CHAPTER ONE
THE PROJECT CONCEPT

1.1 DEVELOPMENT & DEVELOPMENT PROJECTS

Development policy is converted into reality through projects & programs. Projects take place within a complex environment of multiple actors, policies, programs, & projects. All countries have national plans which spell a range of economic & social objectives & strategies meant to enhance development. Development plans & projects are closely interlinked (i.e. sound development plans require good project just as good projects require sound planning.) For effective planning, availability & access to a wide range of information on existing & potential investments & their likely effects on growth & other national objectives is crucial.

1.1.1 DEVELOPMENT PROJECT ANALYSIS

Development project analysis seeks & provides the necessary information & the projects selected for implementation then become a vehicle for using resources to create new income or wealth. Project analysis becomes handy in establishing the optimal allocation of resources given the objectives because financial & administrative resources available to governments are always limited. These resources must be allocated among many sectors & many competing demands. Through project analysis, it is possible to prioritize activities so that the higher priority projects with greater payoff both financially & socially are undertaken first before the lower priority activities & projects.

The causes & effects of stagnating or declining growth in many African counties have been blamed on poor or wrong policies, weak institutions to support desirable programs and projects for growth & poor physical infrastructure. The prescription for poor policy environment has been for the governments to undertake policy reforms to attain a good & stable macro-economic environment. Government should help the private sector to undertake the activities which would promote growth & development.

1.1.2 DEVELOPMENT PERSPECTIVES AND PROJECTS

A variety of theories have been advocated as the best method of achieving development. For instance, as you very well remember in population and development theory courses,

a) Neoclassical approach-emphasized national economic growth based on investment & growth theories and this approach dominated the development hegemony in the 1950's & 1960's both in free market & centrally planed economies. E.g. Harrod-Domar model: the focus was on industrial expansion.

b) Trickle down theory-suggested that all members of society would benefit from national growth, as increased wealth gradually spread from the richer sections of the community to the poorer.

c) Basic human needs approach-directed towards satisfaction of basic human needs, food, shelter, health, transport & education, particularly for the poorer members of society.

The concept of development began to assume a precise form as first, the satisfaction of basic human needs & beyond that, as giving people the capacity to determine their own future.

Throughout this period projects played a key role: Projects seemed to represent the most practical method of achieving specific goals & targets in both the neoclassical & basic human needs approaches & projects were a way of concentrating & combining scare human & material resources to achieve maximum effects.

Indeed projects were particularly appropriate to the neoclassical approach with its emphasis on the expansion of production; for a considerable time the word project came to be associated almost exclusively with the construction of industrial, infrastructural or directly productive facilities.

1.1.3 ROLE OF PROJECTS IN DIFFERENT DEVELOPMENT PERSPECTIVES

In the 1970's & early 1980's the focus was on the study & improvement of projects as a mechanism of successful development, whether directed towards growth or the satisfaction of basic needs.

In the late 1980's & early 1990's the emphasis shifted to the study & analysis of policies, focusing on the general direction & framework of government measures, rather than specific actions represented by projects. This shift was assisted by the increasing importance being given to the international lending agencies to balance of payments support & structural adjustment loans, & the corresponding decrease in the importance of project lending. At the same time attention was being paid to the potential of private enterprise to provide mechanisms for development, & there was a growing awareness of the need to enhance the efficiency of organizations, particularly in the public sector, through processes of institutional development.

Policies determine the environment & framework within which development takes place. Get the policies right, it is argued, & successful development will follow. Nerveless the tactical processes of development also need attention & for the foreseeable future, projects are likely to form a major part of these tactics. Projects & the project approach is an instrument of policy, & are one means by which polices are put into practice. The change, which is inherent in any for of economic, institutional or social development, is brought about by initiative, impetus, & where necessary, capital investment, which may be provided by a project.

The need to link appropriate polices to appropriate projects is an increasingly important element of the development process. Whatever the shortcomings, projects will remain as an important mechanism for implementing policies: they are, & will remain, demonstrations of effects of policies at the practical level. They also provide a means of assessing the impact of development initiatives on people.

Although projects in general remain important tactical development tools, different types of projects are emerging as policy frameworks change. Hitherto,

A Development Project has tended to mean an externally funded imitative undertaken by the public sector, generally resulting in the creation of physical assets.

It is inevitable that many projects are conceived & implemented in the public sector because of the relatively large size of this sector in developing countries. Increasingly, however projects will be internally conceived & funded initiatives, undertaken by both the public & the private sector, & often concerned as much with the skill enhancement & institutional development as the creation of physical assets.

1.2 POLICY, SECTOR STRATEGY, PROGRAMS & PROJECTS

The program approach is a means through which the government can address a set of national development problems, in a coherent & integrated manner. It is a participatory process that enables stakeholders to articulate priorities, development strategies manage & coordinate resources to achieve a national goal. Program Approach is the pursuit of national development goal through articulated national programs.

- **National policy**: set overall policy objective e.g. National Population, Education and Training, Health, Women, Resources and Environment etc… policy.
- **Sectoral policy:** Policies for the various sectors of the economy.
- **Sectoral strategy**: Approaches that should be undertaken to achieve the stated policies of the government.
- **Sub-sectoral strategy**: When the sector is large & diverse it is necessary to develop sub-sector strategies.
- **Programs** can be relatively large & diverse, longer term but time-bounded with set objectives. E.g. National level programs, crop production program, livestock program, nutrition, RH. A program may cover a whole sector (e.g. health sector program) or focus on one part of the health sector (e.g. primary health care program) or be a package of projects with a common focus/theme; or it may define what is essentially just a large project with a number of different components. Programs are planned continuous or ongoing development investment activities that are not generally time-bound. They may consist of a number of projects with distinctly specified time & resources.
- **Plan** is a more or less operationalzed versions of general programs. There are long & short term plans with specific & quantitative targets. Medium term development plans are the main sources of project ideas. Plans can also be categorized as indicative, regulatory, indirect & central/direct. Indicative, regulatory & indirect planning may imply greater decentralization of decision making over investment decisions. These have significant role for project identification & preparation.
- **Projects** are usually the smallest unit of development programs & plans. Projects are derived from the prevailing development policies. They are fundamental components of the development efforts of increasing provision of goods e.g. public sector programs. Projects are normally included in the public investment planning process wherever they make a claim on the government budget. E.g. where part or all of a public sector project is funded for government revenue where either public or private sector makes use of government loan-guarantees. Projects that do not make a claim on budgetary resources may not be included in the public investment planning process. But they are quite likely to be subject to regulatory planning controls if they have significant environmental impact or involve monopoly pricing. Projects can be shorter term, more location specific, more easily bounded & managed.

A project is a complex set of activities where resources are used in expectation of returns & which lends it to planning financing & implementing as a unit. A project usually has a specific starting point & a specific ending point, intending to accomplish specific objectives.

1.3 CHARACTERISTICS OF A PROJECT

- *Seeks to accomplish a specific objective.*
- *Produces deliverables (end items).*
- *Has a clear beginning & ending.*
- *Is bounded by schedule, budget, resources, & performance.*

- *Has clearly identified stakeholders, including primary target group & financial beneficiaries.*
- *Has a clearly defined coordination, management & financing arrangement.*
- *Has a monitoring & evaluation system*
- *Has an appropriate level of financial & economic analysis, which indicates that the projects benefits will exceed its costs.*

1.4 TYPES OF PROJECTS

Basically three types of projects can be identified depending upon how new resources committed to them relate to existing economic activities.

New investment projects are the largest type of project, around which project analysis grew up, involves**.** New investments are designed to establish a new productive process independent of previous lines of production. They often include a new organization, financially independent of existing organizations.

Expansion projects involve repeating or extending an existing economic activity with the same output, technology & organization.

Updating projects involve replacing or changing some elements in an existing activity without major change of output. Updating projects involve some change in technology but within the context of an existing, though possibly reformulated organization. With changing economic circumstances the balance between these types of projects may change. New investments predominated in developing countries in the 1960's & 1970's. However with declining investment resources & limited access to operational inputs, the proportion of expansion & updating projects has increased.

Based on project costs and benefits, a distinction can be drawn between directly productive & indirectly productive projects. Project costs are generally easier to identify & estimate than project benefits. Costs may be met directly by a particular institution; benefits are frequently more diverse.

Directly productive projects are those where the immediate costs & benefits accrue to a single organization; a consequence is that this organization is able to calculate & commit any resulting surplus to new activities.

Indirectly productive projects broadly speaking are those where the benefits received from new resources do not accrue to the organization responsible for carrying the costs. In these circumstances, any resulting surplus is not concentrated in the hands of a single organization. Most infrastructure projects, such as roads are indirectly productive; the benefits accrue to users & producers whilst costs are met by government.

Of course, several projects, especially large ones, may be a mixture of directly & indirectly productive activities, for example, a rural development project involving both increases in agricultural output through farmer investment as well as roads, schools & other infrastructure facilities. The importance of the distinction between directly & indirectly productive projects is that benefits from new resources are more difficult to estimate in the case of indirectly productive projects.

