A. Coskun Samli

Infrastructuring

The Key to Achieving Economic Growth, Productivity, and Quality of Life

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This book is dedicated to the world decision makers who realize that without a solid foundation no decision or plan is viable.

Preface

According to estimates, between 1980 and 2005 there were 40 million jobs created in the USA. Virtually all of these jobs were created by firms that were 5 years old or younger. They were all start-ups that happened to be innovative entrepreneurial companies not those who have been in existence for a long time, somewhat dysfunctional "too big to fail" types who needed to be bailed out during the current recession. If the American economy were to gain its resiliency, it will have to create new jobs by start-ups and not by "bailouts" (Friedman 2010).

In order to help the start-ups to emerge and have entrepreneurs do their entrepreneuring, there has to be, first and foremost, a supportive infrastructure which would provide the physical facilities, intellectual capacity, and favorable conditions to do that entrepreneuring successfully. In other words, this is the foundation of economic activity. The critical question immediately emerges: Does the country's offering have what it takes to create many successful entrepreneurs? If there isn't enough energy, if domestic transportation is not up to par, if educational conditions are not geared for such an activity among other numerous conditions, the country or countries will not progress.

In my two recent books I discussed the importance of globalization from the bottom up and international entrepreneurship (Samli 2008, 2009). These two books have become necessary to write because despite its most powerful impact, the current wave of globalization dominated from the top and, as such, it functions strictly as Friedman (2000) described as "Darwinism on steroids." This powerful movement is creating a major discrepancy in income distribution globally. It is making a few very rich, but not reaching out to the poor. As such, globalization is creating tremendous amounts of wealth in certain regions and certain industries without making a contribution to what I call "the forgotten majority." Thus, as haves become have-mores, have-nots are becoming have-nothings (Samli 2004). Developing countries cannot rely exclusively on globalization for their economic development. In fact, in my most recent book (Samli 2009) I make a point that developing countries cannot even rely on exogenous forces for their economic development; therefore, they have to use an endogenous economic development strategy. Such a strategy can be implemented by a globalization from the bottom-up orientation (Samli 2008). Globalization from the bottom up implies that small businesses start from scratch, they expand, they create new ideas and new jobs, and they

become pivotal in their economy's development. Such an orientation, by definition, is based on a major entrepreneurial orientation. Globalization from the bottom up necessitates the presence of an entrepreneurial culture, without which bottom-up globalization cannot materialize (Samli 2009). With the proper entrepreneurial orientation, particularly the emerging countries will be able to reduce the harm done selectively by the current top-down globalization. Bottom-up globalization, as I described in my earlier book, is not a dream; it is a necessity without which the dramatic gap between the rich and the poor, all over the world, will continue to worsen. Bottom-up globalization is possible only when a major domestic entrepreneurial culture is functional (Samli 2009).

With any kind of development or architectural venture there must be an infrastructure that provides a solid foundation to the planned development. This is so for entrepreneurship as well. If this foundation is not planned and built properly, expectations for business creation and economic growth and prosperity cannot be achieved. Here, a distinction is made between economic growth and prosperity. On the one hand, growth oriented economic activity is often not oriented toward the poor, and hence it exacerbates inequalities in income distribution in the country. On the other hand, a prosperity orientation may partially eliminate the income gaps that exist among the country's social classes. However, prosperity orientation by itself may not be able to generate the economic growth that the first orientation will bring about. Thus, this book, above all, proposes that the economic goals of a country, a region, or a company are fulfilled first and foremost by a properly designed and maintained infrastructure that facilitates not only economic growth but also prosperity for all. I believe it is a major mistake to think that there are serious shortcuts to economic growth and prosperity without paying proper attention to the infrastructure. What made the Asian four tigers become so successful? What is holding up the development of sub-Saharan Africa? Why is the USA losing its competitive advantage? I argue that in all of these cases, and many more, that the answers are, at least partially, found in the development and maintenance of infrastructures. However, policymakers and business leaders alike offer many excuses to explain the lack of infrastructure development. Samli and Warner (2009) made a distinction in the inhibitors in developing countries and industrialized countries. Exhibits P.1 and P.2 identify some of the most common excuses these two groups of countries apply.

The developing countries complain primarily about the lack of capital. They claim that they simply do not have the resources to even get started and hence their economic development activity comes to a standstill. I argue throughout this book, the cost of not having a proper infrastructure, I believe, exceeds the cost of building it. Countries can make little progress without a proper infrastructure plan. Furthermore, either by design or by ignorance they do not use the limited funds and resources for infrastructure. Much of the time, they do not comprehend the importance of a sound foundation for economic growth. Finally, developing countries discriminate by giving loans to large established companies and they tolerate many irregularities and illegal behaviors in using funds for infrastructures. The list presented in Exhibit P.1 is not a comprehensive list. But it reflects the presence of a monumental problem. Without a proper foundation is there really hope for the economic future of the Third World?

Exhibit P.1 Infrastructure development inhibitors in developing countries (Adapted and revised from Samli and Warner 2009)

Specific inhibitors	The impact
Lack of capital	The limited resources are put into areas of quick response and higher pay offs in the short run.
Wasted capital	Giving tax breaks in less-developed regions for quick industrial development.
Lack of understanding	Not realizing the importance of infrastructures, much is spent on non-infrastructural areas.
Discrimination	Large established companies and high population concentration areas with lower risk receive major funding.

Exhibit P.2 Infrastructure inhibitors in the industrialized world (Adapted and revised from Samli and Warner 2009)

Specific inhibitors	The impact
Infrastructure is very expensive	Countries are deciding that they have other pressing problems. The neglect of infrastructures does not have immediate impact.
Not agreeing that infrastructure is important enough to put special emphasis on	Many countries are reducing the infrastructure expenditures.
Lack of causation between infrastructure and economic development	Not being able to show causality com countries politically are not able to emphasize infrastructure.
Preoccupation with globalization and exporting	Countries are investing only on the short run trade related infrastructures.

Similarly, the industrialized world has its own feeble excuses as seen in Exhibit P.2. This group of countries typically considers infrastructures very expensive despite the evidence of economic development and infrastructure being very closely related to each other. In fact they assume almost no relationship between the two. However, at the writing of this book President Obama has been promoting the idea of developing the ever neglected US infrastructure.

Similarly, they basically deny the importance of infrastructures and the role they play in economic advancement and in improving quality of life. Above all they are so busy with globalization and supporting trade that generates quick revenues in the present that they put off longer term investments (Morrison and Schwartz 1996, Samli and Warner 2009).

The worst thing for a country, regardless of if a country is developed or developing, is to take infrastructure for granted. I believe that such an approach implies inviting a bleak future for generations yet to come. Particularly those countries that would like to be considered as world leaders cannot afford to have deteriorating infrastructures. Much has been said and written about the BRIC countries (i.e., Brazil, Russia, India, and China), but their true accomplishments and how they may excel will critically depend on how they manage their infrastructures. What about the countries of central Africa? Can they possibly make proper economic progress

Exhibit P.3 Rank order correlation of GDP and infrastructure (From Samli and Warner 2009)

Rank correlation coefficient		
The relationship in all 128 countries	.800	Without implying causation.
The relationship in top 15 most industrialized countries	–.430	The industrialized countries are negligent of their infrastructures.
The relationship in least developed and poorest countries	.260	These countries do not have capability of developing their infrastructure or they do not know the need for it.

without paying major attention to their infrastructures? I hope that this book will cultivate this thinking and motivate the world leaders to take care of infrastructures throughout the world.

Just How Important Are Infrastructures?

Unfortunately there are no objective and global criteria to keep track of infrastructure development throughout the world; nor are there comparative measurements indicating changes and, hopefully, progress. In 2007, the World Bank released a study evaluating the infrastructure of 128 countries based on "1" being poor and "5" being good. On that basis the author tried to establish the relationship, if any, between the infrastructure and GDP of individual countries. Unfortunately this type of information is not readily available to assess infrastructure status regularly.

The rank order correlation results are presented in Exhibit P.3. First and foremost without indicating a causal relationship for all the 128 countries, the relationship between GDP and infrastructure evaluation is very high. However, a further analysis of the top 15 countries in this group indicates a correlation coefficient that is negative.

Repeating the same analysis for the poorest 15 countries in the sample, the correlation coefficient was positive but low. It appeared that both richest and poorest countries have problems with their infrastructures. Moreover, they are not trying hard enough to improve them.

Perhaps one of the most important areas that applies to both developing and developed countries is "turf conflicts." While infrastructure decision makers try to protect their turfs, the economic planners protect their turfs. As a result there usually is no synergistic effort by these groups. They do not even communicate, let alone work together.

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Acknowledgments

This is my 21st book. I am always thrilled with the anticipation that my book may make a difference. This is the third in a series of books. The first dealt with Globalization from the bottom up and the second is titled *International Entrepreneurship*. As I finished doing the research for and writing the second book, I realized that the first two books will become particularly important if I can deal with Infrastructuring (my word, but a totally essential concept for the future of our fragile planet). Just as the previous books, I could not possibly have written this one without the help and contribution of many people. As I previously stated: It takes many years to conceptualize a book. It is not the writing time of it but the preparation time for it that is critical. Just as my previous books this one also has been in the making for over 50 years. To my readers particularly those who consider themselves more academically inclined and have concerns about our fragile world, let me iterate that learning is mainly a major function of time.

It was over 55 years ago in Istanbul, Turkey during a typical extended family get-together, my brother was encountered with a question: What are the economic values for a society and do we enhance them? Since I was a student at the university studying business administration, my brother volunteered me to answer that question. I had some ideas and talked about them. However, I am still thinking about progressive and successful societies that make a great contribution to the well-being of the world and share fairly their gains with their total populations and develop their educational systems to reach out and develop greater knowledge bases to enrich their populations mentally as well. This is what I tried to do during my over 50 years of teaching, research, consulting, and above all, writing. I have worked in a number of universities and interacted with numerous deans and administrators; there is not enough space to list them all but I am extremely grateful for the help and appreciation I received. This book was written under totally night-marish situations. My current dean took away all the research and typing support that a research professor naturally needs. For which I am totally not grateful. But here is the work and I hope it will make a difference.

On the most positive side however, my research assistants worked gratis to help me to finish my research. Ms. Amy Castro was most helpful to put together my basic materials. She stayed with me and saw the finish of collecting the necessary information. She is a hard working young person with great potential. Ms. Rhonda

Warner had got me started on this, what I consider a most important, project. She developed some of the statistical analysis. She also has a very fine future. Mr. John Wells has been a real support in reacting and interacting with me. I hope to do much important work with him yet. My colleagues, above all, Dr. Joe Sirgy of Virginia Tech, Dr. Adel El-Ansary, and Dr. Ron Adams of University of North Florida were always available if and when I wanted to exchange a few ideas. My brother Osman Samli has always been a telephone call away in Istanbul, Turkey. My daughter Ayla Samli even at times against her free will was pulled into some exciting telephone debates. My wife, Bea Goldsmith, was always critical and interactive but also supported me with outstanding meals that gave me encouragement. My students were always there to react. But above all Mrs. Michelle Green was able to read my almost illegible handwriting and typed the manuscript perfectly. My editor, Nick Philipson was always very helpful. The fact that he expected an outstanding book was a major motivation. I hope this book from me will prove that I am still learning and it will whisper to decision makers around the world that they must continue infrastructuring to improve the quality of life for us all. Thank you!

Ponte Vedra, FL A. Coskun Samli
December 2009

Contents

Chapter 1
Introduction

Any construction, any development, or in fact whether it is any activity, by definition, has a foundation. The foundations for economic activity: (1) consumers satisfying their needs by shopping, (2) starting a factory, (3) moving the output of the factories, either for export or import purposes, along with numerous other economy-related activities, are all dependent on the key economic foundation called the *infrastructure*.

There is not one fixed list that describes what a "good" or "perfect" infrastructure must have or what it is. But, as the foundation of all the economic activity, infrastructure development may come in many forms and act rather differently in different circumstances. The critical idea is to be able to recognize the importance of the infrastructure, develop it very carefully, and maintain it fervently. From that perspective, and unlike the conventional wisdom that the development and maintenance of a nation's infrastructure is an economic activity, I believe that infrastructure issues are primarily related to a country's desire to enter, participate, and excel in international trade as well as its social growth plans to support entrepreneurship; a country must have critical plans to improve the quality of life of its citizens. Without a thriving entrepreneurship activity such an improvement would be very difficult to achieve. All of these and numerous other activities must be considered and acted upon with the understanding that a country's infrastructure is a key issue with respect to that country's economic growth plans. Perhaps the most unfortunate aspect of the infrastructure discussion is that many nations refuse to take the infrastructure system seriously for many different reasons. But the key point in this introduction is to reiterate that infrastructure is the essence of economic activity and countries cannot succeed without a supportive infrastructure in their trade strategies and competitive advantage building efforts as well as in their domestic growth. Thus, infrastructure is the essence of marketing, international trade, and quality of life enhancement. The general purpose of this book is to articulate these issues and make sure that infrastructure will gain its rightful place in the overall marketing and economic development activities of a country.

It is extremely critical to realize that although infrastructure is extremely important, any infrastructure anywhere, for any purpose, is not good enough because it may not be adequate in meeting a country's economic goals. However, if we know that

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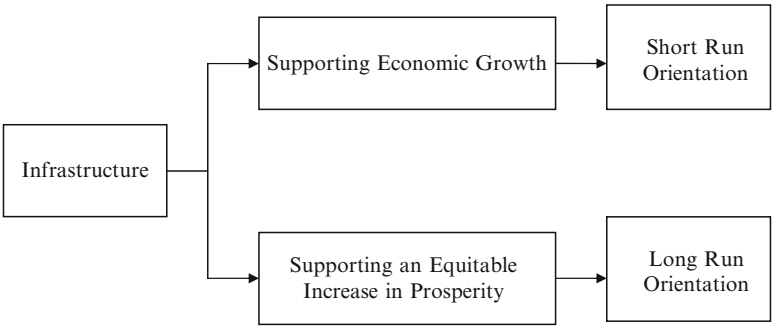

Exhibit 1.1 The two key orientations of infrastructures

people living in slums of Jakarta, Manila, and Nairobi are paying five to ten times more for a unit of water than what consumers pay in London or New York (Green 2008), then we cannot expect these people to be productive citizens contributing to the economic growth of their respective countries. In this example, just the very basic infrastructure activity of providing water for the people, it may not be meeting and supporting the country's economic goals and strategies, is an extremely critical first step. If poverty reduction is the primary goal of development policy (Parker et al. 2008), people must have access to basic infrastructure such as water, safe sanitation, power supplies, maintained roads, and communication capabilities. But these are only the basic necessities. As countries progress and become more sophisticated, their infrastructure needs become more specific and complex in order to support ambitious growth and development plans.

The presence of a basic infrastructure is a necessity for any economic activity, and although a necessary condition, it is not at all the sufficient condition. In order for the necessary condition to be converted into the sufficient condition a strategic orientation for the infrastructure must be planned. As shown in Exhibit 1.1 there are two extreme orientations for the infrastructure, economic growth, or equitable prosperity.

Economic Growth

With the ever-present and ever expanding globalization along with the flattening of the world (Friedman 2005), trade patterns have been altered radically. These changes are causing major modification of infrastructures but, more importantly, studies have shown that the changes in structure and the corresponding infrastructural modifications have been almost adversely related to income distribution in developing countries. Industries that have had the highest impact on the growth of the economy showed the greatest potential for worsening income distribution (Cook and Uchida 2008). As a result of the economic and political conditions and pressures for fast returns, many developing countries are taking this route and developing their infrastructures accordingly. As such, they are emphasizing more

modern and partially invisible infrastructure development such as kiosks and information centers, information and communication technology training and other modes of communication such as telephone and transportation (Zahir 2008).

Thus, three layers of infrastructure can be identified: First, basic infrastructure, including water supply, energy, maintained roads, and communication capabilities; second, partially tangible or physical infrastructure, including roads, airports, seaports, energy, and education for support of special industries or economic projects; and third, mostly intangible infrastructure, including information communication and information technology.

In this book, we maintain that all three layers must be developed. As shown in Exhibit 1.1, if a country chooses economic growth by adopting a short run orientation, which appears to be the orientation India has adopted, there will eventually be major problems with the first and second tiers of infrastructure as supporting the economic growth does not mean an equitable increase in prosperity. Indeed, much has been written about the trade-off between economic growth and equity. Policy implications have been discussed that may redistribute income to reduce poverty (Cook and Uchida 2008). This is shown in the bottom part of Exhibit 1.1. In the long run, it is necessary to develop an infrastructure that will facilitate an equitable increase in prosperity.

In this book, a sequential progressive position is proposed. It is impossible to achieve shared growth in prosperity without the development of the first layer of infrastructure in the long run. But, it may also be necessary to emphasize immediate global opportunities first. The infrastructure for the global opportunities is likely to be the third layer of infrastructures as described above and it emphasizes the short term. However, in time, it will be necessary to go from the third layer to the first; otherwise, the country cannot make the desired economic progress. In other words, supporting an equitable increase in prosperity is essential for the future progress of a country. Where this increased prosperity is likely to come from and how the country must develop its infrastructure to facilitate such an expected prosperity are extremely critical issues.

The Critical Time Element

Exhibit 1.2 provides a sequential progression picture of infrastructural development. Although there are only four stages in the exhibit, there can be a few additional stages. Throughout this book, the major theme of concentrating on shared growth is emphasized. Just how much time can be allowed between the first step of emphasizing global opportunities and the fourth step of shared growth is a critical issue. There is not a definite answer. But as a country emphasizes global opportunities and enhances its global competitiveness or its competitive advantage, domestic development and prosperity become a reality. But it is critical that the fourth stage also be realized. If there is no reasonable way to share the increasing prosperity, then the country will never be stable and free of political, economic, and social upheavals. Thus, the infrastructure, if it has not already done so, move from the third layer to the first. Most of this book deals with these layers and the movement

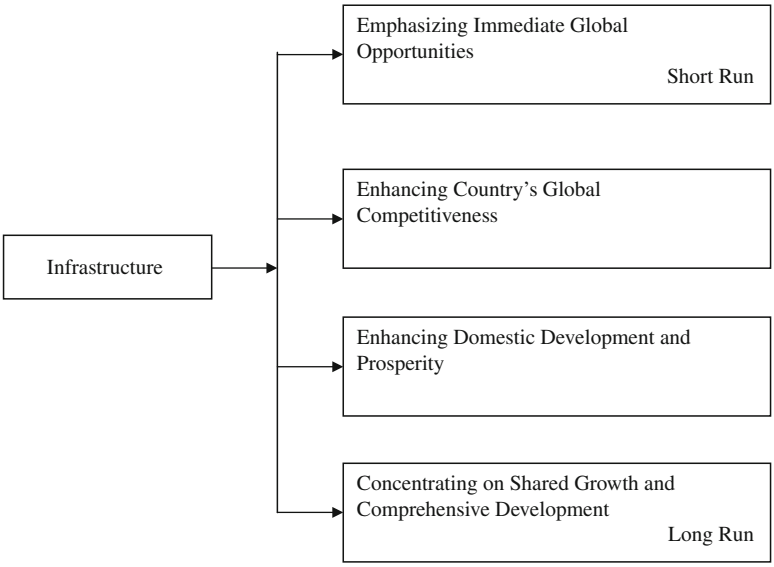

Exhibit 1.2 Sequential progression of infrastructure

shown in Exhibit 1.2. Without infrastructural development and maintenance and adjustments, countries cannot move from taking advantage of global opportunities to shared growth and prosperity. In short, countries must *infrastructure* nonstop.

Summary

This introduction discusses, very broadly, the critical situation of infrastructure and how it can be used to support economic growth in the short run or to enhance the quality of life in the long run. These two points directly oppose each other. In order to avoid such a divisive and questionable situation a sequential progression may be used. Such a sequential progression is composed of four stages where a country progressively moves from economic growth through trade to a comprehensive growth activity.

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Chapter 2
Developing Infrastructures for Economic Progress, Market Development, and Entrepreneurship

Introduction

Infrastructure development is a necessary condition for economic development, which leads to expansion of macro markets and creates a better quality of life. However, infrastructure development is a neglected topic. This chapter articulates two strategic orientations, that is, industrial orientation and export–import orientation, the former is critical and developing countries must use such an orientation for positive results. However, conditions in many countries are forcing them to be more export–import oriented with questionable results.

When Friedman (2008) referred to the world as being flat and crowded, he neglected to state that a big portion of that world is also flat broke. Why is a large proportion of the world becoming poorer rather than richer? Despite the fact that most scholars agree that economic development begins with proper infrastructure, many industrialized countries developed their infrastructures after their economies reached a critical level of need. Many industrialized countries gained much headway in their economic advancement by colonizing some African or Asian country or countries. Hence, they encouraged the colonies to sell raw materials and buy finished goods. One may say that, instead of classical infrastructure development, they developed their manufacturing selectively and sold their products to the colonies among other markets. Early on, authors posited that capitalism must expand outside its natural boundaries since, at that time, industrializing countries had home markets that were not sufficient for large-scale production and consumption (Muiu 2008). Thus, they emphasized basically export-oriented economies with infrastructures to facilitate such orientation. They subsequently developed full-fledged infrastructures, but at that time, they were already rich and their economies were already advancing. In this chapter, an attempt is made to explore such a sequence in development and how it misled numerous third world countries and deprived them of sound economic development in favor of export orientation.

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Economic Development and Infrastructure

If we analyze the economic history of many third world countries, it becomes clear that they did not start with a proper infrastructure that would lead to a healthy and balanced economic development. Colonizers seemed to succeed without having the necessary infrastructure in their home countries because they received much economic benefits from the colonies. They did not have to develop the basic infrastructures to produce or extract raw materials. The colonies, however, by using the same export-oriented infrastructure rather than an industrialization-oriented infrastructure, ended up being a part of the third world with limited opportunities for brighter economic growth opportunities. As Muiu (2008, 86) states:

> African states were not allowed to industrialize by their former colonizers because they would not only displace established exporters but also close markets for manufactured goods. Furthermore, industrialized African countries would not be in a position to provide a ready supply of cheap labor to European firms.

As can be seen, there were ample motives for western colonialists to pressure African countries to develop an export/import-oriented infrastructure rather than an industrial growth-oriented infrastructure. The end result is that these African countries have very limited domestic macro markets and poor quality of life since consumers are not able to gain access to the essentials of comfortable living. Domestic markets are not well developed, movement of people and products are hindered due to underdeveloped infrastructures.

Industrialization Versus Export Orientation

Reinforcing Muiu's (2008) position, Fieldhouse (1986) stated that colonial countries survived on the basis of colonialism, which basically meant limited industrialization. If we were to contrast infrastructures dealing with industrialization versus export/import orientation under the colonial inheritance, Exhibit 2.1 can be constructed. The exhibit first and foremost identifies the key components of any infrastructure. Although the list presented in the exhibit is not necessarily complete, it still enables the reader to contrast the two key orientations: that is, industrialization versus export orientation.

Water Supply: Water supply is one of the key features of basic infrastructure. How it is managed and for what purpose are the important issues to consider. As opposed to infrastructure development for general industrialization purposes that will cater only to the production functions of certain industries, water supply, if properly managed, will give the citizenry a more comfortable quality of life, which in turn may stimulate the productivity and enthusiasm of individuals to work harder and produce more. This last proposition goes all the way back to Rome 312 B.C. Rome boomed from the proper development and the use of aqueducts that provided more than a cubic meter

Exhibit 2.1 Industrialization versus export orientation

Key infrastructure components	Industrialization infrastructure	Export oriented infrastructure
Water supply	For industry and consumption	Only for export use
Logistics	Create access to local supplies and markets	Facilitate movement of local exportables
Labor	Developing labor force for Industrialization	Totally unskilled labor for producing exportables
Energy supply	For industrialization and personal use	Enough power for exportables
Education	Develop organizational, Financial leadership	To cultivate import and local distribution along with cultivating exportables

of clean water on a daily basis to the country's inhabitants (Stevens and Schieb 2008). Similarly, the experience of Mexico City has been that the growth is hindered if adequate water supply cannot be managed (Tortajada 2008).

Logistics: Perhaps the most important aspect of the infrastructure is logistics. In export/import-oriented logistics, roads, air, and water transportation have been and are most critical. In these situations, there is a strong emphasis on importing and exporting, and hence the movement of any kind of merchandise needs to be facilitated. In one sense history may simply indicate that societies either concentrated on water borne transportation infrastructure or on land borne transportation infrastructure. Olwig (2007) called them islanders or continentals, respectively. The critical point in these two cases is that people organized and thought about place, space, and shipments in quite different ways. While the islander orientation supported import-export activities first and foremost, the continental orientation pushed for a balanced development of infrastructure. The way countries thought of themselves determined how they would design their infrastructure so that they could be rewarded quickly and handsomely. In fact, Olwig (2007) maintains that America had the islander's viewpoint when it was a British colony and much later it developed a continental view. However, during that change, while the country moved from being an import/export-oriented country to industrialized country with the continental orientation, it also critically industrialized infrastructure emphasis. In other words, the USA combined both orientations that made it a world leader.

Industrialization-based infrastructure deals with logistics differently. In fact, the key concept is imbedded in the Parker et al. (2008) study indicating how infrastructure development would reduce poverty. The study emphasizes the fact that the poor do not have access to public infrastructure in some countries and that is one of the main reasons why they remain poor. Here, industrialization infrastructure emphasizes logistics in particular to reach out to the poorer parts of the country and provide the poor with products and services that will improve their quality of life and increase their productivity.

