of incentives for private farmers in almost all the CIS countries to diversify to high value commercial crops.

In water distribution and management, private associations of water users have, however, been on the rise. These associations manage the water and irrigation resources of the region. Even then the water deficiency is increasing due to ineffective water management at the individual farm level. There is little incentive for farmers to save water resources and institutional structures to represent the farmers' interests in the management of water resources is lacking. The role of government is important to ensure the growth and stable development of private water-user associations in the management of water resources. It is necessary for these associations to be supported by the government during their initial stages through privileged credits and subsidies to help them become self-sustaining.

With the dissolution of state farms, employment by the State has also fallen. Although private farm development is expected to create some new jobs, utilization of machinery and new technology for increased productivity may, in some cases, increase unemployment in the short run. In the former *sovkhozes* and *kolkhozes*, labor utilization was organized on normative bases, and as a consequence, labor for crop production was used inefficiently. Development of private farms have addressed this inefficiency in labor-use. Yet much needs to be done to support the development of private and household farming sector.

## **INSTITUTIONAL STRENGTHENING AND ESTABLISHING THE ESSENTIAL LINKAGES BETWEEN RESEARCH, POLICY AND AGRICULTURE DEVELOPMENT**

Another core theme addressed in this book has been the institutional development in Central Asia. Strengthening of weak institutional structures and improving governance in the various sectors of the economy was a precondition for successful implementation of the reforms. One of the main obstacles to agricultural growth in the region has been the lack of human and institutional capacity for research, policy formulation, and implementation in agriculture. Conditions imposed by donor mandates also result in low levels of local ownership of most institutional and human capacity development projects that are undertaken.

Strengthening the national institutional capacity for analyzing the impact of policy alternatives in the Central Asia region is essential so that policy reforms and the speed with which they are implemented are consistent with the objectives and the social and political realities of each country in the region. Since the initial conditions in political, economic and agriculture are

different in each country, individual needs assessment should be conducted to identify capacity needs at various sectors. Joint projects with a country in the West for human and institutional capacity strengthening in specific areas based on this assessment would encourage local officials to faster adopt these projects and thus ensure successful implementation.

Capacity for research in agriculture is also scattered and is eroding due to varied factors including out-migration of skilled staff and also negligence on the part of the governments to fund and revive these facilities. The allocation of resources for funding research in agriculture does not match the policy priorities and the resources needed for implementing research activities by the national researchers. High levels of brain drain have resulted in reduced human capacity in most research and policy institutions. An innovative way of building capacity is involving the private sector through public-private partnerships. These partnerships can raise resources to directly implement agricultural research in the region. However, all of these should be based on a national strategy for agriculture development drawn up by national policy makers in consultation with the agriculture research institutions.

For healthy all-round development of the economy, other sectors should also develop at a commensurate speed. The role of Information and Communication Technologies (ICT) in enabling technological, organizational, institutional and policy innovations in Central Asia needs better understanding. After the break-up of the Soviet Union, most of the countries were left with outdated infrastructure which was meant for the centrally planned economy of the Soviet Union. These were expensive to fix and prone to frequent break-downs. Since most of the countries in the region are already reeling under high external debt, investments in costly broad bandwidth internet service are not a priority. Penetration of telephones maybe adequate, but service is unstable. With no facilities to manufacture the software and hardware parts, costs of repair and replacements are high and are thus unaffordable by the majority of the population.

## **CONCLUSION**

The Central Asian countries covered in this volume include Tajikistan, Turkmenistan, Kazakhstan, Kyrgyzstan, and Uzbekistan. The book brought together several chapters to show how each sector development is important and contributes to the overall development of agriculture and improves food security concerns in the region. Each chapter focused on a particular issue relating to policy reforms for agricultural development either directly or indirectly. However, a central conclusion of this volume is that if the CIS countries are to benefit from policy reforms, they have to be executed

in a coherent manner with the government, private sector and external agencies taking equal responsibilities in the process. Liberalization cannot be the panacea for all problems of a centrally planned economy. Neither would it be effective if done in a 'namesake' manner. Government control needs to be selectively phased out so that shock to the population is the least. Liberalization of markets without creating supporting market infrastructure like credit financing, banking, and developing of marketing channels would also be untenable. To monitor the proper functioning of these, good governance needs to be in place so that the benefits of the reforms can reach the population at large. The role of monitoring the progress made through policy reforms and evaluating the positive benefits and negative effects of such reforms for developing research-based policies and programs cannot be overestimated.

## **REFERENCES**

UNICEF, 2003. Social Monitor. The MONEE Project, CEE/CIS/Baltic States. UNICEF Innocenti Research Centre: Florence.

World Bank, 2003. Kyrgyz Republic: Enhancing Pro-Poor Growth. A Report.