Capital intensive projects are projects in which relatively large amounts of resources are expended in the implementation stage & which normally result in major physical assets. In these projects the completion of the construction generally marks a clear end to the implementation phase.

People-based projects are projects mainly in the agricultural, rural & social sectors which involve little in the way of financial investment, but emphasize human or institutional development such as development of health care training of medical extension workers.

1.5 DIFFERENCES & SIMILARITIES - PROGRAM VS. PROJECTS

It is necessary to distinguish between projects & programs because there is sometimes a tendency to use them interchangeably.

Differences between program & project	
Program	**Project**
Has got general objectives	Is specific in objectives/purpose
May not have specific area	Has specific area/geographic unit
May not have specific target groups	Has specific targets groups
May not have clear & detailed financial allocation	Has clearly determined & allocated fund
May not have specific time of ending	Has specific life

Similarities between program & project
▪ Both have purpose/objectives
▪ Both require input (finance, manpower, material etc)
▪ Generate over space & time
▪ Contribute to the development & serve as tools for the execution of development plans

1.6 PROJECT CYCLE

The idea of development projects as the time bounded creation of physical assets led in turn to the recognition of phases within the project process & from there to the concept of the project cycle.

1.6.1 TRADITIONAL (BLUEPRINT) APPROACH:

- The first & well known model of the project cycle of the World Bank.

The general concept of the project taken up within the notion of the cycle has sometimes been known as the Blueprint approach. This uses the imaginary of blueprints of engineering drawings to suggest that projects need to be systematically & carefully planned in advance & implemented strictly according to the defined plan. It has, in general, proved itself to be useful approach to investment in capital intensive projects.

A project cycle is a sequence of events which a project follows. These events, stages or phases can be divided into severally equally valid ways, depending on the executing agency or parties involved. In practice this division is less distinct than that discussed here, with elements of one activity spilling over into one or more of the others. In fact comprehensive project planning should be an iterative process whereby results in one stage of the project influence decisions in the other stages.

THE STAGES IN TRADITIONAL PROJECT CYCLE

STAGE 1: PROJECT CONCEPTION

At this stage, an idea regarding a required intervention in a specific area to address an identified problem is formed or developed. This idea is usually hatched through discussion by specialists & local leaders in a community as a need-based issue & crystallized into a proposal. The project can therefore be conceived on the basis of:

Needs - to make available to all people in an area minimum amount of certain basic material requirements or services. A needs assessment survey establishes the urgency for intervention;

Market demand - domestic or overseas;

Resource availability - opportunity to make profitable use of available resource.

Technology - to make use of available technology

Natural calamity - hedging against the adverse effects of natural events as drought or floods; &

Political consideration

STAGE 2: PROJECT IDENTIFICATION

Potential projects arising from the ideas crystallized in the first stage above are determined. The information in the proposal from project conception may be submitted by an individual or community representative to an agent or agency capable of identifying an institution to provide the necessary support to realize the expectation. The type of information provided at this stage is usually general & descriptive. The information is basically provided to justify an intervention through an expression of a felt need in the area. Usually some objective judgment is applied to assess the proposal or set of proposals to establish if the proposal can proceed to the next stage in the cycle. In many ways, stages 1 & 2 are so interlinked that some prefer to consider both as forming the ***"Identification phase".***

STAGE 3: PROJECT PREPARATION

This stage involves a more through exercise of collection of data & information on the proposed project. The exercise is conducted by personnel with technical & analytical skills in consultation with the target & beneficiary community. At this stage of the cycle the objective of the project is defined & alternative solution described. The project preparation contains the design of a set of operational proposals that are technically, financially & economically feasible. Decisions are made on the scope of the project, location, site & size, among others. The detail of a feasibility study depends on the complexity of the project & on how much is already known about the proposals. In fact a succession of increasingly detailed feasibility studies are sometimes called for in complex projects. The feasibility studies provide an opportunity to shape the project to fit its physical & social environment & exclude preparation relatively poor alternative ways of achieving the project goal. A careful preparation may cost up to 10 percent of the total project investment but this is absolutely necessary to ensure the project's effectively.

STAGE 4: PROJECT APPRAISAL

Project appraisal involves a further analysis of the proposed project. At this stage, a critical review of the proposal is undertaken. The systematic & comprehensive review is usually undertaken by an independent team of experts in consultation with the stakeholders of the project. This provides an opportunity to re-examine every aspect of the project plan to assess whether the proposal is justified before large sums are committed. The appraisal process builds on the project plan but may involve new information if the appraisal team feels that some of the data used at preparation or some assumptions are

faulty. The implications of the project on the society & the environment are also more thoroughly investigated & documented. Similarly, the technical design, financial measures, commercial aspects, incentives, economic parameters are thoroughly scrutinized. On the basis of an appraisal report, decisions are made about whether to go ahead with the project or not. The appraisal may also change the project plan or develop a new plan.

STAGE 5: PROJECT SELECTION

After appraisal, the visible project proposals are chosen for implementation on the basis of the priorities of the stakeholders & the available resources. For instance, Treasury may impose a ceiling on the ministries with a big portfolio of investments, calling for prioritization of the core & lower priority projects.

STAGE 6: NEGOTIATION & FINANCING

Once the project to be implemented is agreed on for donor funded projects, discussions are held on funding & associated aspects of funding such as conditionals for grants, repayment period & interest rates of loans, flow of funds, contributions from stakeholders & if there is co-financing or not. This culminates into an Agreement Document for the project which binds all the parties involved during implementation of the project.

STAGE 7: PLANNING FOR IMPLEMENTATION

This is the stage either before actual implementation begins or before the start of a new implementation phase of the project. The exercise is conducted at the level of the project & involves the implementers, the beneficiaries & the funding agency or all stakeholders. The exercise involves enabling the realism of project objectives, scope, financial arrangements & implementation schedule given the overall resource structure of the project & the working environment. The likelihood of further changes occurring either in design or physical & policy environment to affect the project are also discussed. During the exercise, the team should define, as clearly as possible, the objectives & hierarchy of objectives. One technique for defining & analyzing the objectives is the Logical Framework Approach or Goal Oriented Project Planning (ZOPP). It allows definition of activities, or inputs, outputs & objectives with corresponding verifiable indicators & assumptions to attain the goals of the project. A plan of operation for a specified period is usually desirable to form a basis for activities to be undertaken during the plan period.

STAGE 8: IMPLEMENTATION

This is the crucial stage of any project since the objective of the earlier effort in the stages above was to have projects to be undertaken. At this stage, activities of the project are actually carried out & funds are disbursed to facilitate the activities. The management should ensure that the project is carried out according to the design. However, depending on the physical & policy environment, there may be need for flexibility in response to the reality on the ground. Monitoring of progress & reporting, therefore, becomes crucial implementation is a process of refinement or learning from experience & actually be considered as a "mini cycle" within the larger project cycle. The implementation period usually has three phases the investment period, the development period, & full development. This forms the life of the project. The investment period refers to when the major project investments are undertaken & could take one to three years, depending on the nature of the project. The development period occurs as the

production peaks up & continues until the project ends. Both financial & economic analyses of the project relate to the time horizon.

STAGE 9: MONITORING & REPORTING:

This should be an on-going activity during implementation. Monitoring can be carried out by the beneficiaries, the managing staff, supervisory staff & the project management staff. The aim should be to ensure that the activities of the project are being undertaken on schedule to facilitate implementation as specified in the project design. Any constraints in operationalizing the design can quickly be detected & corrective action taken. This would enable the management to be proactive rather than being reactive in correcting mistakes during implementation. The channels of communication should also be clear & easy to allow transparency & accountability for all staff involved. Thus relevant actions, results & barriers to implementation should be monitored for smooth implementation.

STAGE 10: EVALUATION:

This stage involves a systematic review or examination of the elements of success & failure in the project experience during the project life to learn how better to plan for the future. This implies that evaluation is a continuous exercise during the project life & is much related to project monitoring. Monitoring provides the data on which the evaluation is based. However, formalized evaluation is undertaken at specified periods. There is usually a mid-term & a terminal evaluation. Evaluation can also be undertaken when the project is in trouble as the first step in a re-planning effort. Careful evaluation is also undertaken before any follow-up project. Evaluation can be done internally or by external reviewers. Some organizations have monitoring & evaluation units. Such a unit can provide project management with useful information to ensure efficient implementation of projects, especially if it operates independently & objectively, because what the unit needs is to judge projects on the basis of objectives, original project design & the reality on the ground (the operating physical & policy environment). With no free hand, the feedback mechanism will be stifled & information be "held-back" instead of being "fed-back". Some projects may be subjected to external evaluation. The aim of evaluation is largely to determine the extent to which the objectives are being realized.