Labor: In export-oriented infrastructures labor can be unskilled and, in fact, this may be preferred because that will keep the costs down. Moving merchandise by waterways or landways will not require special engineering, technical, or innovative skills. Thus, if such an orientation were to be undertaken, then there will be minimum effort to raise the quality of the labor force. Since the exportables such as mining, agriculture, and other low-tech related raw materials do not require higher education-based skills, this extremely important aspect of infrastructure, which is having a highly qualified labor for the future industrial development, remains absent. In fact, because the western countries have tried to make Africa an export region rather than encouraging its industrialization, many countries in Africa remained extremely underdeveloped with almost no hope for proper industrialization (Muiu 2008).

Energy Supply: If an export-orientation infrastructure is opted for, there must be energy to produce, extract, or grow the exportables. However, this proposition does not say much about making the energy supply available for consumers of the country or the region so that they can improve their quality of life.

Education: Finally as shown in Exhibit 2.1, the last item is education. Perhaps, it should have been the first item in terms of priority. For example, Nigeria has been investing heavily in the power sector, which implies very strong prioritization of infrastructure development (Muiu 2008); however, this author believes that education should be at the top of such prioritization attempts. Identifying, assimilating, and absorbing new knowledge through education is a necessary, but not a sufficient, condition for economic development. Education, by definition, improves individual incomes and wages along with encouraging participation in economic development (Ozgen and Minsky 2007). The second prong of education is understanding and skill building for infrastructure development. These two prongs can make education both a necessary and sufficient condition. Without infrastructure development, however, various social, economic, political, and ecological problems in developing countries create major employment challenges (Ozgen and Minsky 2007). Without a proper educational background the need for infrastructure is not understood, let alone the building and managing of the infrastructure for economic growth and prosperity.

The Two-Prong Education Program

It becomes clear from our discussion above that educational programs may take two different directions. The entrepreneurial education and basic infrastructural education are not the same and much of the time they cannot be emphasized simultaneously. These are the two prongs of the overall educational system. The two-prong education program may not be sufficient if the question is raised of whether entrepreneurial economic development is more important than infrastructure development or vice versa? Although both are important, the sequential ordering of the two becomes critical since national or regional economic development priorities may be dependent on

whether infrastructure development comes first or entrepreneurial or other economic development comes first. Although some scholars somewhat justifiably identify entrepreneurs as essential agents of change who are vital components of productivity and growth (Baumol 1993), they also maintain that the entrepreneurial process precedes infrastructure (Ozgen and Minsky 2007); however, the opposite is maintained here. There will be almost no value in promoting entrepreneurship if there is no adequate infrastructure with which to work. In fact without a certain type of infrastructure component, there may not be adequate entrepreneurship at all. Although economic activity may primarily start with identifying economic opportunities that does not necessarily mean a lead into entrepreneurship development. On the contrary, identifying economic opportunities must lead in the direction of reinforcing or developing from scratch the infrastructure that would lead to powerful entrepreneurship activity. Although some important initiatives and projects reported in developing countries are primarily supporting entrepreneurial activity, there is first no indication that they are emerging in the presence of a strongly conducive infrastructure, and second, many developing countries are simply lacking the environmental conditions; that is, infrastructures that are conducive to the entrepreneurship and much-needed economic development (Ozgen and Minsky 2007). Without these much-needed environmental conditions, they are likely to continue struggling without much success.

Exhibit 2.2 illustrates a sequential order of critical infrastructure and entrepreneurial activity. It posits that infrastructure development should have the priority because it can accomplish much economic gains and social progress. However, since some infrastructure development activity may take a long time and may not even materialize, there may be a built-in bias in identifying economic opportunities for the country. Some of the best economic opportunities may require somewhat sophisticated and expensive infrastructure support and therefore may not be considered as realistic alternatives. Thus, less than best economic options are likely to be pursued. Throughout this book, the position is taken that the cost of building the proper infrastructure is much less than the cost of not building it.

It is critical that economic opportunity identification and evaluation is done in a totally unbiased manner so that the best economic development scenario can be put forth. Therefore, the economic development sequence presented in Exhibit 2.2 begins with economic opportunity identification first. In particular, countries with special features such as Malaysia, which has much rubber, or Sierra Leone, with its diamonds, may decide in advance how and where they want to use their special natural gifts and should consider developing an infrastructure system that would, first and foremost, accommodate the strategic plans that way. However, instead of continuing in the same way, the country must move in the direction of a much needed and balanced infrastructure development.

> The education system becomes more challenged when the country does not have special natural resources and only the strong will to develop. The two-prong education system must be guided by economic opportunity identification, which might not even exist.

Additionally, the initial stages of the economic development sequence are considered to be lacking. The opportunity recognition or economic opportunity identification is perhaps the most understudied topic. As such, the whole process, as

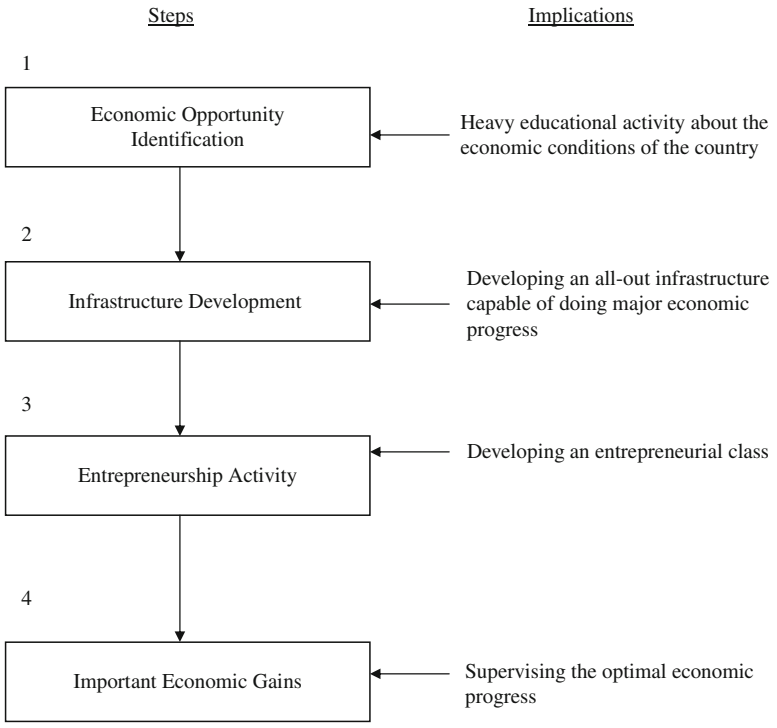

Exhibit 2.2 The economic development sequence

shown in Exhibit 2.2, is not properly developed most of the time (Ozgen and Minsky 2007).

A number of considerations must be articulated regarding the two prongs of education. As the first prong materializes, identifying, assimilating, and absorbing new knowledge takes place. It is necessary to learn about the particular conditions of that country with the general thrusts of education, reasoning, problem identification, and problem solving, among others. Such knowledge must be carefully developed and imparted so that entrepreneurial aspirants will know what in the economy may be fruitful.

In the second prong of the proposed educational effort, knowledge, and experience are expected to play a critical role. Thus, the second key consideration in the educational venture is that the activities need to be hands-on and experiential. Most economically deprived societies are clearly not beyond theoretical indoctrination, which may be not only difficult to operationalize but also counterproductive in terms of applications and practical results under the conditions existing in that country.

The third key consideration in the educational two prongs is that there must be a very tight connection among opportunity identification, infrastructure development,

and the entrepreneurship activity. These three steps as listed in Exhibit 2.2 cannot be independent and self-containing. They must be so closely intertwined that further steps to be taken and further decisions to be made must be obvious enough that proper training in decision-making and problem-solving would be handled effectively and with positive results.

The Entrepreneurship Activity

In my recent book, (Samli 2008) I took a critical position that exogenous economic development activity has not been working well for developing countries. I believe that this is true because outsiders are not quite familiar with the conditions existing in the country nor do they have a good understanding of the country's needs. Instead, I advocate endogenous economic growth activity via bottom-up globalization. Bottom-up globalization is to be accomplished by developing an entrepreneurial class (Samli 2008). Such an entrepreneurial class is likely to generate critical and viable economic activity from very modest beginnings and create new jobs along with much valuable innovations. Such starts would lead to innovative valuable economic activity and would generate economic growth. However, it has been said many times by many scholars that without a proper infrastructure, endogenous economic activity cannot materialize and economic development through entrepreneurship becomes simply a dream without any foundations.

However, unless there are special pressures in the short run to develop export-oriented infrastructure, I advocate the development of industrial-oriented infrastructures. Industrial-oriented infrastructures can be the first step for many different types of ambitious economic development dreams. Although industrial orientation may be more expensive, and its returns, in terms of economic benefits, may take longer to materialize, in the long term, I believe that it has more positive rewards for the country and its population.

Summary

In this chapter, we attempted to connect infrastructure to economic development, which is a normal and widely accepted concept. It was discussed that, during colonial regimes instead of developing solid, futuristic, and industrial oriented infrastructure, African countries were pressured to develop export/import-oriented infrastructures. As a result, many African nations are having a very difficult time in jump-starting their domestic economies. However, even if it is decided that industrialization infrastructure is better, there are concerns regarding the nature of such infrastructure developments. Is there only one type that facilitates all economic development activities or are there clearly different forms of industrialization-oriented infrastructures?

Even if there was only one type that fits all, there are still many serious questions regarding the components of this infrastructure? Do these components remain the same or do they take different forms and have different concentration stages? Much research is needed to elaborate on these critical questions so that developing countries of the world can make critical progress in their efforts to develop their economies. Some of these issues and many more are discussed throughout this book.

Infrastructure Principles:

1. Even the most basic infrastructuring activities could have different general economic contributions.
2. Modern day colonialism is not at all acceptable.
3. In infrastructuring one size does not fit all.

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Chapter 3
The Forgotten Power Behind the Scenes: Deteriorating Global Infrastructures

Introduction

Despite its widely acknowledged role in economic development and growth, in both developed and developing countries, infrastructure is a neglected concept at best and totally forgotten at worst. This chapter brings the major concept into focus that economic progress begins with infrastructure development and management.

The chapter articulates three major strategic roles for infrastructures: economic growth generation, trade facilitation, and global power creation. It then discusses the key impediments to infrastructure development.

While many countries of the world are struggling for economic development, the concept of infrastructure is not taken into consideration. In fact, it is seldom mentioned in conjunction with economic development. This condition must be reversed.

As we mentioned earlier, for every building there is a foundation that determines the building's functionality and durability. For an economy, also, there is a foundation that facilitates its functioning and its growth. In other words for every structure, whether it is just a private property or it is a country's total economic activity, there is an *infrastructure*, a concept that appears to be forgotten. This is an umbrella term that covers many activities. In the past, it was referred to as "public overhead capital" (Nurkse 1953, Lewis 1955). Because it is the essence of any economic activity as any company has capital to create output through production, the society produces economic wealth through public overhead capital or infrastructure. If the public overhead capital is not formed, countries seem to be developing an economy without a foundation. While many poor countries have been struggling to improve their economies, there is almost no mention of infrastructures.

Public Overhead Capitals

Infrastructures, or public overhead capitals, are the lifeblood of strong economies and societies (Stevens and Schieb 2007). But in most places around the world infrastructures are no significantly or even maintained properly. Thus, while industrialized

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countries by neglecting their infrastructures are sub-optimizing their economic growth, developing countries are not even concentrating on comprehensive infrastructure development. In India, it has been maintained that the two biggest hindrances to economic growth are infrastructural deficiencies and the inefficient bureaucracy (Bjorke 2006). In Nigeria, while water supply, power, and communications are improved, almost no attention is paid to the transportation sector (Ford 2003). Thus, consumers do not have access to goods and services that would improve their quality of life. Similarly, local producers cannot get their wares to markets cheaply and rapidly; therefore, local economies remain dwarfed.

Although there is not one generally accepted list of activities or components that is covered under the umbrella of infrastructure, different authors have attempted to list items that are considered parts of infrastructure. Perhaps the most comprehensive list is presented by Fosu et al. (1995). Relating primarily to agricultural infrastructure, it must be noted that the components cited by these authors are applicable to the economy as a whole. Fosu et al. specified 11 key components. They include irrigation and public access to water, different modes of transportation, storage facilities, distribution systems, processing infrastructure, public services, research and communication services, information and education, conservation services, credit and financial institutions, health and information services. This list does not include energy, which is one of the most critical components of the infrastructural umbrella. This list may be exaggerated or understated; hence, we cite Hirschman's (1958) four general conditions, which may represent the essence of infrastructure. (1) Services that are provided to facilitate economic growth activity; (2) services that are generally public goods; (3) supportive services that cannot be imported; (4) infrastructural investments that are likely to be indivisible. Thus, it can be concluded that all public utilities, all public works, and all other means of transportation can be considered part of the infrastructure (World Development Report 1994). This statement brings is rather controversial as it raises the question of public versus private, which is which, and which should do what? Because infrastructure development is very costly and the economic rewards come very slowly and usually after a serious time lapse many third world governments are hesitant to undertake major developments on their own such as privatizing infrastructure development and obtaining its financing. This situation results in major deficiencies in the overall infrastructure development, which is extremely important for the development and maintenance of viable economies. Stifled development of infrastructures is causing major barriers to economic development and to enhancement of consumer well-being in these countries. As Hirschman stated (1958), infrastructure is primarily a public concept and trying to privatize it is not quite reasonable or functional. As I noted in one of my earlier books, (2008), some modern industrialized countries are developing a tendency to solve public problems with private measures. This is not only a redundant activity but it is extremely dangerous for the future of a country since such an orientation is likely to favor one group or one industry at a time rather than reaching out to the quality-of-life enhancement of all citizenry.

It is obvious that the economic activity of a locality, a region, or a country begins with infrastructure and further flourishes with that infrastructure's functioning.

It is the infrastructure that makes production possible; it raises productivity, lowers production costs, and makes it possible to move people and products as needed. But at the same time the infrastructure must also expand fast enough to accommodate growth (Stish 2007). Of course, it is quite possible to assume that infrastructure must expand quickly enough to accommodate growth, but it must expand in such a way to generate growth. This also means that infrastructures must be flexible enough to facilitate the rapid growth and development of high-tech industries as well. In this chapter, an attempt is made to explore the role of infrastructure and discuss some of the key barriers to its development.

A Historic Outlook

Most western industrialized countries did not quite experience Say's law that "supply creates its own demand." Instead, I believe they experienced the opposite that demand created its own supply. Due to advanced education, closeness of sources of production and markets and, above all, the riches created through colonization of Africa, Asia, and extensive trading with colonies and other less-developed countries, many western countries advanced quickly in terms of their economies (Fieldhouse 1986). Thus, for a number of industrial countries, demand created its own supply. The excessive demand that these riches created facilitated industrial growth, which included substantial infrastructure development. In fact, in many cases, industrial growth necessitated the development of infrastructure quickly and effectively. Although these countries reacted to these urgent demands they have expanded their infrastructures in a rather imbalanced manner.

Developing countries did not possess the know-how to develop infrastructure, did not realize the importance of infrastructure, and had very large unused lands that did not lend themselves easily to develop infrastructures. Additionally, infrastructure development appeared to be very costly and generated very limited revenues in the short term. As a result, infrastructure development in these countries has been stifled.

As early as 1965, I proposed that physical distribution should become an integral segment of the overall marketing effort (Samli 1965). This concept has been totally accepted and functionalized by the industrial world today in the form of modern logistics. However, only those countries that accepted and utilized logistics realized that logistics is not functional without adequate infrastructure. Once again, only a few industrialized countries dwelled Nurkse's concept of public overhead formation (1953) as the starting point of any kind of economic development. Others needed to primarily facilitate their international commercial needs and therefore emphasized only certain limited aspects of logistics, which led to only certain aspects of infrastructure development.

On the other hand, Latin America is facing very urgent and fast-growing infrastructure needs. The needs create a massive list that includes all aspects from water distribution to transportation and highways (Shira 2007). This complete infrastructure

development will generate a major economic boost for the whole region. But, as stated earlier, funding for the infrastructure activity has been extremely difficult and almost totally inadequate.

However, as Friedman (2006) stated, the world is becoming flatter all the time, meaning that international trade is becoming easier and more attractive. Infrastructure development may be taken as a means of developing strategic advantage in global competition (Feiock et al. 2008). It may be posited that the dramatic economic performance of the newly industrialized countries (NICS) during the past 2 or so decades is closely related to their particular effort in developing their infrastructures to the levels where they are strategically displaying a global competitive power development. The Asian four tigers, South Korea, Singapore, Hong Kong, and Taiwan, have been concentrating on their infrastructure development in order to become world class players in the total globalization movement. From the discussion presented here it may be concluded that there are different infrastructure orientations. In other words, infrastructure development may be undertaken for different economic and trade reasons. Exhibit 3.1 presents three major infrastructure orientations: growth generation, trade facilitation, and global power creation.

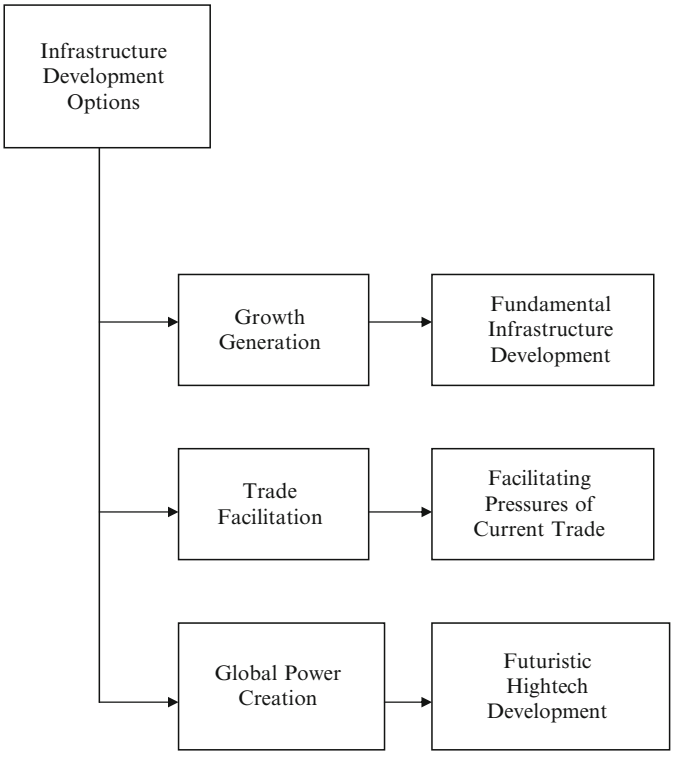

Exhibit 3.1 Alternative orientations of infrastructure developments

The Key Infrastructure Orientations

There are at least three major infrastructure development orientations: generating growth, facilitating trade, and creating global trade power. It may be posited that others are simple variations of these three key orientations.

Generating growth: Waters (1999) stated that infrastructure development is critical for economic development as a whole. Earlier authors such as Nurkse (1953) asserted that without proper infrastructure economies cannot be developed. This may partly indicate why many developing countries are not making much economic progress at this writing. They need infrastructure development for future growth, but they cannot create the proper infrastructure for many reasons. Although it is out of the basic parameters of this chapter, it may be stated that, above all other reasons, these countries do not have a clear-cut vision as to how they can develop their economies. Hence, their future plans (or lack thereof) are not connected to their infrastructure plans.

Facilitating trade: Some developing countries have certain exportable products such as raw materials. Others may have a few international companies that require special domestic infrastructural needs such as specific roads, extra electric power, and the like. In such cases, infrastructure may be developed primarily to facilitate these trade needs, and due to the speed of this orientation to yield economic revenues and the limited nature of the infrastructure, these developing countries are being rather myopic (Muiu 2008) in their outlook for economic growth.

Creating global trade power: Efforts to gain a strategic advantage in a constantly flattening world (Friedman 2006) through proper institutional development and ambitious human capital formation can be initiated by a futuristic and proactive infrastructure formation. That infrastructure would facilitate not only standard economic development but also new technological platforms that would set the country into a futuristic global market presence. How can communities and countries enhance their competitive advantage in the flattening world where trading is becoming easier due to the modern globalization? It may be stated that the answer clearly lies in the way and the type of social overhead capital or infrastructure that is being designed, constructed, used, and managed. Once again, it can be posited that the Asian four tigers have been deliberately engaged in this futuristic and proactive infrastructure development. However, the nature of infrastructure development is such that it can be side-tracked very easily. As discussed earlier in this chapter, such futuristic and proactive infrastructure is very costly and very slow in its payoff. Furthermore, such infrastructures are difficult to plan effectively and above all to manage efficiently. Thus, although important and necessary, global trade power generating proactive infrastructures are difficult phenomena, and they are not emphasized in the development plans of most nations. In fact, it may be reiterated that most developing countries do not have a functional economic development plan, and as a result they may not have concrete infrastructure development either.

Without a proper infrastructure, these countries will likely not have a chance to become newly industrialized countries (NIC).

Degrees of Variation in Different Parts of the World

Exhibit 3.2 presents five key points as to why infrastructures in the world are not all adequately developed. Despite the statement by Friedman (2006) that the world is flat, Florida (2002) counteracts this concept by saying that the world is spiky. Florida goes on to say that the world is still full of clusters. Specific countries or regions maintain that their competitive edge and resultant are based on a selective combination of infrastructure, technology, and entrepreneurial cultures, among others. These regions add to the spikiness rather than flatness of the world. As some places prosper, others suffer. If, for instance, the rural infrastructure has deteriorated or is simply nonexistent, the cost is that poor farmers will not be able to reach major markets with their products nor will rural poor consumers be able to get the goods that they need. Such infrastructures involve huge initial investments, long gestation periods, high risks, and low rates of returns on investments (Stish 2007). Most developing countries do not have the necessary resources to get their infrastructure up to par, and hence they have difficulty getting their economic development activity started. In fact, some scholars argue that for cities and localities to enhance or maintain competitiveness, or create a thriving economy, they need a friendly people climate before they need a friendly business climate. This means having well-educated and a well-adjusted intelligentsia to be involved in economic development (Chua 2003). But this is not common in many developing countries. Thus, a low level of economic development is a barrier for development of infrastructure and vice versa. This is the first key point in Exhibit 3.2.

A somewhat closely related point is the second item in Exhibit 3.2. There is a lack of knowledge or a lack of understanding of what good infrastructures could help accomplish. Whether the lack of knowledge is related to economic underdevelopment as is the case in developing countries or not being paid enough attention to as was the case in communist countries, logistics-related infrastructure is not developed (Waters 1999). Exhibit 3.2 presents the third factor as the lack of ability to manage. Certainly, ability is very closely related to the relative importance that

Exhibit 3.2 The flat world with spiky infrastructure

Key influencing factors	Specific impacts
Economic development	Many poor countries do not have adequate resources
Lack of knowledge	Many countries do not understand or appreciate infrastructures
Lack of ability to manage	Even if the infrastructure exists it is not managed well
Dramatic political changes	Moving from command to demand economies
Impact of technology	Changing from physical to technological infrastructures

is attributed to the development and use of infrastructure. The lack of ability to manage infrastructures can also be traced to Edwards' (2002) description in which he posits that infrastructures constitute an artificial environment using or redirecting the properties of the natural environment. Since the environment is not quite controllable, the infrastructure at times and in certain circumstances may also not be quite controllable or manageable.

The fourth influencing factor on infrastructure is dramatic political changes. Although it was widely agreed that public spending on infrastructure is a critical factor in economic development, eastern European countries, under communist regimes, did not pay enough attention to this critical fact. As these countries reached the economic transition state from communism to capitalism they did not have adequate knowledge as to how to manage their existing, quite ignored, limited, and aging infrastructures. Poland, for instance, experienced many difficulties in coping with the West European countries' demands for its products (Waters 1999). After the collapse of communism, Poland faced a totally neglected infrastructure, and it is still struggling to bring its infrastructure up to par (Waters 1999).

Finally, the fifth influencing factor is the changing impact of technology. For example, China is very interested in moving its products, from points of production to points of distribution or consumption, but most of these products are tangible, and therefore, it is putting much emphasis on its physical infrastructure development. India however, is primarily emphasizing software production and is neglecting its basic infrastructure development (Stish 2007). Thus, although India's wireless technologies are advancing, its agriculture system is not making similar progress, particularly because its roads are not carefully maintained and hence agricultural products cannot reach markets efficiently and effectively. India's infrastructure is much less visible and physical than that of China.

As an example of the impact of technology on infrastructure development is the proposed plan for Iraq. In order to generate a vibrant economy in Iraq, a heavy emphasis has been placed on technology. According to proposed development plans, a modern economy must possess the following key elements: a fiber-optic communications infrastructure, a banking infrastructure, and a general infrastructure that facilitates industrial operations among others (Brinkley 2008). This orientation implies that the infrastructure could be designed to facilitate certain expected economic growth and progress.

Futuristic Infrastructure

As shown in Exhibit 3.3, infrastructure can be tailored to fulfill future economic goals and aspired economic progress. India and Ireland are currently developing their infrastructures to accommodate future global growth aspirations. Their futuristic infrastructure development is designed to accommodate technology and software developments.