In people-based projects the blueprint approach has needed modifications for a number of reasons. First the distinction between implementation & operations is often not clearly defined. A project to improve agricultural extension services may well encompass training of extension agents & construction of centers in one area (implementation phase) while extension activities (operations phase) are already taking place in another area, though both sets of activities rare still under the same administrative structure. Second, it was too rigid & inflexible, that it placed too much reliance on prior comprehensive data gathering, planning & control (all of which appeared to be inadequate in developing countries) & that it didn't give sufficient importance to the acceptability of the proposed intervention to the intended beneficiaries. This is a more fundamental critique that emerged during the late 1970s & early 1980s.

The critiques of the traditional approach can be summarized as:

- Has a limitation of earlier stages feed back
- Limited rooms to listen to potential stakeholders
- Lacks flexibility in project design
- Lacks of termination/hand over plan

1.6.2 THE PROCESS (ADAPTIVE) APPROACH

- Out of the above position grew the idea of a development project as an adaptive approach, with successive stages of Experimentation, Piloting, Demonstration & Replication/Production.
- Based on new ideas & experience gained from practical application of traditional approach, process approach of the World Bank was developed in 1994.
- The process approach model required adapting changes in the project planning process.
- It reflects more of a process as opposed to a traditional (blueprint) approach.
- It is of particular relevance to projects for which beneficiary participation is important.

A process (adaptive) approach has the following successive stages

1. **Experimentation:** is the stage at which development problems or objectives are defined & possible solutions, methods of analysis & implementation are identified. These are then subject to pilot trials for their appropriateness, adaptability, acceptability, transferability to local conditions. Making the project idea or concept originates from local communities & other project beneficiaries as well as on the needs & priorities of the community.
2. **Piloting:** is starting small scale projects with trials of different techniques in a holistic approach to incorporating social, cultural, physical, intuitional, & ecological actors.
3. **Demonstrating:** is conducting trials on representative scale village, kebele with established mechanism though joint participation.
4. **Mainstreaming:** is process of extending the project to a large scale woreda, district region based on the results of demonstration.

As particular methods are found to be successful on an experimental scale, they are taken successively through wider & more comprehensive coverage in order to reach a larger public, each stage growing out of the results & methods of the previous one. Intrinsic to this approach is the idea that while a general objective & direction for project intervention can be defined, specific actions & services may change as a result of review & evaluation of individual phases. This is sometimes called **a process approach,** to highlight a flexible two way interaction between project agents & consumer or beneficiaries for whom the project is intended. It might result, for instance, in redesign of systems of delivering primary health care or relocation of health centers, following earlier design & experimentation. It does not change the basic concept of a project as a time bounded investment must still be prepared & implemented (perhaps with successive stages of experimentation & modification if process approach is followed) & then the systems or facilities operated to create benefits.

The general desirability of an adaptive, flexible approach to project development is clear. It has found a more ready application in the rural & social sectors than the industrial & infrastructural sectors, partly because rural & social development is intimately affected by the reaction of people, as project agents & beneficiaries) & therefore less easy to plan & define in advance. By contrast the blueprint approach remains important for capital intensive projects where there is paramount need to plan & account carefully for expenditure incurred in the public sector.

A further, more recent development has been to combine elements of both approaches, by

- breaking the project idea down into discrete & distinctive stages

- defining a clear set of objectives for each stage, &
- allowing changes in approach & techniques between stages.

We need to keep in mind the necessity of managing & implementing the project as planned, while at the same time retaining as much flexibility as possible in order to make changes to the overall design where necessary. The point is whether the blueprint or process approach is followed, is see beyond the project & to ensure that the efforts of their project team lead to the creation of lasting & beneficial assets.

CHAPTER TWO
PROJECT IDENTIFICATION

Project Identification would include:

- Analysis of existing situation
- Problems/needs identification
- Problem analysis
- Prioritization of issues
- Decision on whether a project is appropriate
- Definition of the project idea
- Consultation with stakeholders
- Establishment of overall objectives

Phases of project identification

- Actual project identification
- Description of project idea
- Screening
- Prioritization

The identification of investment opportunities is the starting point in a series of investment-related activities. Accordingly, to generate this information, the **Sectoral and the Enterprise approach** are the major approaches to identify investment projects.

a) Sectoral Approach: requires an analysis of the overall investment potential in developing countries and the general interest of developed countries in investing abroad.

b) Enterprise (Microeconomic) Approach: necessitates the identification of specific investment requirements of individual project promoters in both developing and developed countries.

2.1 OPPORTUNITY STUDY

- Is the main instrument used to quantify the parameters information and data required to develop a project idea into proposal.
- Are rather sketchy in nature.
- Rely more on aggregate estimates than on detailed analysis.
- Cost data are usually taken from comparable existing projects.
- analyze the following namely Potential natural resources, existing agricultural pattern Future demand for certain consumer goods, Imports in order to identify areas for import substitution, Environmental impact, Manufacturing sectors successful in other countries with similar economic background and levels of development capital, labor and natural resources, Possible inter linkage with other industries, indigenous or transnational ,Possible extensions of existing lines of manufacture of background by backward or forward integration, linking, Possibilities for diversification, Possible expansion of existing industrial capacity to attain economies of scale, The general investment climate, Industrial policies, Availability and cost of production factors, Export possibilities.

Depending on the prevailing conditions under investigation, either general opportunity studies (sectoral approach) or specific project opportunity studies (enterprise approach) or both, have to be undertaken.

2.1.1 GENERAL OPPORTUNITY STUDIES: can be divided into the following three categories:

- **Area studies** designed opportunities in a given area such as an administrative province, a backward region or the hinterland of a port
- **Sub-Sectoral studies** designed to identify opportunities in a delimited sector branch such as building materials or food processing
- **Resource-based studies** designed to reveal opportunities based on the utilization of natural, agricultural or industrial products such as forest based industries, downstream petrochemical industries and metal-working industries.

2.1.2 SPECIFIC OPPORTUNITY STUDIES

- Is the transformation of a project idea into a broad investment proposition
- Is more common than a general opportunity study.
- The objective is to stimulate investor response.
- Must include certain basic information; the mere listing of products that may have potential for domestic manufacture is not sufficient. While such a list-derived from general economic indicators such as past imports, growing consumer demand or from one of the general opportunity studies relating to areas, sectors, or resources-can serve as a starting-point, it is necessary, first, to be selective as to the products so identified and secondly to incorporate data relating to each produce so that a potential investor, either domestic or foreign, can consider whether the possibilities are attractive enough to proceed to the next stage of project preparation. Such data can be supplemented with information on basic policies and procedures that may be relevant to the production of the particular product. A broad investment profile would then emerge that would be adequate for the purpose of stimulating investor response.

2.2 SUPPORT (FUNCTIONAL) STUDIES

- Cover specific aspects of an investment project.
- Are required as prerequisites for or in support of pre-feasibility and feasibility studies, particularly large-scale investment proposals.
- Examples of such studies are Market studies, Raw materials and factory supply studies, Laboratory and pilot plant tests, Location studies, Environmental impact assessment, Economies of scale studies, Equipment selection studies, etc
- The contents of the support study vary depending on its type and the nature of the projects. However, as it related to a vital aspect of the project, the conclusions should be clear enough to give direction to the subsequent stage of project preparation. In most cases, the results of the support study when undertaken either before or together with a feasibility study form an integral part of the latter and lessen its burden and cost. When a basic input may be a decisive factor in determining the viability of a project, then a support study is carried out before commissioning a pre-feasibility or a feasibility study. A support study is undertaken after completion of a feasibility study when it is discovered in the course of the study that it would be safer to identify a particular aspect of the project in much greater detail although the preliminary evaluation as part of the decision making process may commence earlier.

ANALYSIS OF EXISTING SITUATION

Information needs for analysis of existing situation to the project area includes:

- **Social & political aspects:** which includes, attitudes & beliefs, Political roles, Community organizations, Gender relations, Migration, Previous involvement in development activities, Summary of potential constraints etc.
- **Economic Aspects:** Economic Activities, Access to land, market & skills etc.
- **Sectoral information:** Health aspects, Education & training, agriculture, environment etc.

THE MAIN FORMAL INFORMATION SOURCES OF PROJECT IDEAS ARE:

- Policy reviews & development plans made by central government ministries
- Sectoral surveys by technical ministries.
- Survey conducted by local government (district & regional) & regional org.
- Formal problem diagnosis and analysis exercises.
- Environmental and natural resource surveys.
- Reviews and evaluations of past projects.
- Community meetings and public gatherings.
- Participatory rural appraisal and participatory development programs.
- Private sector, co-operative and parastatal corporate plans.
- Investment identification missions by development and other aid donors

2.3 SOURCES OF PROJECT IDEAS

There are two major sources of project ideas:

1. SYSTEMATIC SOURCES

- Central government policy reviews/plans
- Sectoral strategies and sub-sectoral programmes (sectoral ministries)
- Regional studies (regional and local government
- Reviews of past projects
- Corporate plans (private sector, state enterprises, co-operatives)
- Bank/aid donor identification missions

2. UNSYSTEMATIC SOURCES

- Political expediency and opportunism
- Local pressure
- Bright ideas!

2.4 BASIS FOR PROJECT IDENTIFICATION

2.4.1 DEMAND BASED

- Local consumer demand - quantity
- Export opportunities price, quality, trade barriers
- Inputs for further processing
- Capacity of processing industry

2.4.2 RESOURCE BASED

- Land suitability
- Existing raw material production
- Availability of labour and skills
- Existing fixed assets
- Agro-industries may have demand for raw materials & resource base (local production) - problem of matching capacity with raw material supply
- Natural resource base important for energy, mineral exploitation and development of tourism

2.4.3 NEED BASED

- Basic health and education
- Social security
- Domestic water supply
- Approach for estimating need may be similar to projection of demand but need does not presuppose ability to pay

2.5 TECHNIQUES FOR PROJECT IDENTIFICATION

There are four main elements when analyzing a development problem. These are:

- Problem Analysis (Profile of the main problems including cause & effect relationships)
- Stakeholder Analysis, including preliminary institutional capacity assessment, gender analysis and needs of vulnerable groups
- Analysing of Objectives (image of an improved situation in the future)
- Analysis of Strategies (comparison of different options to address a given situation).

2.5.1 PROBLEM ANALYSIS & THE PROBLEM TREE

Development projects are usually proposed as a response to addressing & overcoming identified development problems. Problem analysis involves identifying what the main problems are & establishing the cause & effect relationships b/n these problems. The key purpose of this analysis is to try and ensure that 'root causes' are identified and subsequently addressed in the project design, not just the symptoms of the problem(s). A clear and comprehensive problem analysis provides a sound foundation on which to develop a set of relevant and focused project objectives. Projects which only address the effects of problems, and not underlying causes, are unlikely to bring about sustainable benefits. One main tool used in problem analysis is the 'problem tree'. There are two main approaches that can be used to help give focus to the problem analysis, namely:

- **The focal problem method**, whereby development problems (or constraints) are brainstormed by the group, a core or focal problem is identified, & the cause and effect analysis then pivots around the focal problem; or
- **The 'objectives oriented' method**, whereby a broad/high level development objective is specified at the start of the analysis, and constraints to achieving this objective are then brainstormed, analyzed and sorted into a cause and effect logic.

Planners use a problem tree analysis technique to identify all the problems surrounding a given problem condition and displaying this information as a series of cause and effect relationship. A problem tree approach can also be used for a general diagnosis of a problem in some situation or organization. In this case no specific problem needs to be taken as the starting point. Instead all existing problems are identified and then interrelated in the cause and effect linkages for the situation as a whole.

The problem analysis begins with identifying a core problem (the trunk). The tree is then expanded upwards and downwards as the causes and effects of the problem are identified.

Problem and Issues Analysis

- Identify project stakeholders
- Set up a brainstorming session
- Identify the core problem
- Establish cause and effect relationships

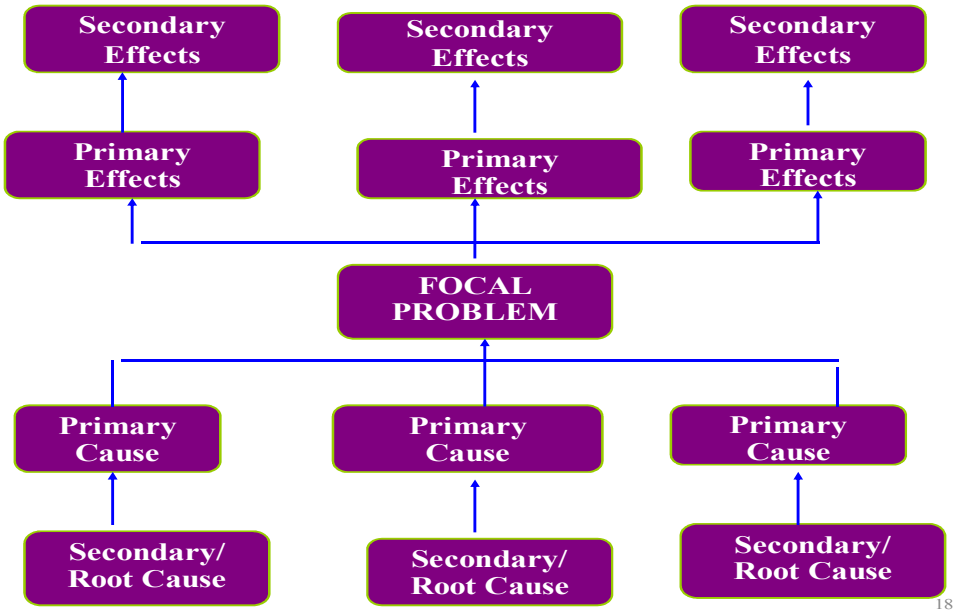
Brainstorming

- Participatory group decisions
- The role of the facilitator
- The "no-criticism" and "no-cross talk" ground rules
- The use of a board or paper on the wall
- The content and its order of topics
- The "Prioritization" process and
- The call for organizing and action

Developing a Problem Tree

- Identify a problem situation
- Check with stakeholders to see if they consider it as a problem
- Consider every problem involved in the situation
- Establish a cause and effect relationship between the various problems

Build a problem tree



2.5.2 STAKEHOLDER ANALYSIS

Who are Stakeholders?

Stakeholders are individuals/groups/institutions who may directly or indirectly / positively or negatively affect or be affected by the activities and/or outcomes of the project.

How do we Determine Relevant Stakeholders?

- Depending on the situation and type of project to be carried.
- Community is usually a key stakeholder for local based development initiatives
- SH can be categorized as:
  - Primary SHs – directly targeted participants & institutions
  - Secondary SHs - the intermediary participants
  - External SHs - not formally involved but who may impact or be impacted by the development program/project.

Important Questions to be raised to identify Stakeholders are;

- Who are likely to be affected?
- Who is responsible for what is intended to be done?
- Who is likely to mobilize for or against what is intended?
- Who can make what is intended more effective through their participation or less effective by their non-participation or outright opposition?
- Who can contribute financial & technical resources?
- Whose behavior has to change for the effort to succeed?

Projects if planned and implemented in participatory way, they are a means of empowering people. Because participation gives;

- access to relevant information
- opportunity to influence decision making
- chance to learn and appreciate.

Having identified the main problems and the cause & effect relationship between them, it is then important to give further consideration to who these problems actually impact on most, and what the roles and interests of different stakeholders might be in addressing the problems and reaching solutions. On some occasions it may be advisable to undertake the stakeholder analysis (or an initial stakeholder analysis) before embarking on the problem analysis. For example, if it is likely that there are strong competing interests within the stakeholders that may influence their input into the analysis of the development problem, then this should be known beforehand so that the problem analysis can be made more objective and favor poverty reduction. The main purposes of stakeholder analysis are to better address distributional & social impacts of projects & programs and to identify existing or potential conflicts of interest, & factor appropriate mitigation strategies into activity design. Stakeholder analysis is about asking the questions: "Whose problem" and, if a project intervention strategy is proposed: "Who will benefit?" Stakeholder analysis is thus an essential element of poverty analysis.

The main steps in stakeholder analysis include:

- Identifying the principal stakeholders at local, regional, national levels;
- Investigating their roles, interests, relative power & capacity to participate;
- Identifying the extent of cooperation or conflict b/n stakeholders;
- Interpreting the findings of the analysis &
- Defining how this should be incorporated into project design.

It is important to see stakeholder analysis as part of the iterative process of project planning. As both problems and potential project objectives are analyzed in more detail, the stakeholder analysis should be reviewed and updated to account for the new information which comes to light.

Therefore, to summarize, participation or stakeholder analysis seeks to identify the major interest groups involved (all those affected by or involved) in the project. The conditions and characteristics of local community groups and organizations likely to be affected are identified and analyzed to establish whose problems merit priority solution. The idea is to involve at least a representative of each interest group, if possible, in the subsequent analysis of problems. If not possible, the workshop should try to perceive problems from each of their perspectives. It should be noted that even if people come from a particular

area their interests and problems may differ, depending on the organization and on social classes to which they belong. Even within a group, men and women can have different problems. Moreover, several groups with conflicting interests may exist within a community and in extreme cases; some groups may even be anti-development. Therefore, it is desirable at the outset to identify to clarify different social, political, economic, cultural and religious background of potential target group members.

2.5.3 ANALYSIS OF OBJECTIVES

Objective trees should be prepared after the problem tree has been completed and an initial stakeholder analysis has been undertaken. In its simplest form, the objective tree uses exactly the same structure as the problem tree, but with the problem statements (negatives) turned into objective statements (positives). However, the results of the stakeholder analysis may have helped to give better focus to priority problems and not all of the original problem statements may therefore need to be translated into objective statements. While the problem tree shows the cause and effect relationship between problems, the objective tree shows the means - end relationship between objectives. This leads directly into developing the project's narrative description in the Logical Framework Matrix.