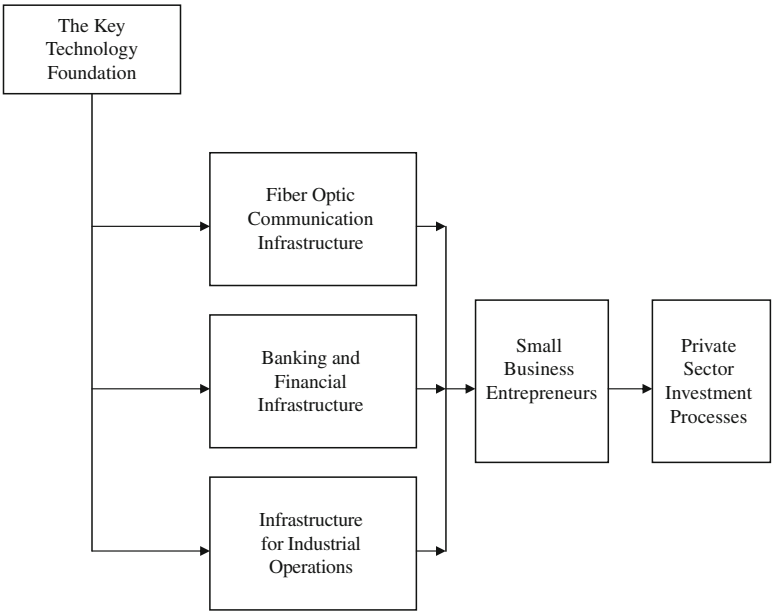

Exhibit 3.3 Technology-based infrastructures (Based on and revised from Brinkley 2008)

Exhibit 3.3 illustrates how these highly technology-dependent infrastructures will work. The critical point shown in Exhibit 3.3 is that infrastructures are high-tech based and do not require heavy duty engineering and construction. Such high-tech based infrastructure, however, must facilitate the emergence and functioning of an entrepreneurial class and further facilitate private investments for the economy to grow (Samli 2008). Such a proposed model as shown in the exhibit would necessitate the all-important traditional basic infrastructure development, which will come somewhat later, if at all, than the activities Exhibit 3.3 illustrates. In this kind of development, there will be more possibilities for private participation and hence private financing, but it may deter the development in the conventional infrastructure. Although the model presented in Exhibit 3.3 is for Iraq, the same model can be successfully used for Afghanistan or some African countries as well. Perhaps the most important aspect of Exhibit 3.3 is that the plans for economic growth are connected to the infrastructure. This is the most critical aspect of the future infrastructure development.

Summary

Public overhead capital formation, or infrastructure development, is necessary for overall economic development as well as maintaining economic progress. But despite its very critical role, infrastructure is a woefully neglected concept.

Infrastructure development sets the tone of a country's future progress by specifying its economic activity. Thus, infrastructure development can be a major proactive guide for a country's economic and its business progress. In this chapter, three key infrastructure development strategies are presented. These three strategies are important in terms of the role each is intended to play. Countries will have to decide their own infrastructural future and pursue it vigorously. Those countries that have a strategic plan for economic growth are likely to have a better understanding of their infrastructure needs.

Despite the fact that infrastructures are truly essential for economic development, the status of the existing infrastructures in different countries throughout the world is variable. This variability stems from five different factors: economic development, knowledge, management ability, political changes, and technology. Although in the long term, infrastructure investment provides a significant return, particularly to manufacturing firms and augments productivity growth (Morrison and Schwartz 1996), it is currently neglected just about everywhere in the world. Technology is particularly emphasized because it plays a most important critical role in infrastructure development.

Future research must particularly emphasize the connection between entrepreneurship and infrastructure that is most beneficial to a country. If, according to the experts, entrepreneurship is critical for economic development, particular effort must be made to create the most user-friendly infrastructure for its development. Also, it is critical to explore the timing and nature of technology-based infrastructure and conventional infrastructure development.

Infrastructure Principles:

1. Paying lip service to infrastructure development and functioning is not good enough.
2. Infrastructuring can be designed with clearly defined options, but how good are these options?
3. The world is not quite flat; it is rather spiky when it comes to infrastructuring.

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Chapter 4
Optimizing Infrastructure Development: Difficult but Necessary

Introduction

The economic health of a country is strictly connected to many factors, all of which influence the development and maintenance of that country's infrastructure (Kidd 2007). In fact, it must be recognized that no matter how hard they may try, countries cannot make much economic progress without necessary infrastructure (Urban Land Institute and Ernest & Young 2008). In order to develop and maintain a successful economic development pattern, a functional infrastructure is critical. During its ascendancy to a global superpower status, the USA invested massive amounts in its infrastructure, expanding its ports, building extensive road systems, leading in airport designs, erecting dams, laying down power grids, and constructing water treatment facilities. Japan challenged the USA in world markets by building its own infrastructure. It put special emphasis on bullet trains, super highways, and exemplary airports and ports. Today, China appears to be the most appreciative nation of infrastructure development and is investing 9% of its gross national product on infrastructure development (Urban Land Institute and Ernest & Young 2008). The first major task in infrastructure development is to explore the relationship between the country's economic well-being and its infrastructure. But this is not enough, it is also necessary to determine the components of the infrastructure that is most suitable for the country's economy so that the development and maintenance of that infrastructure will be carefully tied with the country's economic health. This chapter explores the role of infrastructure development in an economy and how that infrastructure can be optimized.

Differences in Infrastructure

From the beginning, one point that must be strongly emphasized as far as the infrastructure is concerned, is that there is no one size that fits all. Infrastructures of countries are different and there is not a generally accepted infrastructure model that would work under all circumstances. No national economies are exactly alike

A.C. Samli, *Infrastructuring: The Key to Achieving Economic Growth, Productivity, and Quality of Life*, DOI 10.1007/978-1-4419-7521-8_4,

and no administrations of the 200 nations that currently exist think and act alike. As a result, infrastructures are not built alike, look alike, and indeed function alike. It is critical, therefore, that the components of infrastructures are examined and the conditions that are necessary to optimize the whole infrastructure system are explored to provide a more positive orientation to individual economies. If third world countries are optimistic about their future, and if they are hoping to experience a healthy and steady growth, they will put much more emphasis on their infrastructure development and its management. But at the same time, the industrialized countries of the world also must not neglect their infrastructures.

As there is no optimal model for infrastructures and no uniform desire to develop them in one specific way, and because the need for infrastructure is perceived differently by governments that have different agendas, differently, the world's infrastructure picture is extremely checkered. Bremmer (2006) has attempted to develop a theoretical construct for optimizing infrastructures. His perception was depicted by a (J) curve with vertical *axis of stability* and horizontal axis of *openness*. He argued that to the left of the curve there are nations that are authoritarian and run by a dictator. But on the right side of the curve, there are other countries that are democratic and have transparent institutions. If the dictator or the leader dies or is ousted, the country would sink into crises. But the right side of the (J) curve countries will continue prospering. Although there is some logic in this reasoning, it is rather a static analysis because although a country appears stable and open, the quality and performance of the infrastructure in question. Clearly, for third world countries to have stable and open governments and stable and open infrastructures is an important and a desirable situation but this orientation assumes that all infrastructures are alike. I believe that if there were to be a (J) curve it has to be dynamic and futuristic in that the infrastructure is most appropriate for that economy and for its growth. Instead of a (J) curve, Exhibit 4.1 illustrates an idealistic picture regarding infrastructure development.

The Best Possible Infrastructure

Exhibit 4.1 shows the basic approach to establishing a best possible infrastructure that will support economic growth, will provide satisfactory macromarketing possibilities and a resultant increase in the prevailing quality of life. There are hardly any immediate or early payoffs in developing and maintaining infrastructure. Therefore, governments must play a very critical role without expecting a short-term return for this very expensive proposition.

It is difficult to determine in advance what are the risks involved in certain infrastructure projects. It is even more difficult to determine if the government is a risk taker or a risk evader. However, every situation is different and every different situation carries a risk of not paying off, being too expensive, or extremely slow in the payback process. Thus, the question is what infrastructure combination would pay off most quickly and most handsomely and most

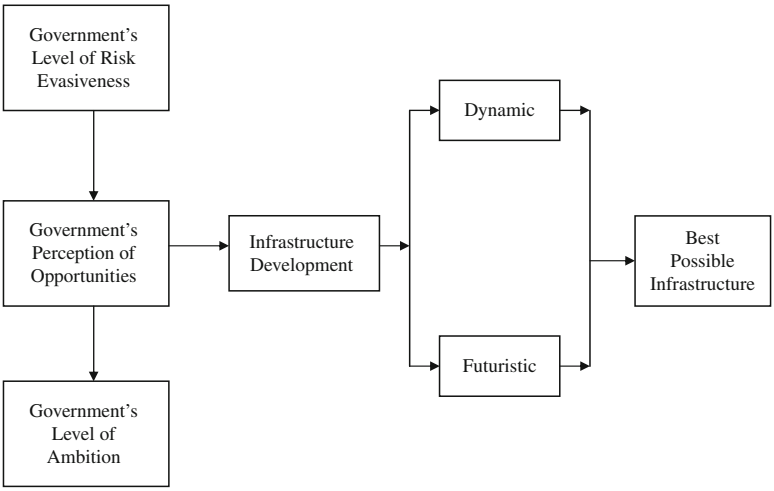

Exhibit 4.1 Best possible infrastructure

important is how successful of a risk taker is the present government? As shown in Exhibit 4.1, unless the government can determine the best economic scenario for its country nothing can happen. These scenarios are based on the government's ability to identify economic opportunities for the country or the region, and are different approaches to identifying and assessing these economic opportunities (Samli 2009). However, there is no best way of accomplishing this difficult, challenging, and costly activity. But it can be posited early on that developing realistic economic opportunity scenarios clearly would guide the country's infrastructure construction in a positive direction.

Dynamic and Futuristic

When a growth scenario is developed a supportive infrastructure must be constructed. Here the infrastructure can be dynamic, futuristic, or both. Here the dynamic indicates that the infrastructure in question is not only capable of performing for the immediate needs of the country but also can adjust to the sudden changes in the needs. Futuristic, on the other hand, implies the capability to perform for the future needs and is the key starting point of satisfactory economic development in time. However, an ambidextrous government, that is, a government that is sensitive and multitalented, would manage the infrastructure in such a way that it will deal with the future (Samli 2007). Therefore, ideally, the infrastructure should be dynamic as well as futuristic, which is the best possible infrastructure. If the best possible infrastructure is being desired, which is likely, then it is necessary to

Exhibit 4.2 Opportunity scenarios

Scenario alternatives	Economic meaning
Producing basic essentials	Setting the foundations for multiple industries
Exporting the nations' natural resources	Developing mining and extraction industries
Establishing the industrial foundations	Developing the needed conditions for a national industry
Reaching out to scattered rural markets	Making sure that rural consumers are taken care of
Generating higher levels of employment	Creating numerous local labor-intensive industries
Developing an exporting industry with futuristic orientation	Developing a futuristic industry that would make an impact in the world markets

explore economic opportunity scenarios. Exhibit 4.2 presents six such scenarios. Clearly, there could be many more; however, the six presented here are some of the very basic alternatives. It is possible that each alternative may have multiple applications and each one implies the need for a different infrastructure. A basic discussion is presented for each.

Producing basic essentials: This is perhaps the most common infrastructure development orientation. Any developing country with some ambition will develop an infrastructure that has different possibilities. This approach may provide the opportunity to develop a number of basic industries, which may later become lucrative. However, utilization of this scenario also may imply that the country or the region does not have any idea as to where it should go.

Exporting the nation's natural resources: This is most likely to be extracting or mining certain valuable commodities such as gold, diamonds, or petroleum. This strategy is likely a short-term and rather ineffective scenario. The problem it is that it does not necessarily expand into developing other industries. Sierra Leone has been exporting gold and diamonds for a very long time but has not developed other major industries. Most of the OPEC countries are also in the same situation. While their infrastructure is highly developed for shipping and exporting petroleum, the same infrastructure cannot be used for many other industries. This shortsightedness could be a big hurdle to their economic development in the future.

Establishing the industrial foundation: This is the most logical and classical infrastructure development scenario. Almost by definition, this alternative can open up any industrial ambition that a country may have, but it may be the most costly which may have the slowest payback in terms of generating economic benefits. Furthermore, despite its attractiveness, this alternative may be too complicated to build in the most effective manner.

Reaching out to scattered rural markets: Third world countries tend to have many isolated and small markets with particular idiosyncrasies and many unresolved issues that would make each of these markets unique and not desirable for global giants looking for critical mass in terms of market demand and resultant significant

profits before they enter certain markets (Samli 2004). Thus, these scattered markets and the people in these areas are not satisfied. Their needs are not satisfied and they have little access to local infrastructure that will connect them to supplies of goods and services. Infrastructures that are primarily keyed for the scattered, rural, domestic markets are mostly ignored. There is an additional problem articulated by Chatterjee (2004) in that most planners and engineers working for local public agencies are not trained in freight planning. Therefore, they may not be very qualified in using the technical information necessary for freight planning in such cases. The flow of goods and services, or freight, cannot be successful when there is a lack of good roads or vehicular fleets. And as a result of the existing problems and the various attempts to solve them all have become powerful forces leading to critically different infrastructure strategies by different regions and different countries.

Generating higher levels of employment: Third world countries unemployment is a particularly critical deterrent to economic development. Although regional or national governments have good intentions, they typically resort to infrastructure activity that is very promising in the short run but is not likely to facilitate the creation of numerous new jobs in the longer-term. But if infrastructure development were to proceed with the idea of generating numerous local labor intensive industries, then a rather complicated infrastructure would be needed to connect scattered small markets together and facilitate proper flows of multiple freights. This scenario is perhaps the most complicated and the most costly of the six scenarios shown in Exhibit 4.2. In this scenario, the efforts will pay off first and foremost for the domestic population, thus raising the quality of life for large groups of citizens as well as positively developing the economy. This, however, is a very costly proposition for a country because it deals with a complicated issue – that is, primarily care of its citizens without generating income for the country from outside.

Developing an exporting industry: Developing an industry for a future export activity and planning the infrastructure accordingly calls for extraordinary dedication on the part of the planners and those who are going to implement those plans. The dedication here is connected to identifying the opportunities for the country or the region in an extremely sophisticated manner and then developing a complex business-logistics plan facilitated by a forward looking infrastructure. Less-than-adequate planning can be a major hindrance to economic development. Recent experiences in South Africa indicate that if the country's logistics had been better planned, the economy of the country could have grown faster (Ford 2007).

Are the Differences Significant?

Clearly, countries have different levels of infrastructural development. It is impossible to determine what kind of economic plans forced these infrastructures, and which came first, infrastructure or economic development. In addition, is the current level of infrastructure development helping a country's economic progress. All these are very serious questions that cannot be answered readily and objectively.

A major observation at this point is that the infrastructures and their relative emphasis vary significantly from country to country. Exhibit 4.3 illustrates this point by contrasting the form and management of infrastructures for four different countries: China, India, Ireland, and South Africa. The exhibit describes coordination and control of infrastructures and is based on two key dimensions: Formalization is the first dimension that consists of a more centrally organized infrastructure throughout a country. By the same token the country may consider localization rather than formalization and allow local authorities to decide on the patterns of their infrastructures; this dimension is called decentralization. Again, strongly centralized countries may exercise more control of the management of the infrastructure. On the other hand, some countries are strongly decentralized and they manage infrastructure accordingly. As shown in Exhibit 4.3; China is more formal and more centralized. Ireland is the least formal and the most decentralized. Although it has strong formalization, India is more decentralized than China. Finally, South Africa is considered to be more localized, but more centralized in terms of management. The following discussion is based on Exhibits 4.3 and 4.4 (Burton et al. 2006).

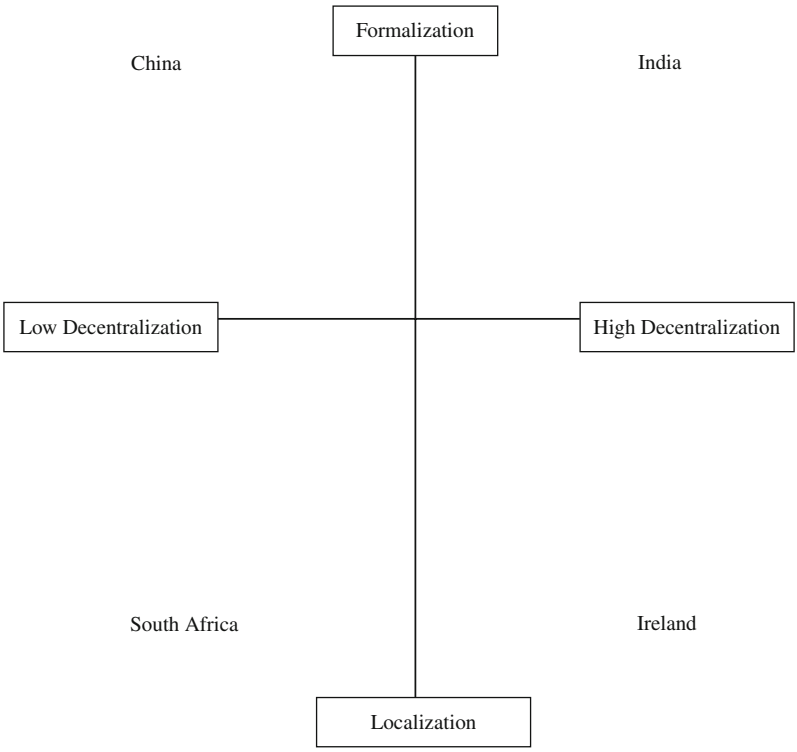

Exhibit 4.3 Form and management differences in infrastructures (Adapted and revised from Burton et al. 2006)

Exhibit 4.4 Examples of extreme differences

China	World's most advanced airports and seaports, but the land connection linking locales are substantially different.
India	India's basic infrastructure is not very advanced. However, its infrastructure for high-tech industries is exemplary.
Ireland	The country has an intense infusion of new industries; new competencies and new forms of industrial organizations are all extremely dependent on logistics and transport services.
South Africa	The country's mostly export-oriented transport emphasized infrastructure is experiencing having some difficulty coping with increased exports.

China: Although it is expected that China will dramatically alter the world's economic picture (Johnson 2007), China does not even rank in the top 100 countries on a GDP per capita basis. This is because it has been emphasizing production and exports. Its exports increased about 28% in 2006. Hence, Chinese emphasis on exports and imports generated the development in this country of world class airports and sea ports along with world class telecommunications and broadband internet further increasing its country's productivity and foreign trade (Johnson 2007). However, within the country, China's transportation infrastructure is bureaucratic, complex, and behind the country's economic growth (Johnson 2007).

India: Much emphasis has been on the private investment sector, which has been the source of the new industrial capitol and infrastructure development (Chakravorty 2003). This situation has led to developing infrastructure selectively, with the emphasis on high tech and information technology infrastructures.

Ireland: As shown in Exhibit 4.3 an intense infusion of new industries, new competencies, and new forms of industrial organizations are all extremely dependent on infrastructure that caters to logistics and transport services. The infrastructure capabilities are very critical in the Ireland's economic growth.

South Africa: This country has tended to over use its rail services. Despite substantial national investments, the rail as well as road infrastructures are disruptive of the country's economic growth (Ford 2007). This is primarily because the country needed connecting to the outside world through waterways and airways. They were neglected in favor of rail roads and road infrastructure.

Summary

From our analysis thus far it is clear that there are key differences in the infrastructures of countries. Perhaps an important question here is how a superior infrastructure can be developed that will serve as a solid foundation for a country's economic development both in the present and the future. As it is obvious that one size does not fit all,

how can a country develop a suitable infrastructure? Finally, would the original make-up of the infrastructure be changed as new needs emerge? As our analysis indicates, suitable infrastructures are based on different scenario alternatives. These alternatives in turn are based on a country's economic opportunities. The connection of opportunities, scenarios, and infrastructures must be researched very carefully for the future of the third world. Without such an endeavor, third world countries are unlikely to develop their economies and become powerful participants in the modern globalization movement. These points will be considered many times throughout this book.

Infrastructure Principles:

1. Infrastructure development does not automatically mean optimal results.
2. Government perception of opportunities modified by risk perception and level of ambition is the foundation for infrastructure development.
3. Based on opportunity identification, infrastructure form and management patterns vary from country to country.

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Chapter 5
Developing an Action Plan for Infrastructures: From Vision to Action

Introduction

The general favorable stance taken by students in industrial development has been termed the high-road industrial development strategy. Such a strategy aims to develop an economy characterized by highly value-added output of goods and services, a highly skilled work force and higher income for citizens. Such a high-road industrial development strategy can be achieved only if a continuous innovation, learning, and upgrading activity, is in effect (Grunsven and Egeraat 1999).

In this chapter, an attempt is made to connect the high-road industrial development strategy with the infrastructure development of a country. Without a proper infrastructure, the high-road industrial development that develops the economy by concentrating on highly value added output of goods and services, highly skilled work force, and higher income for citizens cannot materialize. However, for such an infrastructure to materialize, the quality of life must be considered first and foremost.

From Vision to Action

Exhibit 5.1 presents a construct of how action-oriented plans emerge. There are at least four steps from vision to action. Unfortunately most plans stop after vision and mission statements. However, unless there is a realistic action-oriented plan, nothing is likely to come out of this painstaking exercise. As illustrated in Exhibit 5.1, in terms of the economic development of a third world country, the vision statement can be articulated as the ability to reach the standard of living that already exists in industrialized countries. Within the constraints of that vision the mission statement could be easily explained as raising the country's industrial profile to include high-technology industries that are commonly available in industrialized countries. However, as stated earlier, if we were to stop at this point, the vision and mission statements become simply wishful thinking. It must be reiterated profoundly that wishful thinking is not a strategy and will accomplish nothing in the country's economic development. Thus, the third step is the strategy statement. In this case, the strategy will perhaps be based on the

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Exhibit 5.1 From vision to action

Vision	→	To reach the standard of living of industrialized countries
Mission	→	To raise the country's industrial profile to high-technology industries
Strategy	→	To emphasize the capabilities of the manufacturing sector to produce high value added products
Action	→	To initiate multiple action plans to implement the strategy

Exhibit 5.2 An action plan Adapted and revised from Bin Mat Zin and Talet (2007)

Steps
• Raising the level of economic activity
• Enhancing national capacity for knowledge and innovation
• Improving socioeconomic disparities
• Enhancing the quality of life
• Strengthening the institutional and implementation capacity

capabilities of the manufacturing sector to produce higher value added products. Finally, the fourth step is articulating an action-oriented plan to implement the strategy. There could be many action plans to bring the strategy into a national reality. Just what could be the alternatives in such an action plan? This is the critical point in the whole effort. Exhibit 5.2 illustrates five different aspects of such an action plan: raising the level of economic activity, advancing knowledge and innovation, improving socioeconomic disparities, enhancing quality of life, and strengthening institutions.

An Action Plan

Before a discussion of the critical presence of a necessary infrastructure is presented, the proposed action plan is discussed. Clearly, the five components of Exhibit 5.2 individually and together are extremely involved, but we will provide a brief overview of these critical points. The first point is raising the level of economic activity. The typical reasoning is that the overall economic activity will shift in time to high technology and knowledge-intensive activities that will generate greater value added in the total GDP. Such industries include electronics, petrochemicals, biotechnology, machinery and equipment, aerospace and maritime industries, among others (Bin Mat Zin and Talet 2007). But such progress will not happen without a proactive plan. With the flattening of the world (Friedman 2005), third world countries can aim at becoming a part of the global supply chain by enhancing the level of their economic activity. But that level of economic activity cannot be enhanced without having an adequately progressive infrastructure.

Raising the level of economic activity is not likely to become a reality without our second point, which is enhancing national capacity for knowledge and innovation. Knowledge base is the foundation of a society's innovative capabilities. Using this principle as the basis for infrastructural planning will concentrate countries on

developing innovative entrepreneurial talent that will rely on the support that the proposed infrastructure will provide. Efforts to develop quality human capital must emphasize knowledge, skills, and intellectual assets (Bin Mat Zin and Talet 2007). It is possible to coin this whole activity as development of intellectual infrastructure.

Improving socioeconomic disparities is the third component of the plan presented in Exhibit 5.2. A number of studies have shown that the societies without dramatic economic discrepancies among their people enjoy better, faster, and greater economic progress. For the third world countries, eradicating poverty, achieving income parity, and cultivating regional development are the key considerations in eliminating the gap between the rich and the poor. Achieving a balanced and meaningful development that will reach out to all is necessary for the infrastructural action plan (Bin Mat Zin and Talet 2007). Insuring that all sectors of the economy participate in economic development activities and developing active commercial and industrial communities to accelerate fair and productive employment possibilities are all parts of efforts to improve socioeconomic disparities (Bin Mat Zin and Talet 2007).

The fourth step of the action plan is enhancing the quality of life. Without a goal of a higher quality of life for everyone, all its citizens economic development plans and commensurate infrastructure activity cannot provide adequate incentives for any economy to develop in the manner it plans or wishes for. Although infrastructure can be built and/or can be improved for the short-term trade advancement, such activity may not reach or benefit consumers and repercussions could be quite negative and may not receive popular support. Bin Mat Zin and Talet (2007) maintain that the proper action plan for infrastructure development is based on carefully considered quality of life improvements. Exhibit 5.3 illustrates seven key points of advancing the quality of life in a community or a country. These are discussed further in Chap. 13. Above all the exhibit demonstrates the blurred relationship between the infrastructure and the quality of life if the vision, mission, strategy, and action sequence is carefully in sync with the infrastructure development. First, it emphasizes that the quality of life must be enhanced for all citizens and not for a select few privileged people or for handful of industrialists. Second, transportation must be managed to ensure that citizens are mobile. Third, generating energy supply for all aspects of life is critical. Other important aspects of quality of life ranging from health care, to water supply to sustainable environment are all necessary and typical components of a general plan. Without these conditions it is not possible for the

Exhibit 5.3 Improving and sustaining (Adapted and revised from Bin Mat Zin and Talet 2007)

- Satisfying housing needs
- Improving healthcare services
- Managing transportation
- Generating the necessary energy supply
- Improving water supply systems
- Managing environmental sustainability
- Enhancing physical fitness programs

vision, mission, and strategy components of a plan to materialize and it is not possible for the society to make progress.