Once the negative statements from the problem tree have been re-worded to positive statements, we should then check:

- Are statements clear and unambiguous?
- Is links b/n each statement logical & reasonable?
- Is there a need to add any other positive actions and/or statements?
- Do the risks to achieving the objectives & also having sustainable outcomes appear to be manageable?
- Are the positive actions at one level sufficient to lead to the result above?
- Is the overall structure simple and clear?

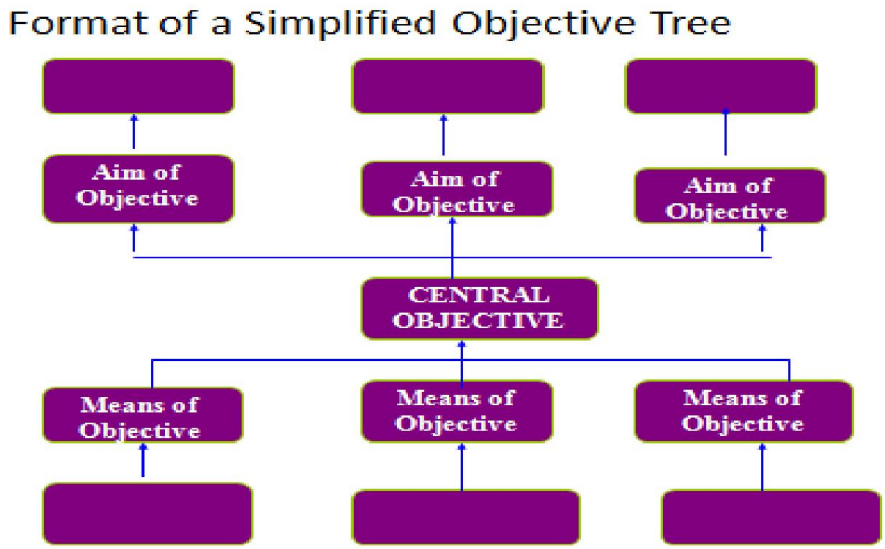
Once these main points have been checked, the proposed objective tree structure can be circulated for further comment and feedback.

Procedure

- Examine the problem tree to determine which problems can be simply reversed into objectives by restating negative conditions as positive conditions.
- Recognize that not all casual relationships are simply reversible, so that solving one problem automatically solves those it caused. E.g., although flooding destroys crops, pumping out the water does not thereby restore the crops to health. For such problem relationships, other types of objectives must be formulated to represent solutions.
- Recognize that some problems in the problem tree may actually be symptoms of other deeper problems.
- Add new objectives if these appear relevant. Determine the cause-and –effect relationships among the objectives and draw the objective tree.

The level of detail required is a judgment that must be made by those developing the problem tree. In general it is the amount of detail that permits a clear understanding of the problem and its environment. If

the analysis is too superficial, the solution chosen could itself cause a whole series of additional problems because the cause-and-effect relationships of the first analysis were not well-defined.



2.5.4 ANALYSIS OF ALTERNATIVE STRATEGIES

During the process of analyzing the problems, stakeholder issues & developing a draft objective tree, views on the potential merits or difficulties & risks associated with different possible project interventions are likely to have been developed & discussed by the design team. These options then need to be further scrutinized to help firm up the likely scope of the project before more detailed design takes place. The type of questions that might need to be asked (and answered) could include:

- Should all of the identified problems and/or objectives be tackled, or a selected few?
- What is the combination of interventions that are most likely to bring about the desired results & promote sustainability of benefits?
- What is the likely capital and recurrent cost implications of different possible interventions & what can be realistically afforded?
- Which strategy will best support participation by both women & men?
- Which strategy will most effectively support institutional strengthening objectives?
- How can negative environmental impacts be best mitigated?

To assess alternative interventions it is useful to identify and agree on a number of assessment criteria against which alternative interventions can be ranked or scored. Criteria that may be used to help make a broad assessment of different intervention options could include the expected:

- benefits to target groups - equity and participation;
- sustainability of the benefits;
- ability to repair and maintain assets post-project;
- total cost and recurrent cost implications;
- financial and economic viability;
- technical feasibility;
- contribution to institutional strengthening & management capacity building;
- environmental impact; and
- compatibility of project with sector or program priorities.

A project design document should demonstrate the main alternative options have been assessed and considered. There is always more than one way to solve a development problem. The aim is to find the best way, subject to meeting specified criteria. However, it is important to emphasize again that project planning is not a linear process. One does not move mechanistically from one step to the next, always in a forward direction, and arrive automatically at the best solution. Planning is an iterative and creative process, and selecting a design option often involves significant leaps in thinking which cannot be neatly slotted into a 'stage' in the planning process.

An alternative tree analysis is a technique for identifying alternative solutions or course of action that can be used to achieve the same or alternative objectives and the display of this information in a simple format.

a) Procedure

Examine the objective tree to determine which objectives are perhaps unrealistic due to resource limitations. Using feasibility analysis tools, examine each branch of the objective tree to determine which alternatives might represent the optimal project strategy in terms of probability of success, cost/benefit and most effective approach.

Sometimes the branches of an objective tree are already a single project-sized solution sufficient for attaining the next higher objective. A strengths, weaknesses, opportunities and threats (SWOT) analysis can be undertaken to establish the priority options of projects to be subjected to further detailed quantitative analysis for implementation.

2.6 THE LOGICAL FRAMEWORK APPROACH TO PREPARE PROJECT DESIGN

LFA is an analytical, presentational and management tool which can help planners and managers:

- analyze the existing situation during project preparation;
- establish a logical hierarchy of means by which objectives will be reached;
- identify potential risks (to achieving the objectives & sustainable outcomes);
- establish how outputs & outcomes might best be monitored & evaluated;
- present a summary of the project in a standard format; &
- monitor and review projects during implementation.

WHAT IS THE PURPOSE OF LFA? LFA IS USED TO:

i) *identify problems and needs* in a certain sector of society
ii) facilitate selecting and *setting priorities* between projects
iii) *plan* and *implement development projects* effectively
iv) *follow-up* and *evaluate* development projects.

DISTINCTION B/N LFA & LOGICAL FRAMEWORK MATRIX: The LFA involves problem analysis, stakeholder analysis, developing a hierarchy of objectives & selecting a preferred implementation strategy. The product of LFA is the matrix (the Log frame), which summarizes what the project intends to do and how, what the key assumptions are, and how outputs and outcomes will be monitored and evaluated.

2.6.2 THE HISTORY OF LFA: LFA was developed during the 1960s and has been widely spread all over the world since the 1970s. Today it is used by private companies, municipalities and by all most all

international development organizations, when ***assessing, and making follow-ups and evaluations of projects/programs.*** It was first formally adopted as a planning tool for overseas development activities by USAID in the early 1970s. Its origins can be traced back to private sector management theory, such as the 'management by objectives' approach which initially became popular in the 1960s. LFA has since been adopted, and adapted as a planning and management tool by a large number of agencies involved in providing development assistance. While it is not without its critics, LFA has proved popular and its use continues to expand into new agencies. It helps to provide a standardized summary of the project and its logic which can be used across the agency. The UN-system, German GTZ, Canadian Cida, USAID, Norwegian NORAD and Sida all encourage their counterparts to use the LFA method when *planning, implementing and evaluating* a process of change, a project/program.

Note the different needs for LFA, depending on the role a party may have. T*he international donor agencies* use the method for *assessing, following up and evaluating* projects and programs, while *implementing parties* use the method for *planning, implementing and following up projects/programs.*

LFA is:

- An *instrument* for *logical analysis* and structured thinking in project planning
- A *framework, a battery of questions* which, if they are used in a uniform way, provide *a structure for the dialogue* between different stakeholders in a project.
- A *planning instrument*, which *encompasses the different elements in a process of change* (problems, objectives, stakeholders, plan for implementation etc). The project plan *may be summarized* in a LFA matrix, the log frame,
- An instrument to *create participation/accountability/ownership*

2.6.3 WHEN SHOULD LFA BE USED? LFA can be used throughout the project management cycle in:

- identifying & assessing activities
- preparing the project design in a systematic and logical way;
- appraising project designs;
- implementing approved projects; and
- monitoring, reviewing and evaluating project progress and performance.

LFA is best started early in the project cycle but the same analytical tools can be used to help review and restructure ongoing projects which have not previously been designed using LFA principles. As LFA is an 'aid to thinking', it has widespread and flexible application.

WHO SHOULD BE INVOLVED? Project planning and management should always be approached as a team task. This requires that adequate opportunity be given to colleagues and key stakeholders to provide input to the process and product of LFA. This can be supported by:

- taking time to explain the principles of LFA & clarifying the terminology used;
- integrating effective team work & adult learning methods into meetings with stakeholder groups; &
- ensuring that stakeholder groups are involved in the initial situation and/or problem analysis.

ANALYZING THE SITUATION: Prior to beginning work on project design and the construction of a Log frame matrix, it is important to undertake a structured analysis of the existing situation. LFA incorporates four main analytical elements to help guide this process: Problem analysis; Stakeholder

analysis; Objectives analysis; Identification of risks; and Selection of a preferred implementation strategy. It is important to emphasize that effective development planning should be approached as an iterative process, not as a linear set of prescribed steps. For example, while stakeholder analysis is presented in this course as coming after problem analysis, in practice, stakeholder analysis is ongoing throughout the design process, and does not neatly fit into any one step. Indeed, some preliminary stakeholder analysis is required prior to problem analysis in order to clarify who should be involved in the analysis of problems. Please note that this handout or guidelines that am going to give you should not be seen as prescribing a formulaic approach to project design.

THE DIFFERENT STEPS IN THE LFA METHOD

The LFA method contains nine different steps:

i. Analysis of the project's C*ontext*
ii. Stakeholder Analysis
iii. Problem Analysis/Situation analysis
iv. Objectives Analysis
v. Plan of Activities
vi. Resource Planning
vii. Indicators/Measurements of Objectives
viii. Risk Analysis and Risk Management
ix. Analysis of the Assumptions

2.6.4 LOGICAL FRAMEWORK MATRIX

A logical framework is a four by four matrix, which enables the decision-maker to identify project purposes and goals and plan for project outputs and inputs. The log frame is useful in planning a project and to provide measures of evaluating the project. Important assumptions about the casual linkages in the project are stated on the log frame, and these are useful when it comes to project implementation. It is important to understand the meaning of various terms which are used in a log frame.

2.6.5 CONCEPTS IN LOGICAL FRAMEWORK

a) The **GOAL** of a project is a value judgment which satisfies one or more human needs. A program or sector goal is the broader objective to which a project contributes.
b) The **PURPOSE OR IMMEDIATE OBJECTIVES** of a project its primary intention or aim; it is the reason why a project is designed.
c) The **INPUTS** are defined as financial, human & material resources available to implement the project as planned
d) The **OUTPUTS** are the services or products that a project delivers to a target population to produce the expected impacts.
e) The **SECTOR** is the largest system of which a project a part e.g., building a dam is a project in the agricultural sector, if the main purpose is irrigation or in the energy sector if the main purpose is the generation of hydro-electric power.
f) **OBJECTIVELY VERIFIABLE INDICATORS (OVI)** demonstrates that certain desired results have been accomplished.
g) **MEANS OF VERIFICATION (MoV)** are the specific mechanisms by which quantitative indicators of the accomplishments of a project may be observed.

h) The **LOGIC**: The decision-maker uses two types of logic to arrive at explicit statements which serve to help in planning or in evaluating a project in progress. A vertical and horizontal logic.
i) A **VERTICAL LOGIC** clarifies why a project is being undertaken. It specifies the program or sector goal, and project purposes, outputs and inputs.
j) A **HORIZONTAL LOGIC** identifies what is to be produced and the evidence that will signal success. It lists objectively verifiable indicators, means of verification and important assumptions.

2.6.6 HOW TO PREPARE LOGICAL FRAMEWORK

The logical framework has four columns namely narrative summary, objectively verifiable indicators, means of verification and important assumptions. A project is transferred into the first vertical column of the planning matrix. This is done as follows:

- Start at the top of the column & work downwards
- Decide on one overall goal & one project purpose or immediate objective &
- Where necessary, review the wording in the objective tree & make it more appropriate

The results / outputs are expressed as objectives which the project manager must achieve the results / outputs, noting that to ensure clarity:

- We do no list too many detailed activities, but rather indicate the basic structure & strategy of the project, and
- In contrast to the objectives, we express the activities as an action, e.g., (activity) train counter-parts (objective) extension service in operation.

The column entitled summary of objectives & activities must describe the operational means-ends relationships in the project structure

- The activities are implemented in order to obtain the results / outputs.
- The results / outputs are necessary and (together with the assumptions) sufficient basic requirements to achieve the project purpose; and
- The project purpose is a prerequisite to obtaining the overall goal.

1. Identifying Important Assumptions: We examine whether activities in the log frame will directly generate the desired results / outputs or whether additional events must also take place outside the project for the results to be achieved. The outside events are the ones referred to as project assumptions.

We have to ensure that important assumptions are expressed in the same way as the objectives i.e., as positive conditions:

- The important assumptions are described in such operational detail (with indicators of possible) that we can exactly see whether these external conditions have occurred or not; and
- Only important assumption are stated, which are logically necessary, additional conditions.

Assumptions which are important but improbable are “killer assumptions” and cannot be planned if killer assumptions exist, planning must be changed or the project may be abandoned.

2. OBJECTIVELY VERIFIABLE INDICATORS: The objectively verifiable indicators define the contents of the objectives. Either the objects or the indicator must also contain.

i. The time period,
ii. The region,

iii. The target group and
iv. The partner institution

Indicators allow us to exactly measure how far the objectives have been achieved at different periods in time. We must also quantify facts as far as possible. To do this, several direct indicators are usually required, plus, if necessary additional proxy indicators, substitute indicators, etc. the proxy indicators are used if the direct ones will take time to notice or are difficult to measure. When the contents of the objectives have been fully in-corporated, we must state how to measure them and set the quantities required. The prescribed measuring process must be accurate enough to make the indicator objectively verifiable. An indicator is objectively verifiable when different persons using the same measuring process obtain the same measurements, quite independently of one another.

A good indicator should have the following attributes:

i. Substantial i.e., reflects the essential content of an objective in precise terms,
ii. Objective-oriented i.e., the means-ends relationships between the levels on the PPM suffice in terms of quality and time to achieve the next highest level;
ii. Plausible- the changes recorded can be directly ascribed to the project; and
iv. Independent, i.e., it differs in content to that on the level in the PPM immediately below it, so that the degree to which the objective has been achieved can be measured directly, and quite independently of the inputs made.

At an early stage of planning, indicators are just guiding values which serve to quantitatively analyze the project concept. We examine what inputs should be used to achieve quantifiable results / outputs or impacts. These guiding values must be reviewed again on location, and where necessary replaced by project-specific indicators.

3. MEANS OF VERIFICATION: The third column of the matrix is to give an exact description of what information is to be made available, in what form and if necessary, by whom. The sources of verification should be allocated numbers corresponding to those of the indicators.

Sources of verification external to the project are reviewed with respect to:

i. How much information they contain on the region and on the target groups?
ii. How reliable, up-to-date and accessible they are?
iii. Their composition and how they were obtained?

When suitable sources of verification outside the project cannot be identified, the information necessary to verify the indicators must be collected processed and stored internally by the project itself. The collection, preparation and storage of information in the project itself and the individual activities are to be incorporated as an activity in the activities column and calculated in the specifications of inputs and costs. Indicators for which we cannot identify suitable sources of verification must be replaced by other, verifiable indicators. Some others after consideration of costs and benefits, are too expensive must be replaced by simpler, cheaper controls.

The assumptions must be reviewed as to whether they are appropriate for the quantities and dimensions to be analyzed by the indicators, and they must be more exactly defined, quantified and supplemented where necessary. Exactly define the assumptions for the feasibility of each individual activity (basic

preconditions). Those assumptions which are essential prerequisites for the next level are made, for example with an exclamation mark (!). All assumptions are re-examined as to their probability, when it is questionable or improbable that they will occur, they are marked, for example, with the question mark (?). Assumptions which are important for the project success (!) but which are questionable or improbable (?) are killer assumptions force us to abandon the project if they cannot be eliminated by lower-risk concept.

Activities, results /outputs and objectives must be altered as often as necessary until the "killer assumptions" disappear. The overall risk of the project comprises the risk for achieving the objectives and potential unintended negative impacts. An additional risk analysis may be necessary to assess the overall risk involved. After analyzing the risk entitled in the assumptions and making a quantitative analysis using the indicators, we enquire again into the factors that can be managed by the project management and the latter's responsibility for the results/outputs. The manageable factors are identified on the basis of:

i. Situation at the outset;
ii. The objectives and
iii. The risks.

The project management must be willing and able to guarantee the results /outputs, so that the project purpose can be achieved. It can only enter into a legal obligation to do something that actually appears possible. The project management can be formed by one project partner alone or jointly by the project partners. Management responsibility must be stipulated in the government agreement and in the project implementation agreement and also in the employment contracts for project staff. The planning must delimit duties, powers and responsibility at different project levels, in accordance with the actual possibilities and necessities.