In addition, satisfying the housing needs not only in terms of supply but in terms of comfort, as well as improving healthcare services not only for the citizens to be productive but also to enjoy life, are critical aspects of quality of life enhancement. Similarly, physical fitness programs such as sports are extremely critical for quality of life enhancement. These are not part of the commonly accepted infrastructure components, but without them, infrastructure activities are not likely to be very meaningful.

The Institutional Capacity

In order for an economic-infrastructure action plan to materialize and function successfully the institutional structure must be developed, maintained, and updated. This aspect of the action plan is the most important prerequisite that is likely to differ from one country to another or from one region to another. Although there is not one accepted pattern of institutional make-up, development, or reinforcement of the administrative governmental offices needs to be present and extremely active in the implementation process. In many developing and even some industrialized countries, the governance may not be quite so rigorous and illegal activities such as bribery and political pressures could hinder the implementation of infrastructural plans. It should be noted that these offices will be importantly involved in human capital development, particularly among the civil service workers who must receive expensive education and training (Cooke 1996).

Endogenous Development

There are three types of external economic development possibilities for countries: globalization, foreign sources of funds, and economic advice from industrialized countries. However, I have previously made a case (Samli 2000) that exogenous economic development is not working.

Globalization: Although an extremely powerful force, globalization has been mostly dominated from the top and has been selectively beneficial to only a few regions or people, leaving most behind (Samli 2008). The key problem has been the level of inequality. Therefore, we must question if the distribution of benefits or economic gains through globalization is fair (Sen 2001). I further posited (Samli 2002) that we should not give in completely to the pressures of globalization, and we must try to distribute the benefits or gains from globalization more equitably. Accomplishing this proposition is a very difficult assignment for any society, but it must be done. I further state that in its current form globalization is marginalizing

poorer regions of the world. As such, Thomas Friedman (2000) described it as "Darwinism on steroids."

Our first lesson about exogenous development is that we cannot totally rely on it for economic development. Although some countries have done well by it, many have not. Thus, globalization – a very powerful tool of economic development – has been performing rather questionably.

Foreign Sources of Funds: Whether they come in the form of borrowing or in the form of foreign direct investments (FDIs), foreign sources of funds have not been very useful in the economic development of many countries. In fact, I maintain (Samli 2002) that many countries and regions are being marginalized by these funds. In the case of loans, both the World Bank and the International Monetary Fund have been persistent in their unrealistic repayment requirements that many countries are now in extremely difficult situations and are not able to pay back these loans. These unrealistic requirements (Samli 2002) include reducing budget deficits, devaluing the currency, removing government restrictions on interest rates, privatizing state enterprises, and over the long term letting the currency float. These are only some of the requirements and they have historically proven to be disastrous for small third world countries. In terms of foreign direct investments, capital intensive investments have taken the place of local labor intensive jobs and have created automatic unemployment. As foreign companies take their profits out of country, not much remains in the country. As a result, foreign direct investments in many cases do not make a net economic contribution. This has been a difficult situation for third world countries and has been causing their marginalization.

Economic advice: Most developing countries receive inadequate advice from "experts" of industrialized countries. Much of the time the advisors are not really familiar with the country, its needs, and its problems. Furthermore, they have difficulty understanding the country's needs. Thus, the advice that the third world countries receive typically are less than adequate and often lead them in the wrong direction. Most of the advisors follow "one-size-fits-all" approach, which is less than appropriate if not totally misleading.

Exogenous activity to date can be seen as rather dismal. As a result, we maintain that countries must consider endogenous economic development first and foremost, which would lead to the development of a proper infrastructure.

It may not be in the immediate interest of a country to be engaged is some aspect of high-tech export activity. It may be already under pressure to emphasize one limited aspect of infrastructure development such as an airport or a series of cell-towers or other types of high-tech infrastructure. But these types of activities, albeit necessary, are rather disruptive to the implementation of an overall action plan to improve the national economy and the quality of life. The overall infrastructural action plan must be comprehensive as versus a piecemeal approach or a one project-at-a-time type of disruptive orientation. Time and under changing conditions may need to be adjusted, but their main scope must be carefully developed and forcefully focused before a country can make major economic progress.

Summary

This chapter dwells on a very critical and neglected area of economic development and its infrastructure connection. It explores how an infrastructure model of a developing country can be constructed so that the society will make enough progress and reach the economic development level of industrialized countries. The key point is developing the country's industrial profile to where there will be fully functioning high-technology industries. It is posited that such an ambitious orientation will call for an action plan to improve and sustain the quality of life of that country. The action plan and quality of life vision will provide the essentials of a basic infrastructure that must be comprehensive and complementary.

How can such a plan be financed? And how can the short-term immediate infrastructure needs of the country be taken care of as the basic infrastructure plan is put to practice? The remainder of this book deals with these critical questions.

Infrastructure Principles:

1. High-road industrial development strategy cannot be achieved without a proper infrastructure.
2. Such an infrastructure calls for an action plan and a quality of life vision for the whole society.
3. The proposed basic infrastructure cannot be based on incomplete plans for the society's general well-being.

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Chapter 6
Infrastructure and Productivity: An Unchartered Territory

Introduction

There is typical competition among industrialized countries where some would like to establish leadership in economic and industrial performance. Without proper development and maintenance of a dynamic infrastructure there is unlikely to be any kind of industrial, trade, economic, or quality of life related leadership. Traditionally economists have considered only three components of economic activity: land, labor, and capital. From the perspective of this author, during 1970s, 1980s, and 1990s, Japan added one more element to the traditional three: management. Without management the traditional three cannot be put together and show economic advancement and industrial leadership. I would add even one more component: infrastructure. In the past, when the four components were discussed, infrastructure may have been a given, but in the twenty-first century this phenomenon must be separated from the above four. If a country has the traditional three and even an adequate management, but it does not have an appropriate infrastructure the country is not likely to go anywhere. Until recently, China and India suffered from that type of deficiency. I believe that the USA is losing its industrial leadership at least partly because it is not developing and maintaining a necessary infrastructure that would enable it to expand its GDP and enhance the quality of life for all of its citizens. This chapter explores just how the infrastructure contributes to the country's productivity. It explores the conditions under which the infrastructure is likely to play a critical role in enhancing GDP or blocking its advancement.

Infrastructure and Production

Consider, for example, a company such as Benetton. The company's demand is monitored daily through its Electronic Data Interchange (EDI) system, which transmits orders from the company's agents in more than 100 countries. The agents consolidate sales data from the company's more than 7,000 company stores worldwide. Some 450 subcontractors are involved in the production process. Finished garments

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are shipped to the company's robotic distribution center. The process expands into some 60 million garments yearly. In this complicated system the company deals with 180 raw material suppliers (Samli and Hill 1998). The company's successful productivity is related to buying and handling the raw materials, and then shipping and delivering the products. Many countries and many intermediaries are involved in this process and if some parts do not arrive on time or if the production is not coordinated properly, then the production side can be inefficient and very costly. The preproduction materials may be coming from different countries, including some developing countries, and as these materials are shipped to many countries for production, including some developing countries, the presence and the full functioning of infrastructures including land, roads, waterways, air connections, and the like, become very critical. If the movement of materials is not smooth, the timely production costs of the company would sky-rocket. By the same token, the distribution of finished products also faces the same conditions regarding infrastructures in many countries. In addition to shipping, transportation, and delivery, warehousing (or storage) facilities may be needed for the smooth functioning of the whole process.

As the world becomes flatter (Friedman 2005), more companies and countries will be involved in the production and distribution of more and more products. The above mentioned process introduces great opportunities for emerging countries. But it is clear that the emerging countries will need to have infrastructures that are compatible with developed countries so that raw materials and semi finished products can be produced and moved efficiently. As certain raw materials become scarcer in the industrialized world, emerging countries are likely to have greater opportunities in making some of these scarce raw materials more available. However, without the proper ability to produce, store, and transport these materials or products, opportunities will not materialize.

In dealing with the production part of the activity, the energy supply becomes equally important. In addition to inadequate ability to move products and raw materials smoothly to points of production, the general ability to produce energy is a major part of the basic infrastructure. Without proper energy supply, the production function cannot possibly materialize. How energy needs can be met becomes a critical issue. It is clear that major decisions must be made regarding energy productivity, its cost, and its environmental impact. Using available and cheaper fossil fuels may be rather expensive in the long run because their supply is finite. It is critical to determine the relationship between the present and the future, and being environmentally responsible has become very important. It is critical to note that not a single locale, region, or nation is currently making definitive decisions regarding energy. The energy decisions have become so critical that they must be related to broader areas and must be dealt with in the present rather than wait for future conflicts.

Post Production Infrastructure

Our discussion thus far has been related to the point of production. Once production takes place infrastructure plays numerous additional roles. Products that are produced are to be handled by the infrastructure. Exhibit 6.1 shows at least four aspects of this handling

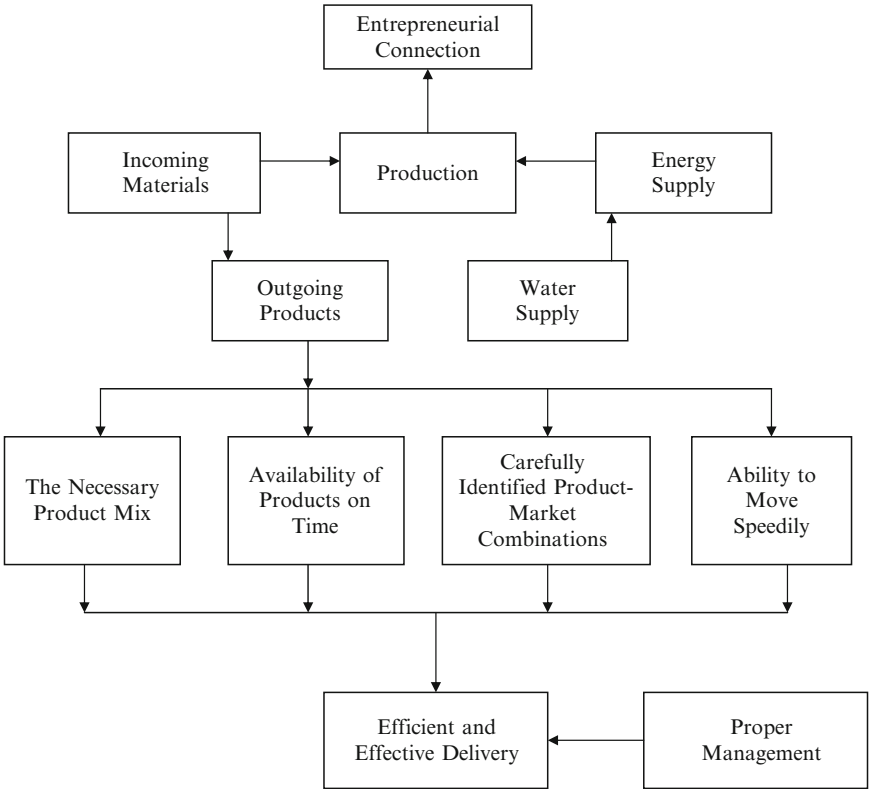

Exhibit 6.1 Infrastructure and productivity in export-oriented economies

process. Each of these requires adequately functioning infrastructural preparedness. This preparedness may imply different infrastructures functioning differently.

The Necessary Product Mix

Generating the necessary product mix is extremely critical and infrastructure preparedness is essential. Some products are more difficult to move because they are bulky. Others need careful attention or protection. Thus, bringing numerous products together and completing the necessary product mix that can be performed effectively by the infrastructure. In such cases the infrastructure is a main facilitator of the whole process.

Availability of Products on Time

In bringing the necessary product mix together for some product groups "just in time" orientation may be critical. The group of products developed may need some

of its parts to be or to be assembled. In such cases, the availability as well as effectiveness of the prevailing infrastructure can be extremely critical. Here, there may be critical needs for functional and sophisticated warehouses and other storage possibilities to coordinate the total activity.

Product-Market Combinations

Since there are bound to be certain product-market combinations, the infrastructure must be capable of accommodating these situations. In other words, the infrastructure cannot be slow while the target market infrastructure is very fast. Infrastructures of different markets must be compatible so that the products will reach their targets on time, intact and totally functional. There must be some degree of flexibility on the part of the exporting infrastructure to accommodate different and varying needs of the target market conditions.

Moving Speedily

Developing the necessary mix, having products on time, having markets and products match properly all lead to the ability to move all four of these functions swiftly and effectively as shown in Exhibit 6.1, which in turn moves the national output in the way that would be most beneficial to the country's economy.

As shown in Exhibit 6.1, the whole process of production and productivity is facilitated by the infrastructure. If the infrastructure is adequate or functional, the production process and productivity will be enhanced. By the same token, if the infrastructure is inadequate or dysfunctional, the production process will be costly and the productivity of the economy will be low. Thus, productivity of a country or an industry is critically dependent on the proper and well-functioning infrastructure.

The discussion thus far has dealt with international trade related infrastructure. But there is another aspect of infrastructure that is still related to productivity but deals with domestic trade and consumer satisfaction. That is infrastructure for domestic marketing. It has been stated many times in this book that without proper infrastructure consumers in a society cannot have a better quality of life. Without a good quality of life that country has a questionable future.

Infrastructure for Domestic Productivity

It is quite possible for a country to expand its international trade but not quite achieve internal economic development. A totally export-oriented economy can easily develop an infrastructure that is short-term oriented. China has some of

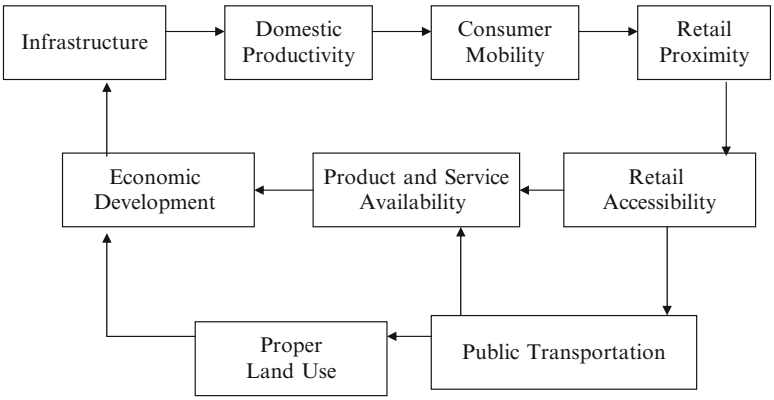

Exhibit 6.2 Infrastructure and domestic productivity

the most modern sea-ports for ocean transportation and modern airports for air transportation, but it has a less developed domestic infrastructure. Thus, the country may be enjoying great revenues from exports but as its GDP per capita remains low.

Exhibit 6.2 presents an analysis of this scenario. Domestic productivity needs for infrastructure require somewhat different conditions than export-oriented infrastructure, including smaller volumes of products moving shorter but varied distances. Special warehousing facilities may also be needed. But, above all, smaller volumes of finished goods getting to isolated small markets are a critical aspect of economic development (Samli 2004).

As shown in Exhibit 6.2, consumer mobility is a critical issue in achieving domestic productivity. Consumer mobility is critically related to infrastructure. Subways, monorails, fast trains are all parts of this infrastructure necessary for domestic economic development. Consumer mobility enables consumers to satisfy their multitudinous needs. Among these needs are goods and services that are offered for purchase by the retail sector; hence, proximity to retailing is again a critical aspect of economic development, which is, at least partially, related to infrastructure. Accessibility of retailing facilities is extension of retail proximity. Infrastructure including roads, retailing facilities, power, water, and the like must be available for the critical needs of consumers. There may be questions as to whether or not land use decisions should be a part of infrastructure development. Without accepting or rejecting this proposition, it is critical to state that the land-use decisions and infrastructure development decisions must be coordinated. This coordination activity must be based on economic benefits rather than political considerations.

Having access to retailing facilities is a necessary but not a sufficient condition. The retailing establishments must offer the products and services that consumers need. Considering rural settings and the existence of scattered, small, local markets, the infrastructure would need to support smaller local manufacturing facilities or local distribution centers. In both cases the needs would be quite different than,

again, an export-oriented infrastructure. It must be reiterated that productivity for export-oriented infrastructure is likely to be quite different than a domestic productivity oriented infrastructure. However, if the domestic productivity and distribution are emphasized, a careful land-use pattern must be present. Without a carefully planned and developed land-use practice, people, and products cannot properly be moved. The absence of a well planned land-use pattern would interfere with the country's economic development.

Reconciling Export Oriented Versus Domestic Economy Oriented Infrastructure

As shown previously, export oriented infrastructure requires a different approach than the domestic economy oriented infrastructure. Countries such as China or Russia at the writing of this book have most modern airports and/or docks, but their domestic infrastructures are still relatively underdeveloped. Establishing a balance between export-oriented and domestic economy-oriented infrastructures is a necessity. Each of these two alternatives would increase productivity. Export-oriented infrastructure would increase productivity in that particular activity. Domestic economy-oriented infrastructure will increase the efficiency in consumers satisfying their needs by increased accessibility to and availability of retailing facilities and proper product and service mixes. Clearly, these two orientations are not mutually inclusive, and therefore if one is being emphasized, the other one is likely to be neglected.

In a sequential order export-oriented infrastructure may generate quick and large revenues in the short-term and perhaps utilize these revenues to build infrastructure for domestic economic development. China and Russia appear to be developing such an orientation (Kerr 2004). However, since the domestic economic development infrastructure is very costly, the critical role of infrastructure in overall productivity of the country could easily be forgotten. This is a critical barrier to economic development.

Summary

In this chapter, we maintain that infrastructure is the fifth component of productive activity in an economy. This fifth component can provide a major proportion of productivity into a country's economic activity. Basic infrastructural activity may be related to promoting and supporting export-related orientation with financial rewards in the short run, or it may be supporting domestic economic development by facilitating the populace to have more access to goods and services to satisfy consumption needs. This latter is more long-term oriented and perhaps more costly than the one that supports export trade. These two are mutually exclusive and typically lead to concentrating on the short-term run trade oriented infrastructure such as seaports and airports. However, if the infrastructure does not facilitate the people

and product movements domestically, there will be discontentment on the part of consumers. Infrastructure can enhance the productivity of domestic mobility and consumption-related activities. One final item is attached to the bottom portion of Exhibit 6.1. Proper management of the infrastructure is a requirement regardless of what is its key purpose. See the appendix at the end of this chapter for a discussion of this critical activity.

Future research must be able to measure these two distinct aspects of productivity displayed by infrastructures. It is critical also to identify to what extent these two infrastructure orientations can be made mutually inclusive.

Infrastructure Principles:

1. The infrastructure must be proactive in that it is one of the key components of a nation's productivity.
2. Proactive infrastructures can be export oriented or domestic oriented, but in time these two must reconcile.
3. Regardless of how good the infrastructure, it deteriorates without proper management.

Appendix: Managing Infrastructures

Introduction

The mechanics of maintaining a daily management of the Infrastructural system is critical. However, many industrialized countries, just because of sheer negligence or because low prioritization, do not put enough emphasis on this critical issue. In some of the developing countries, because of the lack of knowledge, infrastructure managements are neglected. Thus, infrastructures are not maintained well. They are not updated or improved. They are not adjusted to changing needs. In short, Infrastructures typically are mismanaged. It must be reiterated that benefits from investing in infrastructures are not likely to materialize or continue unless those infrastructures are managed properly. The proper management of an infrastructure includes: from the design of it to its location and from its regular operation to its careful daily maintenance (Satish 2007). Exhibit 6A.1 establishes first the general parameters of proper infrastructure management and second, lists the critical tools of management.

Developing a Proper Governance

Above everything else, the question that must be raised is if the infrastructure is performing the way it is expected to perform and if this performance is adequate for the economic goals? As a necessary component of the national development plans the infrastructure must be evaluated regularly as a social institution.

Exhibit 6A.1 Managing the infrastructure

Improved governance	Implication
Increased efficiency	Being proactive in increasing its output
Improved service delivery	Speed of emergency vehicles
Increased productivity	Creating greater capacity
Carefully established accountability	Avoidance of political influence and corruption
Management tools	**Implication**
Design	Developing most practical and versatile system
Location	Making sure that proper locations are considered
Original plan for implementation	Preparing a plan for optimal use
Daily operation	Making sure that everything is working smoothly on a daily basis
Careful maintenance	Systematic maintenance examinations should take place before things become a public hazard

In such an institutional orientation the infrastructure must be examined at least in regards to four key areas. These are shown in the upper portion of Exhibit 6.3. These are: increased efficiency, improved service delivery, increased productivity, and proper accountability.

Increased efficiency needs to be analyzed in two different ways. First, is the infrastructure facilitating the expected and hoped increase in efficiency? Meaning basically that the key industries of the country are producing more output for the given input. Without such an increased efficiency the infrastructure is being inactive. It is expected to facilitate, contribute, and increase the output of the identified industries. In other words, the infrastructure must be proactive as a major component of the national economy. Second, is the infrastructure increasing its own efficiency? Is it performing in such a way that its output is regularly increasing and hence it is being proactive within itself in addition to being proactive in the country's economy?

Since services are not tangible, there needs to be a different way to measure how well services are delivered with the existing infrastructure. Furthermore could this delivery performance be improved? Meaning, for instance, that emergency vehicles can get to their destinations faster, people who are in a hurry can move fast enough for whatever they are in a hurry for, or perishable products can get to their destinations without losing their quality and freshness. These are only a few simplistic examples.

As opposed to increase in efficiency, increase in productivity implies not only improving the input output relationships as efficiency concept indicates but going beyond that. It is not only using the infrastructure's capacity fully but creating much more capacity for the economic activity.

Accountability is perhaps the most critical and practical aspect of infrastructure governance. Any existing infrastructural system that is avoiding the political and corrupt influences, is bound to perform better than before. Proper governance of infrastructures requires proper institutional orientation and capacity development. Such institutional orientation and capacity development leads to increased efficiency in resource utilization in that it would minimize waste because of optimal use of facilities and avoidance of political influences and corruption. Improved governance also leads in the direction of service delivery and service improvement. Improved service delivery and better quality of service helps increase national productivity. Perhaps the most important item in infrastructure governance is clearly identified accountability. Here not multiple institutions or regions must have accountability but a nationally identified one organization must be responsible for the whole infrastructure development and management. Particularly, if different organizations are making different decisions about the infrastructure and infrastructure development is localized in different parts of the country and if these different parts do not attribute the same level of importance to infrastructure development and management the results are likely to be devastating in the sense that the national infrastructure will not function optimally.

Management Tools

The second part of Exhibit 6A.1 identifies five critical tools that must be considered and carefully used to generate the optimal benefits form the infrastructure system.

The design of the infrastructure must be most functional with the least cost but also must be flexible enough to respond to the changing demands rapid shifts of technology and pressures from advances in information technologies. Additionally the design might facilitate the infrastructure to connect with the practice intimately (Hansman et al. 2006). Location of infrastructure is critical in that if it is not located optimally it will not function to the utmost capacity. This is a major cost factor for the country as a whole. Implementation in some ways is the combination of the above two tools. Carefully planned infrastructure system must be implemented as a plan that the most adequate performance can be obtained from the infrastructure system.

Operationally the infrastructure must perform as expected. Clearly, operator of the total infrastructure system must be well-trained and experienced. Finally, the maintenance of the whole system must be of the highest priority for the country's economic progress and by definition the consumers' quality of life. This appendix is critically placed in this book with the hope that this most important aspect of infrastructure management will be taken extremely seriously. Most industrialized countries appear to be neglecting this all important activity to the point that the existing system is functioning sub-optimally and being a danger to the population. Once again here the cost of not doing it is much greater than the cost of doing it.

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Chapter 7
Changing Global Competitiveness: The Role of Infrastructure

Introduction

As globalization progresses, the number of players in the world trade arena keeps on increasing (Stiglitz 2002). As the world gets flatter, the role these players play becomes more involved and more competitive. In this increasing competitive activity, perhaps one of the most forgotten or neglected factors is the infrastructure that these competitors possess. But it must be remembered and reiterated that infrastructures fuel economies and enable them to become prosperous (Urban Land Institute 2008). In fact, it is maintained that the countries that manage to invest quite heavily in their infrastructures have and will attain global leadership. However, those infrastructures also need to be sustained (Urban Land Institute 2008). Despite all the important functions that are attributed to infrastructures, they are quite neglected throughout the world.

In this chapter, an attempt is made to explore how infrastructure development is changing global competitiveness and how it is creating global leadership for some countries. First, it is maintained that, basic physical infrastructure is an absolute necessity. Second, countries that make economic progress have basic strategies. Third, these strategies must be connected to and facilitated by infrastructure.

Layers of Infrastructure

In order to understand the impact of infrastructure on global competitiveness and how this competitiveness changes, it is necessary to analyze infrastructure in terms of layers. Why layers? Because each layer has different infrastructural components and these components have very different impacts on global competitiveness. It must be stated right at the outset that the relationship of infrastructures and global trade is not one-sided. This relationship is such that global trade is impacted by infrastructures, but infrastructures are also impacted by global trade patterns.

A.C. Samli, *Infrastructuring: The Key to Achieving Economic Growth, Productivity, and Quality of Life*, DOI 10.1007/978-1-4419-7521-8_7,

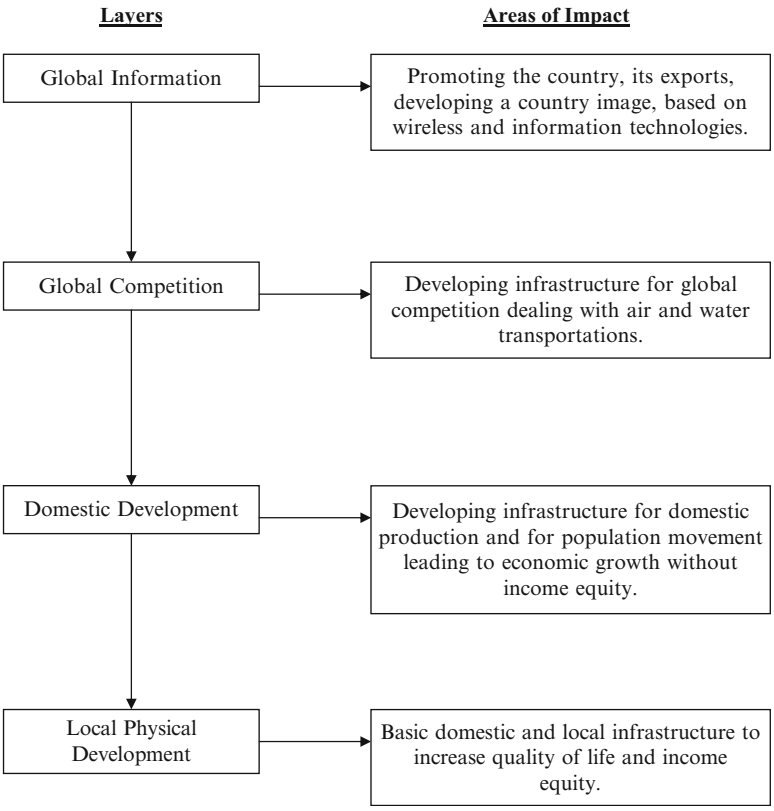

Exhibit 7.1 Layers of infrastructure and structural changes

Exhibit 7.1 presents four separate layers of infrastructures. The first is global information system. As electronic commerce has emerged as an unprecedented outcome of the Internet, global competitiveness gained a new dimension (Misra, Kumar, and Kumar 2008). Electronic commerce is based on the ability to generate and deliver global information, which directly or indirectly is related to promoting countries and brands. The infrastructure for global information is based on wireless technologies and information technologies.

However, global communication needs to promote products and services along with promoting companies and stimulating demand. These products and services cannot be produced without proper infrastructures. Market conditions, and success or lack thereof for the products and services could impact the nature and possible changes in the infrastructure. Since consumers, at the international level, are making complex purchase decisions regarding obtaining, consuming, and disposing of products and services, their behavior needs to be analyzed and evaluated.

Understanding and estimating consumer purchase decisions, which are greatly affected and diversified by consumers' attitudes, behavioral intent, perception of company, country, and brand images are very difficult undertakings but, must be accomplished if the country is to have a future (Misra, Kumar, and Kumar 2008; Samli 1995). In order to establish competitiveness globally efforts have to be made to build global information infrastructure as well as nation-wide information infrastructure. Such infrastructures are certainly not traditional phenomena. They are based on the development of workstations or mainframes (Cole, Bardi, and Langley 2003). Furthermore, such infrastructures are the basis of system platforms that are not as stationary as major seaports or airports. They are also more likely to be, at least partially, financed by private funds and may return reasonable revenues in the short-term. Thus, changing and perhaps increasing global competitiveness not only requires certain necessary infrastructures but in fact in some cases dictates it. But what the trade conditions are dictating and what a country's infrastructure needs in the long-term are not the same. While the trade conditions may dictate infrastructure for international trade, the country's real needs may be for basic physical infrastructure so that its citizens can not only participate in the trade and economic activities, but they may also gain access to goods and services offered in different local and regional markets for their quality of life improvement.

Unlike global competition, domestic economic development infrastructure leads in the direction of domestic growth. Such a growth is based on increased efficiency in bringing consumers to suppliers and moving products short distances. Studies have shown that the increasing levels of domestic competition lead to improvement in competitiveness of industries or countries globally (Cook and Uchida 2008). However, in most cases such infrastructures have a minimal impact on the citizenry's participating in the economic gains since they are not based on some aspect of income equity.

Exhibit 7.1 presents a fourth layer of infrastructure, which deals with the most basic domestic and local infrastructure developments to increase the quality of life of the populace and create income equity. The reason for differentiating the third and fourth layers of infrastructure, as shown in Exhibit 7.1, is based on growing literature that explores the relationship between economic growth and equity. This becomes particularly important when economic growth may be creating noticeable inequalities among the population of the country (Dollar and Kraay 2002). Infrastructure for local physical development can partially remedy this situation by making goods and services more accessible through better roads; by improving functional conditions of mobility and transportation; by improving and getting more energy, particularly for communication purposes; and, of course, having conditions to establish small manufacturing and entrepreneurships; thus creating jobs and paying better salaries to larger groups of people. The difference between layers three and four is creating opportunities for people to work harder and improve their quality of life. An example of this lack of opportunity can be found in Gambia where there is no railway system and no domestic airline. Without an improved road network, farmers cannot get their products to the market, nor have adequate access to stores and other needed facilities (Keynes 1993).

Critical Choices for Infrastructure

Our discussion thus far indicates two extremes in infrastructure development that must be reconciled. The top two tiers in Exhibit 7.1, global information and global competition-oriented infrastructures are different than the bottom two dealing with domestic development and local physical development. These two different orientations are depicted in Exhibit 7.2. The first orientation is called pro-growth and the second is pro-poor.

Although sustained economic growth reduces poverty, it does not mean that if the country is developing its infrastructure for expanding global information, and hence software trading or developing the infrastructure to compete globally and make structural changes, poor benefit substantially (Page 2006). Policies, in fact, that are designed to increase the rate of economic growth may not benefit the poor at all. They may simply concentrate very heavy economic wealth in the hands of few. But some scholars think that pro-growth and pro-poor dichotomy is artificial and pro-growth policies also are pro-poor (Dollar and Kraay 2002).

However, another group of scholars maintain that globalization and growth will not benefit major groups if the governments and multinational companies (MNC) are not willing to adopt a code of conduct that permits their profits to be shared

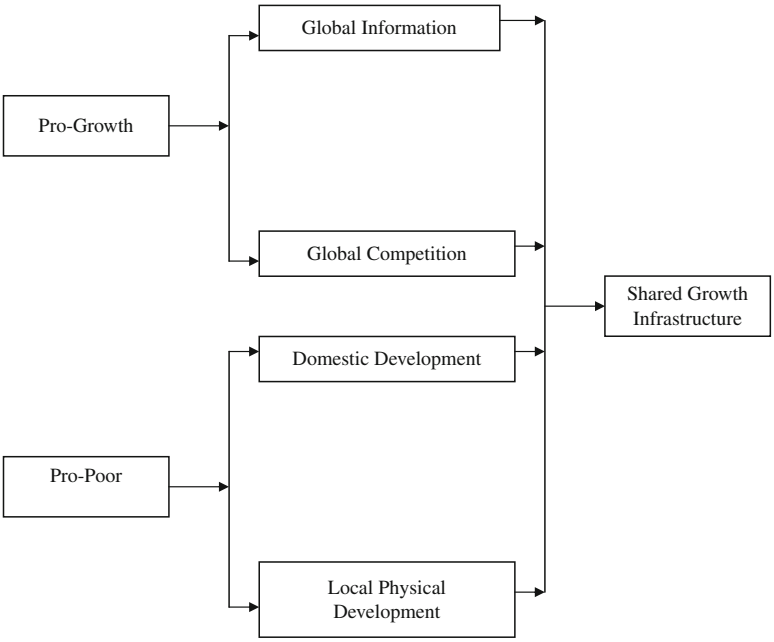

Exhibit 7.2 Foundations of infrastructure designs

equitably (Hartungi 2006; Samli 2004). If, on the other hand, developing countries offer lower wages and employment for growth, this implies a "race to the bottom" (Amaro and Miles 2006). If pro-growth orientation does not quite work, it will be necessary to develop a different orientation. Different and proper orientation in this case is pro-poor, which is also called *shared growth*. Using some current situations in Africa, Page (2006) identifies three specific policy areas: these are managing natural revenue resources, creating an export push in agriculture, and strengthening sub regional integration.

While the first alternative reiterates the importance of revenues coming from oil and mining sectors, export push agriculture emphasizes food exports to expanding Asian markets. The third alternative indicates that both natural resource and agricultural exports will be strengthened and revenues will be shared if the inter-regional integration is strengthened for both movement of people and products (Page 2006). For example, in an effort to promote horticulture business, Bangladesh has been emphasizing information and communication technology (ICT) infrastructure to remedy the lack of physical infrastructure. Since Bangladesh does not have adequate facilities to move and store, large quantities of products are wasted. By using information technology the products can at least be made available more efficiently (Zahir 2008). However, it is still very critical for the country to realize that better physical infrastructure including better roads and cold storage facilities, along with ICT, will be generating synergistic results, meaning that both ICT combined with roads and other facilities can generate much more positive results than each of these infrastructure activities combined individual performance. However, as shown in Exhibit 7.2 ICT, without local physical development cannot be easily considered pro-poor. In the final analysis, local roads, local transportation, and local storage facilities must reach people and enhance their access to markets, both for buying as well as for selling. Buying here refers to all products and services and selling here refers to all the production to be sold on the market. Buying and selling opportunities by definition will provide the opportunity for citizens of a region or a country to improve their quality of life.

Shared Growth Orientation

Although Exhibit 7.2 identifies different growth or development alternatives, we consider local physical development infrastructure as the most appropriate shared growth alternative because it directly and indirectly benefits local and, most likely, poorer people who are not automatically benefiting from pro-growth activities.

Qureshi (2005) elaborates in detail how a global information infrastructure affects the country's economic growth. Five scenarios are presented in his analysis: First, the information infrastructure would create access to information and expertise that are critical for economic growth; second, the information infrastructure would enhance the competitiveness and access to markets of those who are participating in such a network; three, due to the easier flow of information there will be

administrative efficiencies in making regional and national economic decisions; four, there will be significant productivity increases due to learning about innovations; and finally, five, all the benefits that are described in the above four scenarios will particularly help to reduce serious poverty. Poverty reduction by definition is enhancement of the existing quality of life.

However, as early discussion indicates information technology-related scenarios simply do not make a provision for pro-poor. They indicate that, as shown in Exhibit 7.2, global information infrastructure primarily deals with pro-growth and more specifically facilitates increased global competitive possibilities.

Of course, pro-growth and pro-poor orientations can be mutually inclusive. All four of the fundamental infrastructure designs can be all developed together, utilized jointly, and generate a synergistic situation for the country as a whole. However, such a proposition is likely to be considered extremely costly and not quite achievable.

All countries, but particularly emerging countries, must realize that they are constantly facing a trade-off between economic growth and equity or pro-growth and pro-poor (Cook and Uchida 2008). One of the critical but neglected issues is that in order to cope with the changing patterns of trade countries are obligated to make structural changes that of course relate, primarily, to infrastructure. The primary preoccupation with trade and resultant structural changes are not equally considered. In fact, research indicates that industries that have the highest impact on the economic structure of the country and yield the highest level of growth also have a negative impact on the income distribution in emerging countries (Cook and Uchida 2008). As shown in the top two layers of Exhibit 7.1, developing high tech industries and cultivating export activities – as globalization and flattening of the world continues – are very attractive for poorer countries (Friedman 2005). But moving from labor intensive to capital intensive industries not only calls for major structural changes in the infrastructure of the country but may also weaken the income distribution, which is typically already warped. Thus, unless effectively enforced to combine pro-growth and pro-poor orientations, there is a tendency to become preoccupied with the former and leave the latter behind. Pro-growth extension in about 80 countries indicated the presence of such a situation (Everrett 2003).

Shared Growth Orientation and Infrastructure

In this chapter, we maintain that shared growth orientation is a necessity, particularly in third world countries where the gap between the rich and poor is widening, and it caters to both the present and the future. We emphasize that there can be strategic alternatives in implementing some aspect of shared growth infrastructure development. It is critical to realize that all of these strategic options cannot be implemented simultaneously. Exhibit 7.3 identifies four such alternatives.

Two critical points must be reiterated. First, infrastructures catering to different strategic alternatives are not exactly the same. In fact, they may be quite different from each other. The second point, and perhaps even more important, is that without the

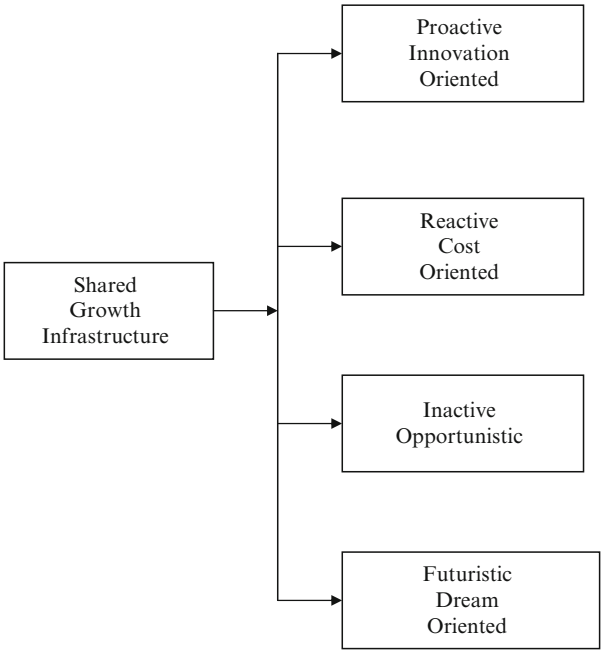

Exhibit 7.3 Strategic alternatives

proper infrastructure the strategic alternative for a country, region, or industry may not even become a reality.

Shared growth infrastructure may support at least four different alternatives. Of course, every situation is different and regardless of the basic strategy alternative that may be followed, there will be variations in every case and every country in the perception as well as implementation regarding infrastructures. The critical point is that the infrastructure development and strategy orientation are, or should be, closely related where they must be considered simultaneously. If the country is planning on emphasizing low price convenience goods exports, it must develop not only production and transportation facilities for the industry but mobility of consumers as well so that they are able to participate in the economic advancements. The four alternatives cited in Exhibit 7.3 are as follows:

Proactive innovation infrastructure is considered to be connected to global communication by information technology. Although technologically advanced, it will need a much more sophisticated infrastructure, part of which will be a more educated base. This is the strategy Ireland and India are using at the writing of this article.

Reactive cost-oriented infrastructure is an extremely modernized classical infrastructure that makes the production activity of a country very efficient. Porter (1990) calls this cost leadership. The Asian four tigers used such an orientation

exclusively before they reached their current status of newly industrialized countries (NICS). They continue with their emphasis on infrastructure maintenance and development, and hence they have maintained their economic well-being vis-à-vis the rest of the world. It may be speculated that the cost leadership orientation of the Asian four tigers has made a key difference in world trade with particular emphasis on cost, which in turn must have critical implications for planning, developing, and maintaining infrastructures.

The third strategic orientation shown in Exhibit 7.3, is to be inactive but opportunistic. For example, many African countries need to develop their basic infrastructure in such a way that it will be multi-functional as domestic and international opportunities emerge. It is critical to realize that without a proper basic infrastructure these countries will not have a chance to start pro-active entrepreneurial activities or businesses that may be successful in international markets.

Finally, the fourth strategic option is perhaps the most sophisticated and most challenging. Futuristic dream orientation is to have certain industrial and marketing aspirations. If Dubai was thinking and dreaming of becoming an international entertainment center, it has to plan its infrastructure along with its marketing strategy. Certainly, a country cannot deliver dreams without having the proper infrastructure.

Only four strategic alternatives are presented in Exhibit 7.3, but there could be many more strategic infrastructure alternatives that have yet to be articulated.

Summary

This chapter takes a critical position that changing global competition is causing or demanding important changes in infrastructures. Of course, the changing infrastructures are further affecting the global competition as well.

The chapter first posited that there are critical layers of infrastructure development. But these layers are not necessarily catering to the realization of the same goals. In the short-term, infrastructures support pro-economic growth activity, and the long-term oriented infrastructures may be for pro-poor and facilitate shared economic growth. Shared economic growth is enhancement of the existing quality of life in a country, particularly for those who are classified as poor.

Regardless of general orientation, infrastructure development is based on four critical strategic alternatives. Each alternative is based on a country's economic needs as well as its economic goals. Future research must determine the degree of closeness between the infrastructure design and strategic alternatives for the country and its industries.

Infrastructure Principles:

1. Layers of infrastructure must cater to or must be based on global information, global competition, domestic development, and local basic physical development.
2. Despite the layers identified above, infrastructures can be pro-growth or pro-poor.
3. Infrastructures, ideally, must be such that they will facilitate growth and help share proceeds.

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Chapter 8
Deeper Foundations of Infrastructure Development

Introduction

Any developing country needs a great deal of investment in roads, ports, power generation, water supply and distribution. In addition, besides being developed, these needs must be properly maintained. Thus, the two groups have totally different orientations.

Unlike typical developing economies, India is emphasizing such key areas as computer software in the financial sector and human capital. Despite its inefficient basic physical infrastructure, its emphasis on intellectual capital has made India a growing global powerhouse, although it might only be for the short-term (Bjorke 2006). On the other side of the spectrum, the growth of developing economies depends very much on the development of adequate basic physical infrastructure (Ho and Ho 2006). This poses an important question: Can India accomplish world leadership as a fast growing economy and a major economic power without having a basic physical infrastructure? This chapter deals with the key question of just how much invisible infrastructure is needed so that a sound and functional one can be established and maintained. In other words, will India eventually need a basic physical infrastructure? There may not be a clear-cut answer to the previous questions but this chapter makes an attempt to address them.

Educational Dimension

Education is perhaps the most crucial and far-reaching dimension of infrastructure development and maintenance. First and foremost, a society's basic educational level is critical for understanding the need for the most desirable infrastructure. The assumption here is that an educated society will be able to produce informed individuals who can be further trained and educated for major business and strategic decision-making.

Exhibit 8.1 shows that beyond the first layer of a general educational foundation, which deals with basic knowledge, three educational options. The first one is general

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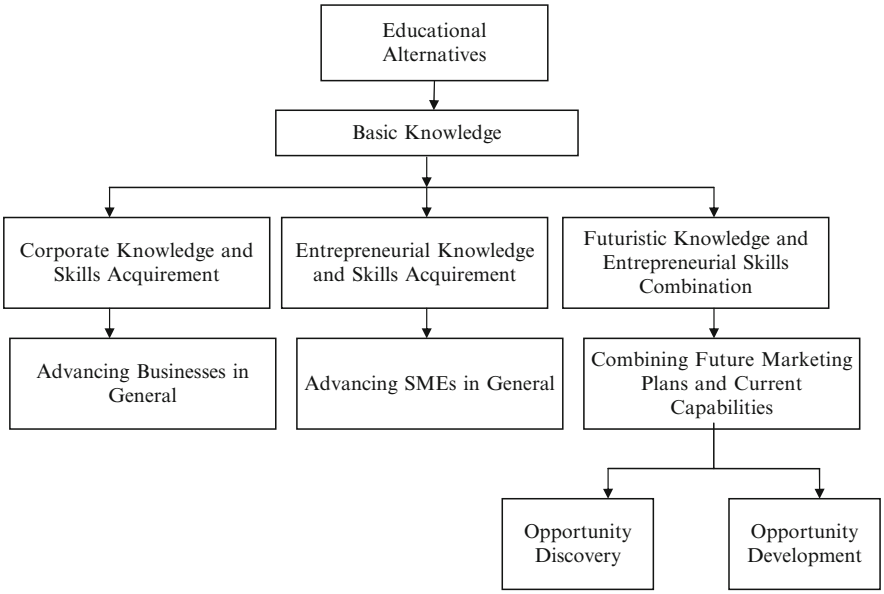

Exhibit 8.1 Educational needs for infrastructure

business management decisions to maintain and perhaps enhance the business' competitive advantage. This is a rather typical objective of most business education programs. These programs do not quite connect or deal with infrastructure-related issues. Unfortunately, this is the current and widespread situation. It is unfortunate in the sense that it does not go far enough.

The second alternative, as shown in Exhibit 8.1, is related to entrepreneurial education. Currently, a popular topic in business literature, in practice, entrepreneurial education and commensurate entrepreneurial training are not quite up-to-par in the sense that, although this is thought to be a major way out of poverty for third countries, it is not advanced enough to eliminate poverty (Samli 2008, 2009). Small and medium enterprises (SMEs) need to emerge and succeed; thus the economies of many developing countries would advance faster. China, Singapore, and some other countries have been following this basic orientation (Low and Cheng 2006, Bhasin 2007). Such an educational alternative would provide the basic information and skills necessary to start and sustain new businesses. These businesses typically are more innovative and generate more employment than their gigantic counterparts. In addition to not being widespread, these educational programs do not quite connect to infrastructural issues (Samli 2009). However, as mentioned previously, it is critical to realize that without a proper infrastructural setting it will be near impossible to develop an entrepreneurial class (Zhang and Yang 2006).

The third alternative is a functional, viable, and ongoing educational proposition. In fact, we believe that this is the most important and most needed economic

educational alternative. But this alternative is not adequately developed and used properly in the parts of the world where it is most needed.

In my most recent book (Samli 2009), I presented a number of important characteristics that entrepreneurs should possess. Among these is the ability to foresee, to have an action-oriented attitude, to maintain proper interpersonal skills, and to appreciate those who are contributing to the project that they are in, knowing what is needed to be done, having access, and understanding of new technologies, and sharing information to enhance the overall accomplishments. Much of this is learned behavior and entrepreneurs-to-be can be taught these special qualities. However, the third alternative adds one more dimension that is particularly critical in making important decisions regarding national, regional, and local infrastructure development.

The third educational alternative, as shown in Exhibit 8.1, is called futuristic knowledge and when combined with entrepreneurial skills would be ideal for creating entrepreneurs that would carry on the country's goals of economic development strategy. This means a major collaboration among the national strategies, entrepreneurship, and infrastructures, and would begin with combining future marketing plans for the country and current capabilities. Naturally, these two are connected by an effective entrepreneurial education orientation. If an entrepreneurial education program generates a number of capable entrepreneurs, these new entrepreneurs would easily foresee what the market opportunities are and what kind of infrastructure is needed to carry out these opportunity-based strategies.

Although the above described collaboration is necessary for an economy to grow and provide a better quality of life to the populace in that country, the maintenance of it is also very difficult due to its extreme costs. And it also may need to be adjusted because the global trade patterns change rather quickly and radically, requiring major adjustments to national strategies. Exhibit 8.2 illustrates this point. In a decade, the global exports of the categories listed in the exhibit showed an increase of 150%. But as textile exports grew only 50%, fuels and mining products exports increased more than 315%. The question, of course, is whether these major countries that are involved in these exports have the infrastructures to handle the declines. If there was a proper infrastructure for textiles could it be used for other industries as the global trade volumes decline or do not expand as much as expected? Similarly, what are the possibilities of not exporting enough because of the lacking or inadequate infrastructures? Part of the answers to these questions is detailed in the third section of Exhibit 8.1. Combining future marketing plans and current capabilities and analyzing the situation on the basis of existing and expected changes in the infrastructure calls for very carefully designed educational and research programs working together simultaneously.

The last part of Exhibit 8.1 is extremely critical. The country, region, or industry may develop techniques to identify domestic and international opportunities and develop some of them. But this activity cannot and should not be separated from entrepreneurial development. As stated a number of times previously, entrepreneurs' knowledge and skills are extremely important as they relate to development and infrastructure development. If there are no entrepreneurs to implement the

Exhibit 8.2 Some of the major changes in world trade (From World Trade Organization, WTO. Org. 2009. 24 Mar 2009. http://stat.wto/statisticalprogram/, calculated by the author)

Categories	1997 world exports ($millions)	2007 world exports ($millions)	% increase or decrease
Agriculture	596,216	1,127,667	89.1
Fuels and mining	639,871	2,658,551	315.5
Iron and steel	147,010	474,228	222.6
Chemicals	513,271	1,483,155	190.0
Machinery and transportation equipment	2,159,115	4,956,883	129.6
Automotive	501,855	1,182,867	135.7
Textiles	155,739	238,126	52.9
Clothing	177,616	345,301	94.4
Office and telecom equipment	695,783	1,514,309	117.6
Total	5,591,000	13,998,000	150.4

opportunity development plans, then there is no hope for further development (Samli 2009), information providers and entrepreneurial action.

Information Providers

The left side of Exhibit 8.3 identifies five key sources of information. This is a general list and is not exhaustive. A more in depth account for these sources of information is provided in (Samli 2009); however, a brief description follows:

Social networks: Various organizations that may be involved in some research and exchange information. They may have some information that is use by entrepreneurs and even for national strategic planning attempts, if any.

Academic services: Universities and other higher learning organizations. They are likely to have their own research activities that may be shared with prospective entrepreneurs and infrastructure planners among others.