2.6.7 STRUCTURE OF A LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OVI	MoV	ASSUMPTIONS
Program or sector goal: The broader objective to which the project contributes	Measures of goal achievement:	Source of information for goal indicators	Assumptions for achieving goal target
Project purpose: Immediate objective of the project	Measures of purpose achievement: (conditions that will indicate purpose has been achieved)	Source of information for indicators of project objective	Assumptions for achieving purpose (objective)
Outputs: Desired results	Magnitude of outputs:	Source of information for indicators of outputs	Assumptions for providing outputs
Inputs: The people information and physical items which enter the system.	Implementation target: (type and quantity)	Source of information for indicators of inputs	Assumptions for providing inputs

EXAMPLE OF LOGICAL FRAMEWORK

NARRATIVE SUMMARY	OVI	MoV	ASSUMPTIONS
Goal: Agricultural productivity increased in the region	Crop yield / hectare increased	▪ Field observation ▪ Periodic reports from agriculture office	▪ Field community participation ▪ Commitment from both GO & NGOs.
Purpose: Promote soil and water conservation practices through reducing deforestation	Soil and water conservation systems put in place	▪ Field observation ▪ Periodic repots of district administrators	Community will take care of the system established
Output: Afforestation ▪ Deforestation of degraded land ▪ Pop pressure reduced on farm land	50 hectare of land covered with vegetation Agricultural density reduced Birth rate reduced	▪ Field observation ▪ Sample survey ▪ Community participation record	▪Reliability of rainfall ▪No immigration.
Inputs: Plantation site identified ▪ Labor organized ▪ Nursery established ▪ Family planning and ▪ awareness creation introduced			▪ Funds available on time ▪ DA assigned ▪ Community Commitment & participation

CHAPTER THREE
PROJECT PREPARATION AND ANALYSIS

Project preparation and analysis would include: **Design→ Alternatives → Proposals → Costs and benefits**

- Specification of objectives and results
- Identifying resources available for the project
- Identifying resources needed for the project
- Design of the project
- Packaging and planning of the project
- Subject of pre-feasibility or feasibility study (smaller projects - project profile)

3.1.1 PRE-FEASIBILITY STUDY

The project idea must be elaborated in a more detailed study. However, formulation of a feasibility that enables a definite decision to be made on the project is costly and time-consuming task. Therefore, before assigning larger funds for feasibility study, a further assessment of the project idea might be made in a pre-feasibility study.

A. THE PRINCIPAL OBJECTIVES OF PRE-FEASIBILITY STUDY

The principal objectives of pre-feasibility study are to determine whether

- All possible project alternatives have been examined;
- The project concept justifies a detailed analysis by a feasibility study;
- Any aspects of the project are critical to its feasibility and necessitate in-depth investigation;
- The project idea, on the basis of the available information, should be considered either non-viable or attractive enough for a particular investor or investor groups;
- The environmental situation at the planned site and the potential impact of the projected production process are in line with national standards.

These imply a pre-feasibility study should be viewed as an intermediate stage between a project opportunity study and detailed study, the difference being in the degree of detail of the information obtained and the intensity with which project alternatives are discussed. Occasionally a well prepared and comprehensive opportunity study may justify by passing the pre-feasibility study stage. Such cases should be confined to investors who have complete knowledge of the project conditions.

The structure of a pre-feasibility study should be the same as that of a detailed feasibility study. The requirements for information in a *pre-feasibility study document (PSD)* can vary considerably. For this reason, we are going to see a generic model. You should not see it as a mandatory approach (i.e. you can adapt this format to the needs of the projects you are examining). But the PSD should be presented in clear, unambiguous language given the wide readership of the PSD.

B. PURPOSE OF A PRE-FEASIBILITY STUDY FOR DEVELOPMENT PROJECTS

- To undertake a detailed analysis of the development situation & constraints (the project is to address) based on the collection of sound, objective data
- To identify partner government policies, programs & projects designed to address constraints (including activities of other donors);

- To identify & define the linkages b/n the project & poverty reduction, taking into account the findings of a poverty analysis;
- To refine the project idea in a clear and realistic manner & make a preliminary assessment of the viability of alternative approaches;
- To define achievable outcomes for the project or define possible design options or concepts that may merit further investigation;
- To make a preliminary identification of likely risk areas to achieving the objectives and to sustainability & assess the importance of these risks;
- Prepare terms of reference for a feasibility study/design mission,

3.1.2 FEASIBILITY STUDY

In developing countries, it is not uncommon to find a situation where only a few projects are sufficiently prepared and carefully selected (extensive feasibility study). This happens because of several reasons. Some of the reasons could be:

- The use of non-numeric project selection models (However, the application of these models to project selection may be limited to projects which do not involve huge investment resources);
- Lack of skilled people to perform this task; and
- Unwillingness to spend money on this process.

For those projects which involve huge resources especially those involving governments and other institutions such as that of the WB and IMF, feasibility studies must be usually carried out before a project is selected for implementation. Proper feasibility studies of projects imply choice of investment projects as proper choice of projects is crucial to the long run economic development of a country (if the case is development project) and for the long run survival of the firm (if the case is investment project).

A feasibility study, therefore,

- Is part of the process of project preparation and analysis in which the process involves the appraising of projects or groups of projects and then choosing to implement some of them.
- Should provide all data necessary for an investment decision.
- Define and critically examine the commercial, technical, financial, economic and environmental prerequisites for an investment project on the basis of alternative solutions already reviewed in the pre-feasibility study.
- The result of these efforts is then a project whose background conditions and aims have been clearly defined in terms of its central objective and possible marketing strategies, the possible market shares that can be achieved, the corresponding production capacities, the plant location, existing raw materials, appropriate technology and mechanical equipment and if required an environmental impact assessment.
- The financial part of the study covers the scope of the investment, including the net working capital the production and marketing costs sales revenues and the return on capital invested.

A. FEASIBILITY STUDY VS. PRE-FEASIBILITY STUDY

PRE-FEASIBILITY STUDY	**FEASIBILITY STUDY**
DEVELOPMENT SITUATION	
Undertake detailed analysis of the development situation and constraints	Confirm the development situation and Develop the rationale for undertaking the project
RESPONSE	
Refine the project idea and make a preliminary assessment of the viability of alternative approaches	To examine the viability of the options in detail and recommend a preferred option
PROJECT DESIGN	
Define achievable outcome for the project or to define possible design options or concepts that may merit further investigation	Confirm and refine the achievable outcomes… Develop the design to the point where it is costed and can be tendered and implemented
MONITORING & RISK ASSESSMENT	
Make a preliminary identification of risk areas and assess the importance of these risks	Develop a full risk analysis which can be used by implementers Develop performance indicators as an integral part of the design

B. NEED FOR FEASIBILITY STUDY

- To help organizations/ entrepreneurs to make investment decision
- To assess viability of project for giving assistance by agencies
- To reduce the mortality of infant small industry
- To convert broad industrial programs into viable project

WHO MAKES FEASIBILITY STUDIES?

- Development organizations; Consultants; Entrepreneurs/public enterprises; Entrepreneurs aided and assisted by experts; Development organizations and consultants working with the entrepreneurs in the preparation

C. TYPES OF FEASIBILITY STUDIES

- Tailor-made studies- to suit a particular entrepreneur/enterprise
- Study made for a particular area for attracting prospective entrepreneurs

When the various analyses have been carried out, the results must be put together in the form of a report. It is important that the above components of a feasibility report are organized logically before being presented to financial institutions for funding or to donors for assistance.

D. THE SECTIONS OF A FEASIBILITY REPORT

a. General information

- *Analysis of sector to which the project belongs*
- *The gap existing between supply and demand in the sector; and*
- *Past performance of proposal owners*

b. Preliminary analysis of alternatives

- *Other alternatives which were considered besides the proposed project should be stated;*
- *All the relevant options analysis should be explained; and*
- *The rationale for the project i.e., how it addresses the existing gap should be given.*

c. Project description

- *Location of the project*
- *Machinery and equipment needed; and requirements, utilities, labor, products.*
- *Technology to be used*

d. Marketing plan

- *Demand of products*
- *Prices and price sensitivity*
- *Distribution arrangements; and*
- *Warehousing and storage arrangements*

d. Capital requirements

- *Preliminary expenditure;*
- *Land acquisition and development;*
- *Plant and equipment;*
- *Construction; and*
- *Engineering and project management.*

e. Operating requirements and costs

- *Raw materials*
- *Fuel*
- *Utilities*
- *Labor*
- *Repair and maintenance costs;*
- *Selling expenses; and*
- *Other expenses depending on the project.*

f. Financial analysis

- *This section provides information on costs of production and working results and cash flows during the economic life of the project; and*
- *Financial performance may be done using any of the following tools: payback period, Net Present Value, Internal rate of return on investment and return on capital employed.*

g. Economic and social analysis

- *Impacts on income distribution*
- *Development of ancillaries*
- *Assured prices to farmers and supplies of inputs.*

h. Environmental impact assessment

- *Impact or damage on the environment*
- *Measures required to prevent damage*
- *Costs involved in restoration of acceptable measures and*
- *Mechanisms for monitoring the efficiency and effectiveness of the measures.*

3.2 FACETS OF PROJECT ANALYSIS

There are six dimensions to project preparation & analysis. These jointly determine feasibility or viability of a given project though they are treated differently. Correlation of each element is important.

3.2.1 MARKET AND DEMAND ANALYSIS

Market analysis helps us to estimate the size of the market for the proposed product or service. It is primarily concerned with two aspects.

- aggregate demand of the proposed product or services in the future &
- market share of the project under appraisal.