Government orientation: A special and a very critical point in connecting information and entrepreneurship. In many cases, I have observed that despite putting special emphasis on small business sector, many governments of developing countries in reality support big domestic and international businesses. Paying lip service to small business and entrepreneurial sector simply does not help. Government's favorable orientation and support of small businesses is a necessary condition for an entrepreneurial class to emerge.

Silicon Valley Facsimiles: For some time, I have maintained that every developing country must have one or more Silicon Valley facsimiles that would be involved in innovation and guidance of entrepreneurships (Samli 2009).

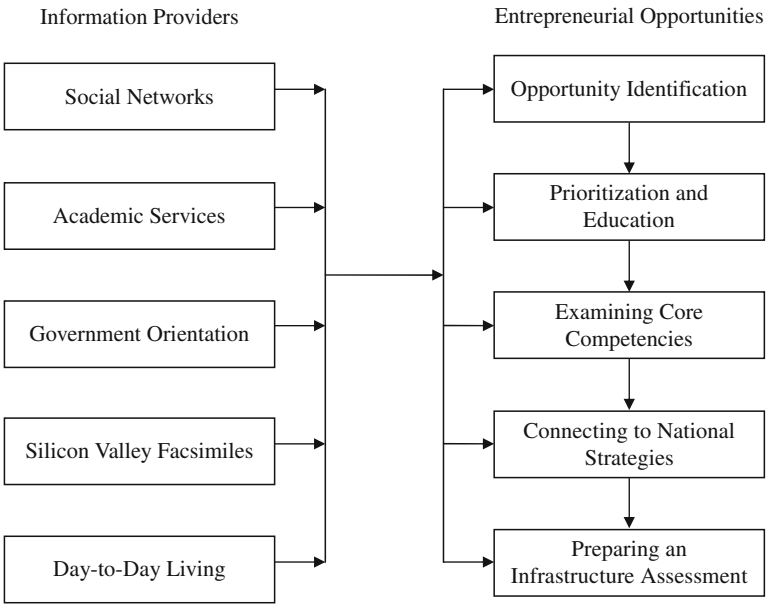

Exhibit 8.3 Connecting opportunities to infrastructures (Adapted and revised from Samli 2009)

Day-to-day-living: Current economic and political conditions that play a critical role in the country's entrepreneurial activities. Existing lifestyles and the direction they are headed could be a guide for dynamic entrepreneurial undertakings.

Based on the information on the left side of Exhibit 8.3, entrepreneurial opportunities can emerge. Although information and knowledge based, these opportunities cannot materialize without a proper infrastructural system. Once again, this point has been reiterated in this book, however, perhaps not enough times or with enough rigor.

Entrepreneurial Opportunities

Identifying opportunities is a critical first function in developing entrepreneurships (Samli 2009). Once the opportunities are identified, they need to be prioritized since all opportunities do not have the same promise for economic well-being. Along with prioritization, entrepreneurial education is considered to be extremely critical because without a proper knowledge base entrepreneurial aspirants cannot perform. Here, the necessary core competencies for the realization of opportunities are examined and prospective entrepreneurs' ability and knowledge base are measured accordingly. Perhaps connecting the most promising entrepreneurial prospects to the national economic development strategies is the greatest challenge. However, nothing of value will come of this very taxing and critical exercise if the

whole endeavor is not connected to the region's or the nation's infrastructure. Without proper infrastructure all the entrepreneurial aspirations remain what they are, simply aspirations. As can be concluded from our discussion thus far, there is a critical connection among the national strategies: entrepreneurial education and infrastructure development. Of course, our discussion revolves around ideal situations and it is not clear if developing countries are able to think the way described here. Perhaps in some of the newly industrialized countries such as the Asian four tigers, this kind of reasoning and action is now commonplace, but there is still great need for such strategies. Infrastructure development is still underutilized and is not connected to economic development strategies. It is also important to understand that infrastructure development is expensive and dependent primarily on public financing. Here, governments may be forced to look at the developments that will yield some quick revenues, even though they may not help the much-needed economic development. For example, in Nigeria, much attention is given to water power and telecommunications infrastructure, while hardly any attention is given to the transport sector (Ford 2002). The reasoning is that if there are quick revenues, they can be used for economic development-related infrastructures.

Singapore's Jurong Port experience may be an example here. The original risk management efforts determined that it was more reasonable to develop this seaport as a maritime industrial logistics park rather than more costly and uncertain container terminal facility (Ho and Ho 2006). This orientation made the Jurong Port a very viable and sustainable facility. Needless to say the planning for this port was connected to many entrepreneurial trade activities that became a reality.

Summary

This chapter explores the critical foundations necessary for developing an infrastructural plan. It emphasizes the fact that such a plan is, above all, dependent on an educational foundation, where an effort is made to identify the connection between futuristic knowledge and entrepreneurial skills and infrastructure development. These two completely separate activities must be coordinated in such a way that the country will benefit from opportunity discovery and opportunity development efforts.

As the above coordination continues, it is critical that the infrastructure maintenance will follow some of the critical global trade changes that might impact the country's infrastructure developments.

Finally, the last part of the chapter connects the information generating and disseminating activities of the county with entrepreneurial opportunity assessment and entrepreneurship development. If and when a country's economic growth strategies are facilitated by proper infrastructure via solid entrepreneurial activity, I believe that that country, or region, is on its way to economic advancement that can benefit the whole populace.

Infrastructure Principles:

1. If opportunities in that country are not discovered and developed through entrepreneurs, the country's economic future is quite questionable. But these opportunities cannot be developed without proper infrastructures.
2. As global trade changes, the infrastructure profile of a country needs to be adjusted or totally changed.
3. Entrepreneurial opportunities are intimately connected to infrastructure's capabilities.

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Chapter 9
The Choice Between Present Versus Future Role of Infrastructure

Introduction

When a decision is made whether it is to build a road or build a school, there is always a connection between the present and the future. The connection between the present and the future of infrastructure development is extremely important; however, that relationship is often ignored or not well understood. By first acknowledging the connection; second, deciding which one may need more attention; and third, how the situation can be optimized are all extremely difficult questions but very critical in dealing with infrastructures that are important to economic well-being. While economic well-being would favor a futuristic orientation, political pressures force emphasizing the present.

The future and the present can be contradictory, can be positively connected, or can be totally synergistic. This chapter explores the present versus futuristic infrastructure developments and some pluses and minuses that are attached to the general thinking of these extremely critical relationships.

The Outreach of Infrastructure

Thus far, we have discussed infrastructure in terms of being physical and virtual. The importance of infrastructures in the present and in the future has been classified by Stanley (2008), who broadly describes three types of infrastructures: economic, social, and commercial. Clearly, all three types have present and future implications. In analyzing the three, the economic infrastructure included all types of utilities from energy to education. The social infrastructure included housing and health care, and the commercial infrastructure included organizations that are involved in competitive activities such as satellites and cable networks. Although these three types of infrastructures are separately presented and discussed, ideally infrastructure investments must offer essential services to communities, must

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enjoy long-term and stable cash flow, and must have a strategic advantage for that community or industry.

There is a very serious question regarding how much emphasis each type of infrastructure requires to create the greatest benefits for a society. Furthermore, what should be the present versus the future proportion of these benefits? First, the coordination of economic, social, and commercial infrastructure developments needs to be understood.

If infrastructure activities are moving from physical to virtual infrastructure, then wireless communication will be emphasized rather than road construction. But that means more emphasis on high tech platforms that is more futuristic and more related to commercial infrastructure development. In the meantime, however, the physical infrastructure may be deteriorating. Then, it is not possible to enhance the prevailing quality of life in that area or in that country.

In many parts of the world, there are serious road problems. There is increasing congestion that road builders of the past could never have imagined. There is a constant need for new connections to link jobs and similarly exploding housing and urban development. Such economic and social pressures to immediately concentrate on current infrastructures do not facilitate or even support commercial needs for future infrastructures development (McKenzie 1999).

In India, developments in a number of emerging technologies in recent years are likely to impact the future of average Indians in a very professional way. Despite their tremendous future promise, new telecom technologies or progress in biotechnologies are not delivering much currently to the more than one billion Indian population (Sharma 2004). Thus, movement from physical to virtual infrastructures, however, helpful for future commercial activity, is not helping the population at the present time. The technology is growing, but people's quality of life is not improving. In India, the many different types of infrastructures are not connected, are not leading to a prosperous future and even worse, are experiencing corruption. In many parts of the developing world, bribery, favoritism, and discriminatory practices are common in infrastructure development and management. Such conditions tend to limit progress in general. Such political and economic risks make the whole process of infrastructure development rather questionable (Chen and Warren 2008).

Similar situations exist in many parts of the developing world. In Africa, for instance, despite the extremely rich natural resources, Sangaredi's residents have not experienced any improvements in their quality of life, although a major aluminum smelter has become operational. An aluminum smelter in this area would seem to make sense from an economic and commercial infrastructure development point; however the social and political impact on the local populations has been very questionable as the government has opted for commercial infrastructure development over social infrastructure developments (Manson and Knight 2007). The emphasis has been on the logistics of moving the smelter output rather than sharing the benefits of this economic undertaking with the entire community in form of developing physical infrastructure to improve the general quality of life.

More on Present Versus Future Controversy

Exhibit 9.1 illustrates that all three infrastructure alternatives have profound future possibilities. While the economic structure is good for the populace, it may not make the country richer. On the other hand, commercial structure can make the country richer in the near future but not necessarily its population. The social structure may not accomplish either but may make the populace somewhat happier by making them feel free. That feeling of freedom is related to movement of people and their choices for living, for shopping, for vacationing, and for conducting business.

Although somewhat simplistic, identifying the need for and future implications of these three very different orientations in infrastructure development is essential.

At the time of this writing, planners in both developed, including the USA, and developing countries are not making major decisions regarding infrastructures. This situation is a result of increasing costs and the complexities of financing infrastructure development. In both groups of countries, fiscalization of land use and voter-generated property taxation are causing a major de-emphasis on holistic programs of community and infrastructure building. Instead of holistic and comprehensive programs, a stop-gap policy is dominating these critical planning activities. Instead of careful planning for the present and the future, current issues are dictating the whole process. Serious planning for major future growth is simply not happening (Little 2007). But infrastructures are absolutely critical and are must expand in the decades ahead forced by global economic growth, climate change, urbanization, aging population, and growing urban congestions. Making infrastructures adequate and functional is extremely difficult because it is extremely expensive to implement (Lambe 2008).

As a result of increasing needs and extreme expense, infrastructure development must be carefully planned. It is necessary to analyze the cost of building versus the cost of not building. It is clear that if the infrastructure decisions are based on extreme political orientations or on the basis of finances, countries are most likely to find themselves in very difficult situations.

Exhibit 9.1 Present versus the future

Infrastructure present impact	Infrastructure future impact
Economic structure: Physical road construction increasing consumer access to retailing. Facilitating movement of goods and services. Making it easier for businesses to function.	Facilitating domestic shopping improving consumers' quality of life through easy access to greater varieties
Social structure: Planning population centers. Making it possible for consumers to move to locate in more desirable areas.	Connecting population centers, facilitating a better quality of life by enhancing consumer mobility. Enhancing accessibility to entertainment and relaxation.
Commercial structure: Developing industrial possibilities with special emphasis on export oriented industry development.	Facilitating the future international trade opportunities and developing more high tech structures. Increasing production efficiency.

Although economic, social, and commercial orientations are critical individually and must be carefully considered accordingly, which one of these, or better yet, how much of each must be carefully considered? These questions imply the need to develop or recognize the existence of certain parameters on which the infrastructure development should be based.

Parameters for Infrastructure Development

If we can keep away from political or financial pressures and consider a country's wellbeing not only for the present but for the future as well, we must establish certain parameters. Exhibit 9.2 establishes six points in that direction.

The first item in the exhibit deals with economic inequality in the country. If economic conditions are significantly different in different regions of the country, then economic infrastructure development must be seriously considered. If such a solution is not considered, chances are that either the gap between the poorer and richer regions will become greater, or there will be an unmanageable urban explosion in that people will go to the richer regions in an uncontrollable manner. In either case, the conditions can become unmanageable. The infrastructure as well as water, energy, and education, roads, industrial activity, and economic mobility of resources and people must be managed as the discrepancies in regional developments are somewhat reduced.

The second item in Exhibit 9.2 deals with the poverty within a country. If poverty is increasing and is likely to accelerate, again economic infrastructure must be seriously considered. But in such cases the emphasis is put on infrastructure that will yield faster economic development activity for the whole country. Beyond the necessities such as water, energy, and education, conditions for small businesses is likely to increase, generating the missing necessities for isolated and somewhat deprived communities as well as creating jobs and income by starting new businesses catering primarily to these areas. The end result is very likely to be an increasing quality of life for these specific regions as well as for the country as a whole.

The third item in Exhibit 9.2 deals with a country's natural resources. Some African countries are wrestling with that particular issue, which means an emphasis on commercial infrastructure development as quickly as possible. However, the common story in Africa is that the natural resources are being used internationally, but the benefits of these activities are not reaching the African populations. The end

Exhibit 9.2 The conditions to be considered for planning infrastructure development

- Different regions of the country have different levels of economic development
- Poverty in the country is expanding rapidly
- International demand for the country's natural resources
- Some sections of the country are far removed and isolated
- Current government is ambitious and productive
- Maintaining a sustainable consumption effort is a necessity

result is that there is not much improvement in the daily lives of the people (Manson and Knight 2007). Clearly, if the benefits of large scale trade are not shared, sooner or later the country will experience civil unrest due to the growing gap in income and related quality of life.

Some sections of the country are far removed and quite isolated. Regardless of economic or commercial infrastructure considerations, such situations must be corrected. By definition, bringing the forgotten and isolated people into society's mainstream would benefit everyone. In such cases social infrastructure is extremely necessary. Special emphasis on information, roads, transportation would be critical. This is the fourth condition in Exhibit 9.2.

If the country's government is proactive regarding its infrastructure, it must calculate the present versus the future costs and benefits. This is the fifth condition mentioned in Exhibit 9.2. The cost benefit analysis is certainly essential; however, the distribution of the benefits of improved economic conditions becomes a major issue. A government that is proactive must consider how the broadest reach of the benefits of the infrastructure will make a real contribution to the wellbeing of a country. This point is connected to the early argument about the political and financial pressures when decisions for infrastructures are made. Financial pressures usually come from large companies, either domestic or international, pressuring the infrastructure decision makers to facilitate their particular needs. Facilitating the needs of specific groups may not be a good thing for the country's economy; in fact, in many cases, it may hurt the economy by forcing more obvious and very critical infrastructural problems to be ignored, and hence damaging the economic conditions further. The political issue is very closely related to the economic issue. There may be immediate economic benefits as a result of certain infrastructure development but only for a very few influential people or groups. This situation is most likely to create more political and economic conflicts among different social groups.

Finally, the sixth consideration listed in Exhibit 9.2 is sustainable consumption. In recent years, sustainable consumption has become a critical and widely discussed topic. In the first phase, sustainable consumption has been considered from the point of view of individuals. However, this did not take into consideration the consumption of goods and services that are provided to the society as a whole. The latter rather than the former needs careful infrastructure planning (Holland 2006). Sustainable consumption is particularly critical since populations are increasing and natural resources are depleting. Furthermore, it is possible for a country to become relatively well-off without international trade. This would depend on good utilization of domestic resources.

Combining the Present and the Future

Could there be an infrastructure development model free of financial, political, economic, social, and trade pressures? Perhaps not, but every country, every region, and every locality must have some kind of an infrastructural plan of its own.

Exhibit 9.3 A neutral infrastructure plan

- Fix the country's infrastructure
- Put emphasis on the critical infrastructure
- Make sure that domestic freight infrastructure is robust enough
- Do not let the transportation infrastructure for domestic and international trade to deteriorate
- Take traffic congestion seriously
- Keep on expanding national aviation infrastructure
- Consider possible industrial developments objectively

Exhibit 9.3 presents such an infrastructural plan. Perhaps the first item in the exhibit is the most critical, which is fixing the country's infrastructure, and although an essential point, could be a somewhat neutral plan. However, chances are that under that first point there will be a need for prioritization, timing, and budgeting of the whole infrastructure development activity. Exhibit 9.3 shows such a prioritization ordering; however, that order may change depending on expected and unexpected circumstances. It is certainly critical to have a starting plan of this type, knowing full well that without such a plan it is impossible to develop the country's economy. As the neutral plan is implemented, the critical decisions regarding present versus future issues become more imminent.

Summary

This chapter deals with the choice between present and future infrastructural planning. The discussion has connected three alternatives regarding infrastructure development. These are economic, social, and commercial plans. Depending on the general conditions prevailing in the society and on the basis of the administration's ambitions, infrastructure needs can be identified and prioritized. How the present and future needs are balanced is an issue that must be resolved if the country or the region is to make major economic progress.

It is suggested that if the country or the region does not have a major infrastructure plan, it may start with a neutral infrastructure plan. Such a plan's orientation is based on what a society needs to have in terms of an infrastructure that will facilitate many possible alternatives and synergistically connect the present to the future.

Infrastructural Principles:

1. Infrastructure has economic, social, and commercial impact. It is critical to keep all three of these in sync.
2. It is necessary to distinguish the present needs for infrastructure and the future needs and which one generates more economic well-being.
3. If there are no glaring needs for a specific infrastructure, it is wise to develop an all-purpose infrastructure.

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Chapter 10
Infrastructure Development Plans

The general impression that would be gained from our discussion thus far is that every economic activity has a foundation; therefore, the infrastructure concept for an entire country is somewhat confusing in the sense that we have not quite decided what kind of prioritization should be used to develop an infrastructure model that is mostly beneficial for that country. In fact, this may be a critical barrier in the economic development of the third world countries. Perhaps something can be learned from the European Union's Structural Fund, which is intended to help increase economic and social cohesion among its members, particularly new members of the union that are not quite developed. Part of this major fund, The European Regional Development Fund, finances infrastructures, job-creation investments, local development projects, and provides some help for small firms (Puigcerver-Penalver 2007). Once again, as previously noted in this book, infrastructure, entrepreneurship, and economic development are intimately related. Without a well-planned and positive relationship among these factors, there may not be much, if any, economic progress. Throughout this book, we have discussed some critical implications and varying dimensions of infrastructure development, but we have not discussed where the infrastructure planning and development should come from or who will prepare them. In this very practical, but also very essential, area there are numerous problems.

Problems in Infrastructure Development

Exhibit 10.1 illustrates the practical problems in planning and managing infrastructures in two separate categories: in developing countries and in industrialized countries. Both groups of countries have practical infrastructure problems but they are quite different.

In developing countries the problems are basic. They are related to the mechanics of developing infrastructures. The first problem listed in this group is the lack of technical knowledge.

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Exhibit 10.1 Problems in infrastructure development

In developing countries
- Lack of technical knowledge
- Deficiency in skills domestically
- Inappropriateness of foreign advice
- Problems with the prioritization

In industrialized countries
- Taking infrastructure for granted
- Too many existing opportunities
- Lack of maintenance tradition
- The greed factor

Lack of Technical Knowledge: An emerging country, most assuredly, lacks knowledge and experience in building or even planning its most needed infrastructure. As has been reiterated throughout this book, it is not quite possible to make major economic progress without an appropriate infrastructure development. A country's awareness of its lack of basic infrastructure and knowing that there is a major lack of knowledge in the country is a proper first step in developing that country's economy, as it must find reliable technical information for the country's infrastructure needs.

Deficiency in Skills Domestically: Even if a country had acquired technical knowledge regarding building and maintaining infrastructures, there is, however, not likely enough technical skills to build the infrastructure and maintain it. Finding or developing the necessary skills for infrastructure development and maintenance is initially a major hurdle. Just what must be developed first, how, and by whom are most important questions. Most Central African countries are, no doubt, experiencing these almost-insurmountable problems. It is quite likely that an emerging country will go abroad to seek the proper skills to develop the necessary infrastructure. But where should that country go to find the necessary skills?

In fact, if the country representatives are negotiating with some international consultants, how would they know which consulting group and which consultant would be more appropriate for the country needs? There is likely to be no perfect answer. Banik et al. (2007) refer to a hypothetical tool kit and maintain that skilled labor along with a tool kit could be very productive. Although their reasoning is not particularly related to infrastructure development from scratch, a tool kit idea for infrastructuring can be very good. The key question is who will prepare such a tool kit and what exactly would it include? Perhaps preparation of an infrastructural tool kit by the experts who are hired by an international not-for-profit organization can be a boon for a country with a very small domestic market and a weak technological base that wants to export textiles and low-end commodities. In such cases, the countries think of lowering their currency rules and reducing labor costs than improving the infrastructure (Manmohan 2008). If the original infrastructure can be developed without having perpetual overcapacity and without relying on currency manipulation, the country can successfully navigate the path of economic growth (Phillips 2000).

Inappropriateness of Foreign Advice: Continuing with the tool kit concept it is critical that the advice and information contained in the toolkit may appropriate. Lack of transparency leading to graft and corruption can be a very critical and undesirable factor here (Reina 2007). If the country receives inappropriate advice, the end result for an emerging country can be devastating. Thus, transparency and objective infrastructure advice by outside sources must be always present. Details of such objectives would depend on individual countries and their preferred practices. In trying to achieve constructive foreign advice, each country may have its own orientation. However, a most critical factor here is to ensure the appropriateness of the foreign advice regarding the country's infrastructure development.

Problems with the Prioritization: Throughout this book, we have emphasized that infrastructure development, although critical for a country's economic development, is extremely costly. Many developing countries simply do not have adequate funding for what is needed. Many authors have found a strong positive association between public investment in infrastructure and economic growth (Monteiro and Turnovsky 2007). The physical dimension and human capital of infrastructure development are both critical and necessary. There is a possibility that they jointly will make a synergistic impact on the country's economic development. The earlier mentioned tool kit must consider this all-important point of prioritization. Any haphazard attempt initiated by political or other types of pressures are not likely to be effective.

In developed countries, infrastructure issues are quite different, as they are quite advanced and they vary in their managing orientations.

Taking Infrastructure for Granted: Most developed countries experience various types of pressures regarding their infrastructures. Indeed, some of the current and business-related infrastructure issues are handled by the private sector because quick resolutions are needed for their immediate business requirements. If they can afford it, they will take care of the situation rather quickly. Perhaps this is one of the factors that make these countries take infrastructures and related issues for granted. However, it must be recognized that deteriorating infrastructures have a negative impact on the national productivity. Similarly, a deteriorating infrastructure may endanger consumers' well being and limit their accessibility to shopping among many other problems.

Too Many Existing Opportunities: One of the key issues relating to infrastructures in industrialized countries is that there are too many opportunities or, one might say, priorities for the utilization of limited funds at the disposal of the government. Unfortunately, governments in these countries may be even more sensitive to political pressures than their counterparts in developing countries. As a result of this sensitivity, prioritization and maintenance of the country's infrastructure is likely to be politicized. Then, the country's economic progress is, most likely, to be somewhat disrupted. It is necessary to develop a program and a strategy for these countries to continue a development and maintenance strategy for their own infrastructure-related activities. The most important point here is that the countries

must take infrastructure development and maintenance seriously and not put them on a back burner. Infrastructure is too important to be taken for granted.

Lack of a Maintenance Tradition: As discussed previously, since many industrialized countries did not originally rely on infrastructure development, they have not developed a tradition of developing and maintaining their infrastructures. For example, the US interstate highway system was conceived and developed by President Eisenhower not as an economic development aspiration but rather to counteract a major recession. Clearly, the interstate highway system was and has been a tremendous boon for the American trucking industry. Without the interstate highway system the trucking industry would not have developed into its current advanced state. At the writing of this book, President Obama has proposed the development and improvement of the US infrastructure, which is overdue, but his reasoning is to counteract the current recession rather than looking to the country's economic future. Not having a maintenance tradition, which is rather typical for most of the industrialized countries, is likely to generate much economic adversity.

The Greed Factor: Large firms catering to existing markets with their standard products generated by familiar and tested technologies have almost no incentive to explore new and radical technologies (Klepper and Thompson 2006). Large companies tend to try to get the last penny out of their investments, and they are not inclined to adapt or make significant changes in the infrastructure, if that change disrupts their profit picture. This is what I call the greed factor. Similarly, another aspect of the greed factor, as far as I am concerned, is exerting undue political and economic pressure on the government to fix a certain aspect of infrastructure that will be extremely beneficial to one company and do almost nothing for the economy or the industry.

There are very practical problems in both planning and maintaining infrastructures in both developing as well as developed countries. It is clear that this concept is too important to ignore, but it is almost equally difficult to have all these infrastructure problems solved instantly. A maintenance program for industrialized countries and a development plan for industrializing countries are necessities. In earlier chapters, the development issues were discussed, but it is critical to also discuss a general maintenance program, as shown in Exhibit 10.2. Although it has applicability to both groups, I consider it more useful for industrialized countries.

There are at least six points that I think should be taken into consideration when discussing an infrastructure maintenance plan:

Exhibit 10.2 Parameters of a maintenance program

- Analyzing vertical scope of the key industries
- What types of industries are likely to be outsourced
- Reducing outsourcing and losing control
- Economies of scale routinized and they should continue
- Marginal allowance for unexpected changes
- Careful analysis of consumer convenience

The Parameters of a Maintenance Program

A dynamic and carefully implemented maintenance program, by definition yields better economic results for a country. Such a program, at least, must have six critical points.

Analyzing Vertical Scope of the Key Industries: Here there is, or should be, a prioritization activity which deals with the relative importance of each industry to the country's economic well being. Since the funds and efforts are limited, the maintenance program needs to be connected to this prioritization process. A maintenance program must go beyond the routine maintenance and analyze how the needs of the industry are changing and how these changing needs should be translated into infrastructure adjustments. In other words, the maintenance program must be somewhat forward thinking to accommodate the industries' forthcoming needs.

Some Industries Are Likely to Be Outsourced: Outsourcing and the industrial health of a country can be significantly connected. It may be important for the national economy to slow down outsourcing. Certain adjustments in the infrastructure can help remedy the situation. But before outsourcing can even start infrastructure adjustment may be used as a preventative measure.

Reducing Outsourcing and Losing Control: This is continuation of the previous point. Some outsourcing activity may threaten the country's wellbeing. There may be major efforts to stimulate the industries that are losing too many jobs overseas. It may be a revitalization activity that is needed to strengthen those industries. Here infrastructure may play a critical role in this reinvestment activity.

Economies of Scale Routinized and Continuing: A country's many industries have certain economies of scales. Those industries must have their infrastructures intact in order to continue their operations. In fact, certain improvements in these infrastructures can improve the overall performance of these industries, which is a very desirable goal.

Marginal Allowances for Unexpected Changes: In a dynamic economy, there are constant changes. Major change related activity may be in new industrial platforms from which new industries and products emerge. Having the capabilities to facilitate these emerging industries by developing the necessary infrastructure is extremely valuable for the overall wellbeing of an economy.

Careful Analysis of Consumer Convenience: Supporting the industrial sector by providing good maintenance and development is not quite adequate. The quality of consumers' life in a society is critically dependent on physical and intellectual infrastructures. Therefore, ensuring that they are maintained properly is essential for a country's general wellbeing.

Summary and Conclusions

In this chapter, the critical practical problems in infrastructure development of both developed and developing countries are examined. The problems in these two groups of countries are different but they are real. In developing countries, there are critical practical problems such as from where should the infrastructure development information come and how would improper advice and behaviors be eliminated.

In developed countries, infrastructure development is usually taken for granted and its maintenance is typically below par. Just how should the infrastructure maintenance be performed? This chapter proposed a general infrastructure maintenance plan to facilitate current and future economic goals. It also posits that the infrastructure management plans must be prepared by experienced and knowledgeable people who are not likely to be influenced by special outside pressures. It may be critical to have outside independent help for objective and constructive plans.

Infrastructure Principles:

1. Developing and industrialized countries face different problems in infrastructure development, they must be cognizant of these problems and be able to solve them.
2. Maintaining infrastructures become real problems in time, there should be early plans for maintenance.
3. Flexibility in maintenance programs is critical so that the country can respond to changing economic opportunities.

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Chapter 11
Connecting Infrastructure to Entrepreneurship

Introduction

Interconnectedness of the infrastructure and national economic development strategies have been touched upon throughout this book, but it must be reiterated that economic strategies cannot be implemented without entrepreneurs. Thus, interconnectedness of entrepreneurs and infrastructure becomes obvious. Although numerous scholars (Samli 2009) have alluded to the influence of local or national cultural values on economic development, it is likely entrepreneurs who will be the key drivers of new and emerging infrastructures. If, in the near future, infrastructure drivers are entrepreneurs, it is necessary to understand entrepreneurship before it can be connected to infrastructuring. In other words, without entrepreneurs nothing will happen, but entrepreneurship cannot emerge and function successfully without infrastructures. In this chapter, we discuss entrepreneurship in general and connect it to the infrastructure system.

Entrepreneurs and Their Power

There has been a debate that has been emphasizing the question of if entrepreneurs are different than typical people. There have been many pro and many con claims. It is important to recognize that entrepreneurs need special information and the skills to use them. But if we are arguing that entrepreneurs are the key drivers of infrastructural development and maintenance (Mitchell et al. 2002), then it is necessary to examine how this concept will play into nations' economic development. In Exhibit 11.1, is presented. In this exhibit, the proactive key driver of the infrastructure development is reinforced. As noted previously, without proper and well-understood economic goals, the most desirable infrastructure development cannot be implemented. As I always say in my classes and in my writings, if we don't know where we are going, we will never get there. For example, in Indonesia, small and medium entrepreneurial enterprises are considered important for economic growth and the

A.C. Samli, *Infrastructuring: The key to Achieving Economic Growth, Productivity, and Quality of Life*, DOI 10.1007/978-1-4419-7521-8_11,

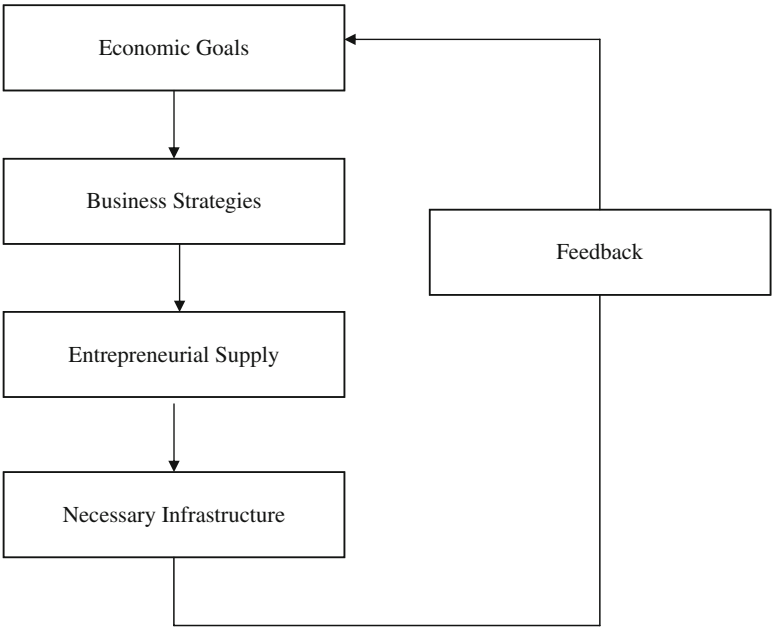

Exhibit 11.1 The key orientation

government generally supports these enterprises but there does not seem to be a major strategic orientation (Tambunan 2008), which is to say that small entrepreneurial businesses are emerging but they are not coordinated or at least remotely connected.

Economic goals must be translated into business strategies. Without such interpretation, the creation of successful entrepreneurs will not take place systematically. This general scenario of the development of business strategies would necessitate a proper supply of venture creators who are entrepreneurs. But these entrepreneurs cannot function without the presence of a proper infrastructure. The critical connection between the infrastructure and entrepreneurial supply of the country cannot be overstated. The key question, of course, is just how much to balance infrastructure with the driving power of entrepreneurs.

Analyzing Entrepreneurs Further

Just who are entrepreneurs? Do they differ from average people? Are there universal characteristics of entrepreneurs? These are extremely important questions since national economic growth is a function of not only the activities of major established firms but also those related directly to the entrepreneur's activities (Reynolds et al. 1999). So who

are entrepreneurs? They may be defined as those who attempt new businesses or create new ventures and generate or create employment or new organizations (Danish National Executive Report 2000). Entrepreneurs are not simply doers but perhaps creative doers. In fact, in my most recent book (Samli 2009), I describe them as creative constructionists. Since creativity here is an issue, it is necessary to, at least briefly, explore sensory inputs into the entrepreneur's mind. According to Neisser (1967) the perception system of an entrepreneur includes all sensory inputs; these are *transformed* into action plans but are *reduced* to the most basic activity planned. These inputs are partially stored but are recovered as needed and used. It would seem that entrepreneurs have a very active cognition system, which is more geared for venture creation than perhaps the average individual. Although literature is not conclusive, it has been maintained that the risk perception of entrepreneurs is somewhat different than average people in that they perceive the risk in detail but they somewhat downgrade its importance. In other words, they are better risk takers or risk managers than most average people (Samli 2009). Exhibit 11.2 illustrates the importance of entrepreneurs' cognition and how it may connect to infrastructure.

Entrepreneurial Cognition: As mentioned earlier, cognition is all the processes received by sensory inputs and transformed, reduced, elaborated, stored, recovered, and used. In this process, entrepreneurs would receive information that is likely to be transformed into a possible business undertaking; as such, it will be reduced to its critical variables, then these critical variables may be stored for an opportune time; when or if the opportunity arises the whole concept would be recovered and

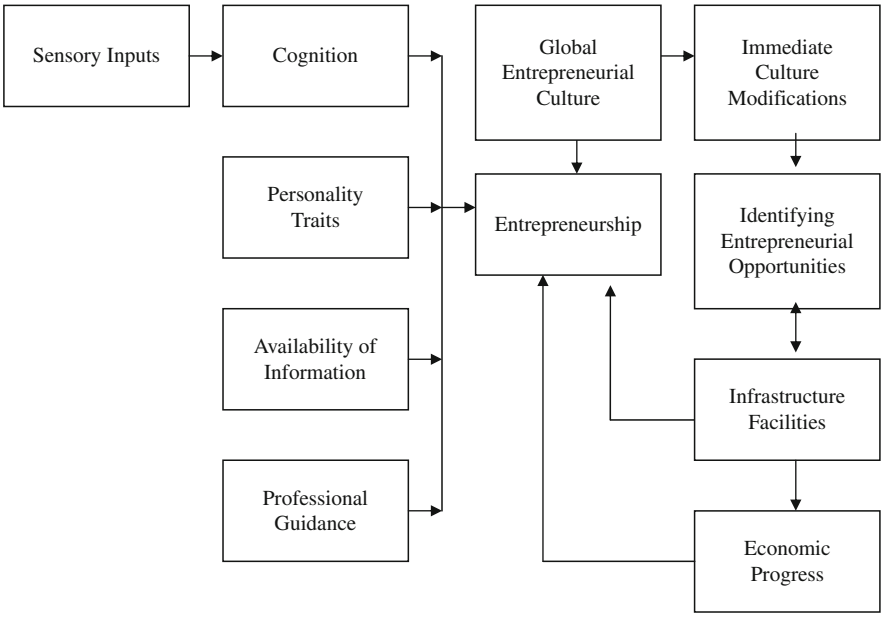

Exhibit 11.2 Entrepreneurial connection of infrastructure

used. Although we do not definitively know if this whole process is innate or learned, the entrepreneur-to-be is willing to take the risk, make arrangements, and is able to undertake the whole project.

Global Entrepreneurial Culture: There have been some studies to determine if entrepreneurs share similarities throughout the world. In other words, is there a global entrepreneurial culture? The research findings are rather mixed. In some respects, entrepreneurs are quite alike across the cultures, but in other respects, they are quite different. For instance, in opportunity recognition and level of skills regarding specific respective ventures there appear to be a global entrepreneurial culture. However, in levels of professionalism, knowledge, diagnostic ability, opportunity motivation, among others, there seem to be significant differences. Perhaps the key variations in the global entrepreneurial culture are related to two important categories as shown in Exhibit 11.2. The first is the availability of information and second is professional guidance.

Availability of Information

In my recent book, (Samli 2009), I presented the following separate sources of information supply: Information sharing communities, universities, and governments.

Information sharing communities thrive on learning how to add value and understand the impact of market changes. Countries or regions that have elites who have hands-on practices share the knowledge that is generated and make major contributions to economic growth (Chua 2003).

Both regional and national governments should be exploring how their economies are likely to grow and must make such information available to all. But, more specifically, governments not only must try to generate critical information but must play a very important role in the dissemination of such information. Governments can be very active in the development of an entrepreneurship culture. Not only can they provide information regarding economic opportunities, but they could also, through taxation and legislation, support small businesses and entrepreneurs. Exhibit 11.3 emphasizes a government's place in generating information for entrepreneurial initiatives. Governments, in addition to being part of the information generating activities, can be, and perhaps must be, very proactive in what Samli and Isaak in separate occasions (Isaak 2005; Samli 2008, 2009) called the Silicon Valley facsimiles. In these facsimiles, Samli maintains that the government can create opportunities to bring together the best creative minds to innovate and think about the possible activities that would help the economy.

Universities are a separate critical force in generating information. In addition to educating and training future entrepreneurs, universities could generate information regarding economic opportunities and business practices to provide additional direction to future entrepreneurs.

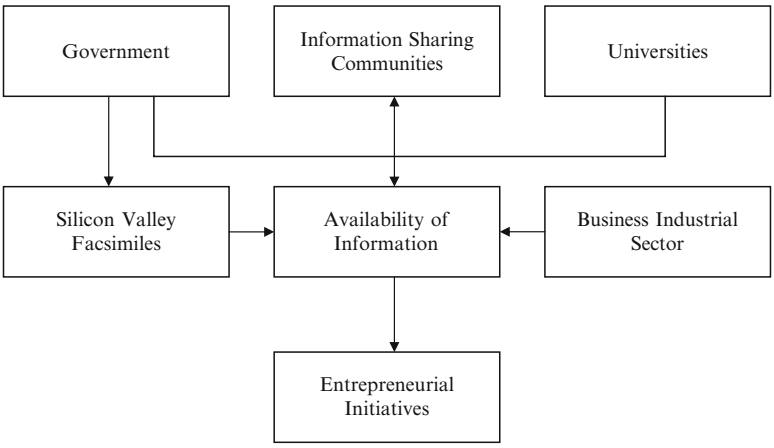

Exhibit 11.3 Information support

Silicon Valley Facsimiles

Perhaps the most powerful way of creating a cohesive and synergistic connection between the infrastructure and entrepreneurship is developing a Silicon Valley facsimile. This concept was discussed in my earlier book (Samli 2009) and mentioned in different sections of this book. Silicon Valley has been very good to American innovativeness. We believe that some variation of the American version can be developed in each and every country. All countries have exceptional talents. Finding them, training them and, above all, employing them are critical challenges. Therein lies the real raw material for entrepreneurship. These Silicon Valley facsimiles could be entrepreneurship development centers. Such centers, as far as I am concerned, must perform about ten different functions.

First, they must attract and keep the best young minds in the country so that there will be a chance for entrepreneurs to emerge.

Second, they must make sure that it is an intellectual center and the smartest students in the country are attracted to it.

Third, they must nurture an entrepreneurial culture by stimulating individuals to think out of the box.

Fourth, these centers must be located in attractive locations while still ensuring that the young individuals will be motivated to focus on their work.

Fifth, these centers particularly must identify and support innovative research activity that has great potential.

Sixth, as these centers emerge and develop, they transform into industrial parks, preventing them from being considered as only intellectual centers.

Seventh, these organizations must make sure that they are not challenging the existing economic and political systems so that they can function smoothly.

Exhibit 11.4 Foundations of a Silicon Valley facsimile (From Samli 2009)

Key points	Implications
• Attract and keep the best minds	⇒ Some of them will be entrepreneurs
• Develop an intellectual center	⇒ It will attract the smartest students
• Nurture an entrepreneurial culture	⇒ Stimulate thinking for radical innovation
• Identify an attractive location but not beautiful	⇒ So that young people will concentrate on their work
• Generate targeted support for cutting-edge research	⇒ Cultivate research findings in the form of possible applications
• Make sure that the industrial park is accepted as an intellectual center	⇒ Receiving attention and promoting new ideas are expected as normal activity
• Create consistency with a stable political economic system	⇒ Making sure that political influences are not present
• Encourage networking trust and commitment among teams	⇒ Making sure that intellectual interaction is present
• Manage the transportation, infrastructure, pollution, and environment-related problems	⇒ So that the center becomes a model of sustainable development

Eighth, these Silicon Valley facsimiles must create opportunities for the future entrepreneurs to be engaged in first mover advantages by major and radical innovations.

Ninth, these organizations, in time, will have different teams dealing with different projects, but it is imperative that there be major networking and interaction among these teams.

Tenth, the facsimiles must have their own infrastructures to provide hands-on experience for the future entrepreneurs.

As the facsimiles facilitate the emergence of new entrepreneurs, these entrepreneurs must have intensive knowledge of the infrastructural needs of their possible future businesses (See Exhibit 11.4).

Enter Infrastructures

In this chapter, we have briefly explored entrepreneurial development. It is extremely important to connect this effort to infrastructure development.

Throughout this book, I have stated the importance of infrastructure and tied it to numerous outcomes and activities. However, perhaps the most important statement that can be made about infrastructure is that without it, entrepreneurship cannot exist and cannot thrive. As shown in Exhibit 11.2, infrastructure facilities, if connected to entrepreneurship, can facilitate a country's economic progress in a most optimal manner.

The critical issue, of course, is to decide if infrastructure development should come first, followed by entrepreneurial development or vice versa.

Certainly there are other alternatives. The infrastructure may simply have nothing to do with entrepreneurial activities present or future. It may be simply designed to facilitate future or present international trade or simply some domestic activity such as developing a specific region for political reasons. The Asian four tigers (South Korea, Singapore, Hong Kong, Taiwan) have particularly emphasized their infrastructure development and they have performed extremely well. Most central African countries have not been able to do much with their infrastructure; therefore their economic progress has not been adequate.

In fact, in his book (Yew 2000), the president of Singapore mentioned infrastructure development as one of the most important keys of his country's development. He also hastened to add that a number of other developments, including sound macroeconomic development policies and fiscal incentives supporting private enterprises were particularly emphasized. In other words, it appears that Singapore has paid extreme attention to infrastructure development, national goals, and entrepreneurship simultaneously. I believe that this is of the utmost importance for any country's economic development aspirations.

Currently, Singapore is continuing its original plans with even more emphasis on entrepreneurship. Similarly, China, India, and a few African countries are following their own particular programs, roughly following the same general pattern (Samli 2009; Morrison and Schwartz 1996; Feilock et al. 2008). Whether a uniform program or specific programs, the critical point is still connecting the infrastructure activity to entrepreneurship. Throughout this book an attempt is made to distinguish among infrastructures or categorize them. If we were to use a general categorization such as intellectual infrastructure dealing with education, physical infrastructure dealing with roads docks or airports, high tech infrastructure dealing with communication, or basic infrastructure dealing with air power, water, we can say the intellectual or educational infrastructure deals with entrepreneurship and infrastructure. I believe that this intellectual infrastructure truly can bring entrepreneurship and infrastructure together and can optimize the relationship between the two (Thai and Chong 2008).

Certainly, the relationship proposed above is a very complex and difficult one. However, I believe that the future of developing countries and, therefore, the future of the world would depend on how successfully this task is performed.

In order to cultivate the important relationship between entrepreneurship and infrastructure, intellectual infrastructure must be cultivated. The assumption here is that with advanced intellectual infrastructure, properly trained people with the help of governments can find a way to facilitate growth and development, which in essence creates entrepreneurship and infrastructuring.

Exhibit 11.5 attempts to put together some of the key information needs that must be satisfied. The exhibit indicates a need for combined macro economies, strategic business, logistics, and civil engineering. In general terms, the intellectual infrastructure will identify what is most likely to be successful economic opportunities, creating entrepreneurs who can take advantage of these opportunities as well as articulate infrastructure needs for these ventures to be successful. Such a carefully blended sequential flow of activities can easily generate a synergistic optimal process.

Exhibit 11.5 Key information needs for intellectual infrastructure

- Growth potential and growth areas in the economy
- Types of businesses that could be effective in those areas
- The infrastructure requirements for these businesses
- Decision-making, problem-solving skill developments
- Infrastructure requirements for these skills
- Understanding how businesses start and grow
- Infrastructure for those successful growths

The question, of course, is how to accomplish such a complex activity and put it to actual use realistically. It is assumed here that different countries, different governments, and different individuals will have to develop their own version of combining entrepreneurship and infrastructuring.

Multiple Layer Orientation

Bringing the infrastructure and entrepreneurship together is perhaps the most critical key in economic development efforts. However, as has been discussed in this chapter, this is a very difficult task. In fact, so difficult that connecting infrastructure and entrepreneurship, according to some scholars, cannot be done in one particular step (Van de Van 1993). This major process can be accomplished by taking certain steps in three distinctly identified and important layers (See Exhibit 11.6).

Exhibit 11.6 identifies general but important functions from the broadest dimension which is the first layer, to the more specific proprietary functions, which is the third layer.

The first layer in Exhibit 11.6 emphasizes institutional arrangements either for developing a new technology or developing entrepreneurial orientation to cultivate that new technology. How is this done? As the exhibit illustrates, by taking three key steps. These are legitimization of the new technology and all the efforts to support it. As the expected technology is legitimized, it is also regulated and the regulation function here can take numerous different forms; it is totally critical that each country or region has its own way of doing it. Standardization is the third function in the first layer. This is basically clarifying how this industry will function and how its critical steps will be performed.

Once the first layer is successfully completed, the second layer takes place in terms of developing the necessary resource supplies. As the exhibit indicates, the resources vary from basic research to financing and developing skilled labor, which are necessary for the proposed technology.

Finally, the third layer deals with specific proprietary functions to be performed by entrepreneurs. The proprietary functions include applied research in the form of research and development, then how the manufacturing is going to be done and how the new industry's outputs will be marketed. Particularly, as shown in Exhibit 11.6,

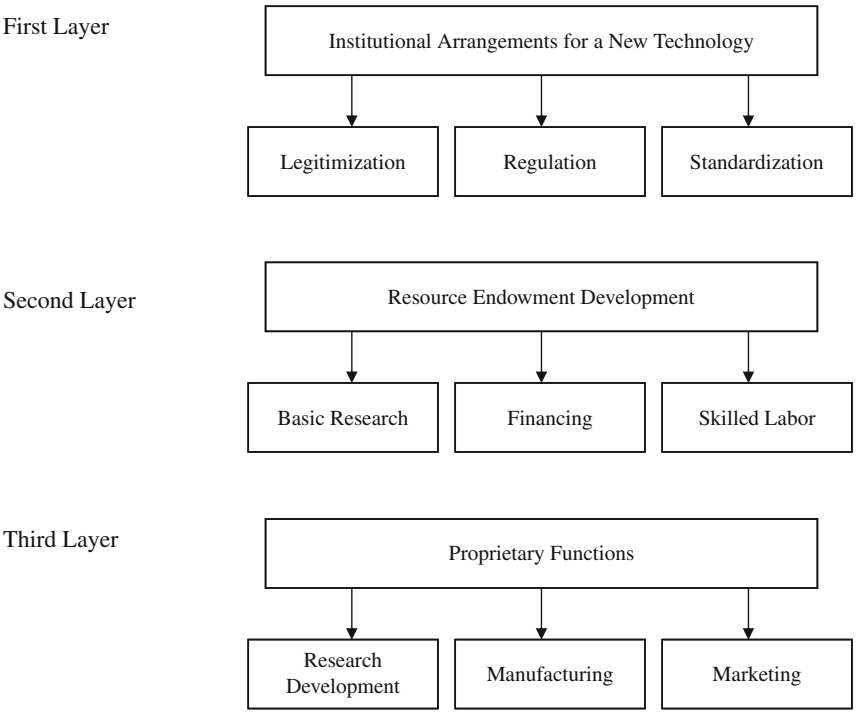

Exhibit 11.6 The layers of infrastructure entrepreneurship connection (Developed and adapted from Van de Von 1993)

the second layer is very much related to infrastructure development and the third layer particularly deals with connecting the infrastructure to the entrepreneur's activities and orientation.

Summary

This chapter establishes the key premise that without proper infrastructure there cannot be successful entrepreneurship.

Although entrepreneurs have somewhat different cognitive systems and personality traits, with the availability of information and professional guidance, they could not only modify the existing economic culture but they could make it more successful by taking advantage of economic opportunities. If infrastructural facilities can also be developed almost simultaneously, there will be a synergic optimality creating desirable economic progress.

Due to the complexity of the issue, a three-layer model was developed in the chapter. This model can be a very useful instrument for future developments.

Infrastructure Principles:

1. Having entrepreneurship infrastructure connected is not enough; there should be continuous synergism.
2. Entrepreneurs have a special perception of economic opportunities; with proper training and infrastructural support they are the future of a country.
3. Without proper satisfaction of information needs, intellectual infrastructure and, then in general, a fully functioning infrastructure system cannot materialize.

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Chapter 12
Global Leadership Begins with Infrastructure

Introduction

Perhaps one of the most important questions this book raises is: Does infrastructure lead to global leadership? As there are many aspects of infrastructure, this question is rather difficult to answer; however, it would be rather to say that without proper infrastructuring, which includes development and maintenance of infrastructures, a world leader industrialized country cannot possibly maintain its leadership. At the writing of this book, all the BRIC countries, that is, Brazil, Russia, India, and China, are putting more emphasis on their infrastructures than the USA. Although not necessarily a direct result of this situation, many economists are not placing the USA at the top ten leading countries in the world for the coming 2 decades or so.

Scholars posit that if the infrastructure is not there, new firms cultivating the development of new innovations or further developing existing technologies cannot emerge. The environment for new innovations and new firms must be available through proper infrastructure so that more and more new firms will contribute to the economic development (Van de Von 1993; Venkataraman 2004).

In Chap. 12, we explored the relationship between entrepreneurship and infrastructure; in this chapter, we discuss what would make a country a global leader by the way primarily developing its infrastructure.

Getting Started

Venkataraman (2004) posited that a clearly planned and tangible infrastructure has a positive impact on related innovation, entrepreneurship, and economic development, which are the critical leadership ingredients. Just how do we accomplish this dynamic interdependence that would create a leadership identity among the world nations?

Exhibit 12.1 identifies two key approaches: relying on market mechanisms or creating innovation policies. Certainly, these are two extremes in general orientation, but it is critical that each is discussed according to its merits and demerits.

A.C. Samli, *Infrastructuring: The key to Achieving Economic Growth, Productivity, and Quality of Life*, DOI 10.1007/978-1-4419-7521-8_12,

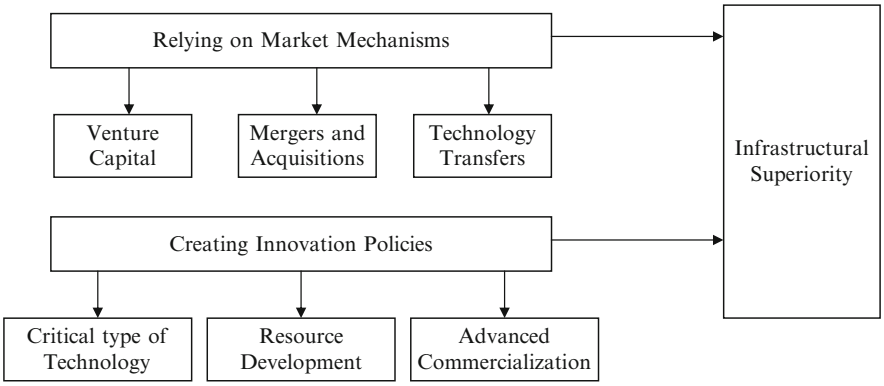

Exhibit 12.1 Achieving infrastructural leadership

Market Mechanism for Infrastructure Development

If market conditions are favorable then new ventures are likely to emerge. But making the market conditions favorable so that the infrastructure is venture friendly is necessarily a normal phenomenon that happens automatically. Those who advocate market mechanisms to develop infrastructure that will generate infrastructural superiority believe that the market will take care of this situation (Aldrich and Ruef 2006). This situation is likely to be closer to the realities of more advanced industrial societies. In such cases shown in Exhibit 12.1, venture capital is available, companies become more innovative and powerful with mergers or acquisitions, and technology is transferred. But particularly in developing countries to build an infrastructure to become a truly progressive economy, innovation policies must be created. Such cases may be typically focused on one type of technology (Woolley and Rottner 2008). Studies have also indicated that innovation development provides resources, legitimacy, and infrastructure to new venture development, thus significantly stimulating the economy.

Creation of Innovation Policies

Less-developed countries that may be trying to excel and perhaps become recognized as a leader must develop public innovation policy initiatives. These initiatives will help build the infrastructures that are needed to generate technical and economic evolutions (Woolley and Rottner 2008). As illustrated in Exhibit 12.1, such innovation policies are based on at least three key concepts. First, identifying the critical type of technology to be used. Here, again, we are concentrating on the most probable technology that will facilitate the desired economic development. If the

critical technology is not only identified but also carefully discussed and planned, then resource development can be considered. A detailed resource development program is the second key concept. This is where the infrastructure requirements, adequacy, and development become critical.

The third aspect is advanced commercialization. This is where infrastructuring becomes such an important activity. If the planning of the innovational development is conducted properly, that is, how the project is to be commercialized and made available in certain quantities in different markets, then the infrastructure requirements are carefully identified, and capabilities to ready them are assessed. Achieving infrastructural leadership calls for a dynamic infrastructure development.

Dynamic Infrastructure Development

Exhibit 12.2 presents six principles for infrastructure development to achieve infrastructure leadership. It shows the same kind of orientation Singapore used in its transformation from third world status to first world (Yew 2000). The general orientation for that country was attracting investments and developing the infrastructure. Currently, China is doing the same thing; it is putting more than 9% of its GDP (gross domestic product) into infrastructure development and has been experiencing over 10% economic growth (Thuermer 2008).

Exhibit 12.2 illustrates a specific sequential orientation, and although it is a sound model, it would need to be adapted or even revised according to the merits of each specific case. In fact, each country may consider a variation of this model according to the conditions and opportunities prevailing there.

It is quite obvious that the whole process begins with proper identification of the innovation on which the system is to be based. Without such identification there could be only a modest, if any, level of progress. Therefore, it is necessary at this stage to identify a few key areas that deal with different possible alternative

Exhibit 12.2 Principles of dynamic infrastructure development (Adapted and revised from Cooper 2001; Samli 2009)

Principles	Implications
Identification of innovation	What is the innovation's contribution to the economy?
The key focus areas	How will the innovation be managed?
What are the capabilities of the country?	Can this proposed innovation be successfully managed?
The risk levels	What are the parameters of success and failures?
The infrastructure requirements	Does the country have the capabilities to develop the proper infrastructure?
Outreach of infrastructure	Would the newly developed infrastructure be used gainfully for other innovations?

innovation developments. Speculating on which ones are likely to generate the most expected benefits to the economy is critical since the infrastructure development would depend on this particular industry. Identification and evaluation of the proposed new industry and projecting its impact on the economy are strictly major undertakings; however, if done properly, the outcome can be extremely beneficial to the economy and the country. Much of the information flows and entrepreneurial activities needed for this situation are discussed in Chap. 11.

The connection of the infrastructure to the proposed new industry is the essence of our argument. It is not clear whether it was a phase in a major plan but China emphasized the production and distribution of basic necessities justifiable given the large volumes of production and sales, but as a result, it developed some of the best airports and seaports. India, on the other hand, emphasized the development of information technology and is building its infrastructure accordingly.

The second principle detailed in Exhibit 12.2 indicates that not only building the infrastructure but also managing it must be considered in advance. We have discussed this topic directly and indirectly a number of times the infrastructure planning must always be connected to its management if a world class seaport is being built it is necessary to plan its maintenance. Certainly it would be a major loss not to plan its maintenance. In this case, however, if the proposed innovation requires certain characteristics that will be unique to the infrastructure, the planning of the infrastructure maintenance must be connected to the management of the proposed innovation. Just what are the key focal points to manage the proposed innovation and the connecting infrastructure? Considering the key points of emphasis in advance and planning for tem indicators the need for major levels of sophistication. In developing countries, in particular, such levels of sophistication need to be developed as the plans are made for the proposed innovation. The most important point here is that the detailed plans must be prepared simultaneously with the innovation and infrastructure.

Developing an industry or innovation is quite different than using it or managing it. As stated in Exhibit 12.2 just what are the capabilities of a country in regard to managing the proposed new innovation? For example, if a new innovation is being developed in a country's textile industry and it is not based on using cotton in the traditional way, this is a major deviation from the traditional practices and would require a careful analysis of the necessary changes (if any) that are needed in the infrastructure. The country simply may not have the necessary raw materials and if the innovation can be successfully managed, there would certainly be no issue.

If the proposed innovation is to be successfully managed, the risks involved must also be examined. If the proposed innovation costs a certain amount of money to develop the proper infrastructure, the question is can the proposed innovation succeed. If not, what would be the alternatives? If yes, what would it take to maintain and expand considering both the industry and infrastructure in question? Once again, if there is a proposed innovation, what are the minimum and maximum infrastructure requirements and commensurate maintenance and expansion possibilities? So the ultimate question is not whether a country can afford this proposed innovation, but can it afford not to have it? To this point, a country's leadership in the proposed industry as well as its general economic progress must be examined.

Basically, any proposed innovation and the commensurate infrastructure could, would, and perhaps should have other gainful utilizations. These other utilization possibilities must be carefully analyzed and prioritized knowing full well that the infrastructure may have different possible alternatives, but all of them are not likely to yield the same results.

Infrastructure Leadership

Currently, the USA is spending less than 1% of GDP on infrastructure and over the last few years has achieved even less growth than that. At the same time, four countries (China, Japan, South Korea, and Singapore) are particularly cited as concentrating on maintaining and modernizing their infrastructures and enhancing their economic "clout" (Miller 2007).

China. The country is investing money and developing a strategy for its infrastructure. The Chinese are emphasizing regional planning of infrastructure and are realizing the importance of efficiently moving goods and people within the country.

Japan. The country is viewed as a technology leader. Its infrastructure efforts have been good on a continuous basis.

South Korea. At the end of the Korean War this country was one of Asia's poorest. It has heavily focused on its infrastructure, and it is currently considered as the eleventh wealthiest nation in the world.

Singapore. As mentioned earlier, this country has been heavily involved in its infrastructure development. It is considered to be the twenty-second wealthiest nation in the world (Miller 2007).

As noted, those countries that are placing special emphasis on their infrastructure are making good economic progress.

Toward Industrial Leadership

As mentioned in different occasions throughout this book, the Asian four tigers have shown significant progress, growth, and resilience during the past 3 decades or so. Their progressive outlooks toward their economies have helped them to move from the third world status to the first (Yew 2000).

The quality of the national infrastructure in comparative forms is not undertaken regularly; therefore such data are scarcely available. As mentioned in the preface of this book, a special study in 2007 dealing with the subjective evaluation of the infrastructures of 128 countries provides infrastructure information shown in Exhibit 12.3. As detailed, the four tigers showed very respectable scores for their

Exhibit 12.3 GDP growth between 2000 and 2007 and quality assessment of the infrastructures of four Asian tigers (Samli and Warner 2009)

	GDP growth per year %	Quality of infrastructure
Singapore	18.00	4.27
Hong Kong	12.00	4.00
South Korea	13.00	3.62
Taiwan	13.00	3.44

Note calculations by the author. The quality data are based on 5 being perfect

respective infrastructures. Also as shown in Exhibit 12.3, these countries had remarkable GDP growth between 2000 and 2007. The US infrastructure in the same study was evaluated poor and did not show great progress in its GDP either.

I am not suggesting that there is a one-to-one causal relationship between the GDP and the infrastructure, but clearly, there is a major connection. Perhaps this connection may vary from one country to another. Therefore, each country may put some major effort into finding the relationship between its own GDP and infrastructure.

Summary

In this chapter, I emphasized the need for careful planning if a country is particularly a developing one, wants to get ahead and perhaps establish some degree of global leadership. Industrialized countries have been relying on their market mechanisms and are not making nearly as good a progress as they should. Considering that there is a high correlation between the quality of their infrastructures and economic status, it is critical that there should be better and more carefully constructed efforts towards an advanced infrastructure development and maintenance.

The remainder of this chapter deals with the basic principles in infrastructure leadership. It is mainly posited that a country may develop an innovational chart and follow it by creating the plans for the necessary infrastructure and commensurate environmental development. Finally, a major set of facts are presented indicating how the Asian four tigers (Singapore, Taiwan, South Korea, and Hong Kong), are maintaining their superior infrastructures and how their GDPs are advancing in an impressive manner.

Infrastructure Principles:

1. Infrastructure can be and should be used as a proactive tool of economic development.
2. Creating Innovation policies would push infrastructure development in a positive direction.
3. Innovation identification will necessarily bring entrepreneurs and infrastructure planners together.

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Chapter 13
Domestic Productivity or Export Support

Introduction

In Chap. 2, we made a distinction between infrastructure for industrialization of a country versus export-oriented infrastructure, and we discussed that many countries including India, China, and Japan emphasize export orientation. In Chap. 3, we indicated that regardless of what key orientation is taken, infrastructure development must be emphasized; it must be developed rapidly and effectively. In Chap. 5, consumer well-being and quality of life in the society were briefly discussed. However, in different parts of this book, it is also mentioned that the economy cannot grow without making a major contribution to the consumer well-being. I maintain that infrastructuring must always consider consumer well-being regardless of its orientation and its development progress.

Improving the Existing Quality of Life

Perhaps it must be reiterated that without a proper infrastructure there cannot be a society. However, it is critical to raise an all important issue of just what is proper infrastructure?

Based on more than 50 years of experience, I can easily state that somehow consumer well-being becomes secondary, if all is considered, when it comes to developing export geared industries or some other domestic industrial activity. It simply is not clear whether current day governments and businesses are ready and willing to take care of the macro problems that consumers are facing in that society. Exhibit 13.1 presents seven types of consumer accesses that are all facilitated by proper infrastructures. These accesses are so very important for the modern consumer that it would be unlikely that they could be happy without them.

Access to shopping: Earlier books and studies are full of stories how it took so long for modern day consumers to buy basic necessities or to obtain clear water. In many parts of the third world, it is almost still like that. Consumers do not have

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Exhibit 13.1 The key consumer accesses

- Consumer access to shopping
- Consumer access to entertainment
- Consumer access to health care
- Consumer access to work
- Consumer access to sports
- Consumer access to culture and education
- Consumer access to transportation

ready access to shopping. It takes them much time to go shopping and to buy things. It is still not widely understood that if consumers had more access to products, then society's economic productivity is likely to increase because consumers will have more time to make things which would enhance the society's quality of life. Clearly, proper roads and transportation systems that are connected to the overall infrastructure system are necessary.

Access to entertainment: People's ability to go and experience existing entertainment is critical for the infrastructure. It can easily be claimed that entertained people are happier people and as such they are more capable of working hard and innovating.

Access to health care: In many societies, including parts of the USA, consumers die or become extremely sick because of the lack of access to healthcare. Not only is this a major problem for individuals but it is very costly to society. In addition to being very costly, if many people in a society are not in good health, their productivity and the society's productivity decline. Once again, rapid transportation systems and easy-to-go-to locations are important parts of an effective infrastructure system.

Access to work: Being able to go to work on time is a major part of every individual's productivity. Inadequate roads, over crowded transportation facilities, and difficult to reach locations are major causes for such situations. Once again inadequate infrastructures interfere with the society's productivity.

Access to sports: Early activity in sports in schools and continuing life-long involvement improves health which in return improves productivity. Additionally, professional sports enhance community belongingness and overall positive spirits, which are likely to help individuals enjoy their work and be productive as well. Once again, infrastructure can perform miracles.

Access to culture and education: Culture as a major part of entertainment and education contributes to individual accomplishments and is critical for maintaining society's morale. Needless to say, where schools, theaters, and museums, among other considerations, are located and how the populace can get there are infrastructural problems and considerations.

Access to transportation: When airports, seaports, railroads are neglected, people cannot travel, cannot visit, or cannot go to other communities. They may spend unnecessary amounts of time traveling. It is essential that proper transportation facilities and access to them are made possible by an effective and functional infrastructure system.

Consumer access to all of these facilities or particular functions not only will make consumers more efficient, in terms of saving time, but also will make them happy and healthy. Without a proper infrastructure these situations cannot become reality.

I maintain the possibility that of economic well-being and its enhancement is quite possible without totally resorting to external economic help or trade. If the citizens are given a chance to be gainfully employed and are producing goods and services that would improve the quality of life, then that country is making major progress. Once again, such progress is dependent on the accesses that have been mentioned thus far. However, many experts and major world organizations maintain that without international trade, economic progress cannot take place.

Current studies indicate, however, that instead of improvements deterioration is accelerating. For instance, highway congestion for passenger cars and other commercial vehicles traveling through urban centers, instead of going down, has doubled during the past 2 decades. It is estimated that the increased congestion caused about 3.7 billion hours of travel delay not to mention 2.3 billion gallons of wasted fuel. The estimated cost of this delay is about $63 billion (McCaffrey 2005). If those types of problems are occurring in the USA, it may easily be assumed that worse case scenarios are taking place in many parts of the world. The above mentioned cost factors are due just to normal driving. If the lack of accesses listed in Exhibit 13.1 were to be added to the above figures, an overwhelming image of lost times and wasted energies will emerge. Certainly, these are major infrastructure issues directly connected to the quality of life of a country's citizenry. Some scholars claim that such problems in infrastructure can be, at least partially, eliminated by infrastructure regulation. In fact, they maintain if done properly this may be a critical factor in poverty reduction in developing countries (Parker et al. 2008).

Export Orientation

The World Trade Organization (WTO) and others have established three pillars of economic development. These pillars are as follows:

1. Postliberal development strategies that are predicated to many less developed countries (LDCs) have open trade orientation and possibilities.
2. An international trade regime that supports development in the direction of reducing international constraints on developing LDCs.
3. More and improved international financial and technical assistance for developing production and trade capacities (UNCTAD 2004).

Perhaps the most critical aspect of these three positions is that all are mainly geared to international trade for prosperity and economic growth. By definition, the three pillars support infrastructure that is most likely to sustain globalization and commensurate trade. Clearly, this has been the point argued in different parts of this book; however, we also maintain that some African countries, India, and somewhat previously China have had this particular orientation. As reiterated previously,

getting economically richer does not mean that the populations in those countries are sharing the benefits. In fact, as China and India emphasize their world trade infrastructure, in China, in particular a critical gap in income between those who live on the coasts and those who live inland have become a critical issue. It is even more serious in India. The income gap between the high-tech people and those living in the countryside has become rather critical. The economic well-being of the poor and the rich is almost at a critical gap, and that gap is growing. The same story prevails in most places where infrastructure development is prioritized for global trading rather than enhancing the prevailing consumer economic well-being. In other words, knowingly or unknowingly; a distinction is made here between economic development and enhancing inland populations' economic well-being.

Although sustainable economic growth depends on the availability of infrastructure, and particularly, on an efficient transport system (Waters 1998), that system cannot facilitate only exports. If it does, then poverty and corruption will overwhelmingly continue in the inland, as is the situation that India is currently experiencing (Miller 2007).

Unless the economic standards of the country are somewhat balanced and people in the inlands can receive benefits of economic gains, the country is likely to experience trouble in the near future. Once again infrastructure is the answer.

Infrastructure for Domestic Productivity

Above all, adequate infrastructure raises productivity and lowers production costs (Satish 2007). Proper roads and transportation will move raw materials, agricultural products, and finished goods to their destinations quickly as well as improve consumers' choice and access significantly, particularly for the large mass of rural poor. Poor rural infrastructures limit the ability of traders to travel to and communicate with remote areas. Construction of these roads will increase agricultural production, expand markets, and improve the quality of life of consumers (Satish 2007).

It is clear that infrastructure can play a positive role in domestic productivity as well as for export support. Exhibit 13.2 highlights some of the areas of both functions.

The exhibit makes a critical attempt to connect export development leading to domestic economic progress. Both of these support and enhance quality of life. These connections are mainly facilitated by infrastructure.

It must be reiterated that if consumers are happier, they are likely to work better and be more productive. Similarly, if consumers are saving time because of a good-quality infrastructure, again they are likely to be more productive.

A less emphasized point is the importance of the connection of finished products or necessary materials for production and trade to their final destination more. These points and many related issues need to be explored when decisions are made regarding the planning of infrastructure. Perhaps one of the most important

Exhibit 13.2 Infrastructure for domestic development and exports simultaneously

For exports
- Better roads and transportation:
  - Improves cost
  - Reduces delivery time
  - Increases choice
  - Moves raw materials from remote corners
- Connecting to final destinations:
  - Moving larger volumes more efficiently
  - Increasing the activity to reach out to small rural areas

For domestic development
- Better roads and transportation:
  - Will move raw materials to manufacturing
  - Will bring finished products closer to the consumer
  - Will create more production and retain jobs
- Connecting population centers:
  - Worker exchange
  - Greater work opportunities
  - Information and cultural exchanges

considerations regarding the physical infrastructure within the country is that different communities make infrastructure-related decisions locally. This is a problem. It is critical that there should be a coordinated national map of infrastructure development connected to the national economic needs of the country.

A Balancing Act

It is obvious that developed countries, in particular, are in need of an infrastructure that will help the domestic economy as well facilitate exporting. Although related, these two might not be developed simultaneously because infrastructures are very expensive to develop and financial resources are limited. If the situation is such that with some emphasis on the infrastructure, economic gains would be significant then it may be given a higher priority. As mentioned earlier, Poland after the fall of the Communist regime faced significant demand for its products from European countries. Due to its neglected infrastructure, the country could not take advantage of all the benefits from exports (Waters 1998).

In such situations, export-supporting infrastructure must have higher priority. However, with the benefits of trade, the country must put more emphasis on domestic development so that there will be a balanced growth. We, therefore, reiterate that supporting exports at the cost of neglecting domestic development or vice-versa should not be practiced.

Summary

Domestic productivity versus export support is perhaps the most critical macro decision to be made. In this chapter, we discussed the role of infrastructure that would improve consumers' quality of life. If proper infrastructure can provide a means to a better quality of life, thus ensuring that consumers are happier and more productive, then an attempt should be made to discuss infrastructure-supporting exports. But above all, it is posited here that a country developed or developing needs both. Once again, infrastructure planning must take domestic productivity as well as export support into consideration and must connect both of these to a country's economic plans.

Infrastructure Principles:

1. Infrastructures should not be local and not connected throughout the country.
2. Emphasizing consumer well-being and understanding the people's need for infrastructure is essential.
3. Infrastructure must be proactive both in trade as well as consumer well-being.

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An Open Letter to the Serious Reader of This Book

Many, many years ago when I was a child living in Turkey, I remember carrying buckets full water from the well to the kitchen because there was no running water in most houses. Some time later, there was a pump at the well that was operated manually. Later yet, there was a pump in the kitchen. Subsequently, there was running water. Many years later I read about women in some third world countries who with their donkeys take 4 h, a round trip to get water, then cook, clean, and get ready to start the process all over again the next day.

Going back to that place in Turkey, I remember that at one time there was no electricity. Kerosene lamps were not good enough to read, work, or even socialize with friends. Some time later when there was electricity, I managed to read many children's books. Looking back to those days and multiplying the wasted hours carrying water or being in the dark as is the case for literally millions of people, I can say it is a miracle that there has been some progress. However, when I see traffic jams in Los Angeles or New York I remember those days when mobility was limited, but in some cases ease of mobility is even worse today. Somehow, it seems that the people in charge of developing basic physical infrastructures are not only insensitive to the time consumers spend going somewhere or accomplishing anything, but they are even more insensitive to society's needs to connect the infrastructure to entrepreneurship. It would seem that much lip service is given to the importance of the individuals in our society, but we make little effort to improve people's and product's mobility in our societies. If millions of man-hours are wasted on unnecessary slow movements and waiting, how can we account for improved quality of life and the society's productivity. Only improved infrastructure facilitates the increased speed of people and the movement of materials. Improved quality of life with basic necessities such as energy, water, and the ability to move swiftly almost by definition would improve the productivity of a country. Infrastructure must improve the quality of life in a society, any society. This improved quality of life would, by definition, enhance the society's willingness and ability to work better and be more productive. Regardless of the major issues this book has raised in connection with infrastructure development and maintenance, the society owes to itself to improve at the average, normal consumer quality of life in moving to shopping, to entertainment, or to other needs. In extensive road

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construction, traffic patterns and consumer time to reach destinations could be extremely costly if they are not planned carefully.

Productivity, efficiency, and quality of life are virtually connected to basic infrastructures. To ensure a better future for the whole world, we must appreciate the time, the effort, and the energy each and every citizen of this world could put to better use if the necessary infrastructures are present. Truly, it is our world and certainly we must do better. On a final note, I must stress that governments and companies dare not forget that their sheer existence depends on the well-being of consumers. If they fail to improve the quality of life of their citizens in the near future, and if they do not fairly share the benefits of their current economic activities with the masses, then society may not have a positive future and those companies and governments may not survive. A nation must become and must remain strong and constantly look to improve itself. With less-than-adequate infrastructure and no plans for improvement, the overall results cannot be satisfactory.

One more post postscript: I was bold enough to question the importance and issues of infrastructure principles and its rightful place in the economic development of many countries. Well, are you bold enough to think about these issues and make them a reality? I CERTAINLY HOPE SO.

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Dr. A. Coskun (Josh) Samli is Research Professor of Marketing and International Business at the University of North Florida.

Dr. Samli received his bachelor's degree from Istanbul Academy of Commercial Sciences (currently Marmara University), his MBA from the University of Detroit, and his Ph.D. from Michigan State University. As a Ford Foundation Fellow, he has done post-doctoral work at UCLA, the University of Chicago, and as an International Business Program Fellow at New York University.

In 1974–1975, he was a Sears-AACSB Federal Faculty Fellow in the Office of Policy and Plans, US Maritime Administration. In 1983, Dr. Samli was invited to New Zealand as the Erskine Distinguished Visiting Scholar to lecture and undertake research at Canterbury University. In 1985, Dr. Samli was a Fulbright Distinguished Lecturer in Turkey. He was selected as the Beta Gamma Sigma, L. J. Buchan Distinguished Professor for the academic year 1986–1987 to work at North Carolina Agricultural and Technical University. He was given a research fellowship by the Center of Science Development, South Africa, February 1995. He was awarded a fellowship by the Finnish Academy of Sciences to teach a doctoral seminar in June 1999.

Dr. Samli is the author or coauthor of more than 250 scholarly articles, 20 books, and 30 monographs. Dr. Samli has been invited, as a distinguished scholar, to deliver papers in many parts of the world by many universities. He has lectured extensively in Europe, Eastern Europe, the Middle East, the Far East, Oceania, and many other parts of the world. He was very active in the Fulbright Commission. Dr. Samli is on the review board of seven major journals. He was the first president and a research fellow of the International Society for Quality of Life Studies (ISQOLS)

Dr. Samli is a Distinguished Fellow in the Academy of Marketing Science and a past chairman of its board of governors. He has done some of the earlier studies on the poor, elderly, and price discrimination. His more recent books are *Information Driven Marketing Decisions*, Quorum (1996); *Recent Developments in Marketing QOL Research*, Quorum (1996); *Marketing Globally*, NTC (1998); *Marketing Strategies for Success in Retailing*, Quorum (1998); and *Empowering the American Consumer*, Quorum (2001). *Entering and Succeeding in Third World Countries*,

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Dr. Samli has worked with hundreds of small- and medium-sized businesses as a consultant over a 50-year period and he has conducted many seminars before hundreds of business managers and graduate students in Turkey.

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