For projects to be sustainable market analysis must be carried out.

A. COMPONENTS OF MARKET AND DEMAND ANALYSIS

- Existing pattern of consumption & growth
- Composition of the market
- Nature of competition
- Income levels of the society
- Availability of substitutes
- System of distribution channels

A wide variety of information & appropriate forecasting methods are required for this analysis. **The kinds of information required are:**

- Consumption trends & levels in the past & at present
- Supply position (past & present)
- Production possibilities & constraints
- Imports & exports
- Structure of competition
- Cost structure
- Elasticity of demand
- Consumer behaviour, intentions, motivations, attitudes, preferences, & requirements
- Distribution channels & marketing policies in use
- Administrative, technical, & legal constraints

B. OBJECTIVES OF MARKET AND DEMAND ANALYSIS

- Identify potential customers
- Indicate total current demand
- Identify pattern of demand (temporally & geographically)
- Know customer WTP
- Determine price & warranty that will ensure the intended outputs
- Identify appropriate channel of distribution
- Explore prospects of immediate and future sales
- Formulate marketing strategy

C. KEY STEPS IN MARKET AND DEMAND ANALYSIS

STEP 1: SITUATION ANALYSIS

You talk to consumers, competitors, middlemen, informally in the market. The focus area is to generate data about the market i.e. preferences of consumers, purchasing power of consumers, the different strategies of competitors and practices of middle men and gathering information from other organizations with previous experience. You seek to answer the following questions.

i. Which group of a society is the highest or lowest consumer of the product?
ii. Is there seasonal or spatial variation of sales?
iii. Distribution of sales over region or given area?
iv. What price do consumers take?

STEP 2: GATHERING OF DATA FROM SECONDARY SOURCES

- Establish what is already known about the product
- Try to identify gaps that aren't available in the public domain.
- Collect data from CSA, sample survey, survey report, academic studies
- Check reliability, relevance and accuracy of the data

STEP 3: MARKET SURVEY: GENERATE PRIMARY INFORMATION

The basic objective to fill the gaps and concretize the issues that prevail from the situation analysis (focus on the gaps identified). Two types (Census and sample survey).

Information collected in a market survey should include

- Total demand and its rate of growth
- Customers' purchasing power and satisfaction
- Motives of seeking the product
- Unsatisfied need of demand
- Distribution pattern & preferences
- Attitude towards product
- Socioeconomic conditions

Steps for conducting market survey

- Define the target population
- Select sampling technique and sample size
- Develop questionnaire
- Recruit enumerators and train them
- Collect the data
- Analyze and interpret the data

Problems in market survey

- Heterogeneity of country
- Multiplicity of language
- Design of questionnaires (scale translation

STEP 4: CHARACTERIZATION OF THE MARKET

This is in terms of *effective demand* in the past and the present look into the market price, FOB (free on board price, CIF)

- Past and present market effective demand

Apparent consumption = (Production + Imports – exports in stock & change

In competitive market, Effective demand = Apparent consumption
Consumers - demographic, economic, sociological attitude
*Consumer group*s - individuals, domestic, foreign, households
Nature of the product - finishes, semi finished, packed, big, small
Geographical - highland vs. lowland
Methods of distribution and sales promotion - Patterns of consumption, problems encountered in marketing, price statistics
Supply and competition - considers different market segments, characterize according to supply and competition in the market
Government policy - may influence the market and the demand. Therefore, read national plans, production targets, import duties, taxes, licensing, credit controls.

STEP 5: DEMAND FORECASTING

Demand assessment is a means of estimating the actual demand for services that will exist over time. Forecasting attempts to represent future occurrences in the most likely set of circumstances. Therefore, we estimate the demand in the future.

Techniques for forecasting

1. Qualitative methods
   - Jury of executive opinion technique
   - Delphi method
2. Time series projection methods
   - Trend projection method
   - Exponential smoothing method
   - Moving average method
3. Casual method
   - Chair ratio method
   - Consumption level method

Uncertainties in demand forecasting

Demand forecast are subject to error and uncertainty which arise from three principal sources

- Data about past and present market
- Method of forecasting
- Environmental changes: change in technology, shift in government policy, developments in inter-science, discovery of new sources of raw materials…

STEP 6: MARKET PLANNING

This is concerned with distribution channels appropriate and promotional work. The purpose is to meet customers needs better than competitors.

Market planning has the following components

A. Current marketing situation

- Market situation
- Competition situation
- Distribution
- Macro-environment

B. Opportunity and issue analysis: Strength, weakness, opportunities, and threat (SWOT)

C. Objectives

D. Marketing strategy

- Target segment
- Positioning
- Product line
- Price
- Distribution
- Sales force
- Sales promotion
- Advertising

E. Action program: quarterly plan

3.2.2 TECHNICAL ANALYSIS

Technical Analysis seeks to determine whether the prerequisites for the successful commissioning of the project have been considered & reasonably good choices have been made with respect to location, size, process, etc. Technical analysis needs to be done continually when a project is formulated.

Important issues raised in technical analysis are:

- Availability of preliminary studies have been done
- Availability of inputs e.g. raw materials, power, etc
- Optimality of selected scale of operation
- Suitability of the chosen production process
- Appropriateness of equipments & machines chosen
- Provision of effluents treatment
- Provision of auxiliary equipments & supplementary engineering works
- Soundness of proposed layouts of the site, buildings, & plant
- Realistic work schedules
- Appropriateness of the proposed technology from social point of view

A.PURPOSES OF TECHNICAL ANALYSIS

- To determine the technical viability of the proposed project scheme
- To provide realistic cost estimates for financial appraisal and projection
- To enhance smooth implementation and long term profitable operation of the project

Technical elements

- Product quality- for the product to be produced, to be acceptable by the market, it may have to meet certain quality requirements
- Production process- to produce product of the desired quality appropriate production process is necessary
- Machinery and equipment- for the chosen production process, machinery and equipment of appropriate capacity and specification must be acquired
- Raw materials-of certain quality or specification are required as production input;

- Utilities and consumables
- Production skill
- Project site
- Plant building design and layout
- Acquisition of technology
- Plant location

Technical analysis is important for projects, especially those which are classified as industrial. The technical analysis will usually be concerned with such issues as:

- Capacity of operation
- Quality of machinery and equipment
- Plant location and layout
- Maintenance provisions; and
- Appropriateness of technology

Technology is examined at two levels.

- Technology used must be suitable for the realization of the specific objectives of a given project. Very often, machinery is imported from developed countries to poor developing countries only to be found obsolete and inefficient. High costs of production and maintenance are incurred when this happens. Such mistakes are made where projects have failed to involve technically qualified people, right from the time of project initiation.
- Technology must be examined for suitably according to the socio-economic environment. The term which is frequently used is, "appropriate". Technology which is imported from developed countries may not necessarily be appropriate in the developing country environment. For example, due to the

need to provide employment to people, government sponsored projects would usually prefer projects with technology which is labor intensive as opposed to those which encourage less human labor.

Technological analysis is done by generation technological alternatives which must then be analyzed with respect to such factors as size of plant, process and location. All the alternatives which are being analyzed must be examined for any negative effects. All the alternatives which are found to have negative effects should be left out and only those with no or little negative effects should be considered for further analysis and recommendations.

B.COMPONENTS OF TECHNICAL ANALYSIS (DEVELOPMENT PROJECTS)

The basis of technical analysis is assessing the project form the point of view of its ability to meet its objectives using technology and standards and appropriateness to the circumstances of the country.

Components of technical analysis

Section 1. Problem analysis

- Isolate core problem from its causes and effects
- Create a problem tree- objective tree and design technical solutions on the basis of appropriate technology and logical connections between inputs and outputs.

Section 2. Technical design: Detailed identification of description of the projects technological and engineering design.

What is feasible in terms of what will work?

1. Scale of operation (size)

a. Future demand - demand forecasting

b. Capacity of implementing agency/project beneficiaries

- Absorption capacity
- Experience of important organizations
- Nature of target groups

c. Resource limitations/physical constraints of the project site

- resource based project - availability (quantity and quality)

d. Economies of scale

e. Recurrent cost demand

f. Need for pilot program

2. Location

a. Availability of a suitable site (physical and legal)

b. Government priority

c. Tradeoff b/n proximity to factors

- Market
- Infrastructures
- Energy sources
- Raw materials

d. Population living with the projects catchments areas: Actual/ potential needs of the people

3. Timing

i. Sufficient demand

ii. Likely impact of delaying important in increasing the demand of the output

iii. Suitability of technology –capacity of beneficiaries

iv. Potential/opportunities to reap the greatest benefits (existence of presently favorable potential)

Section 3. Logical framework and assumptions: logic - ability project activities to satisfy project objectives

Section 4. How inputs relate to outputs: the relationship between inputs and outputs; sources of inputs; price; technical feasibility; demand for the output

Section 5. Choice of alternatives: capable of overcoming the core problem identified on a whole

TECHNICAL ANALYSIS FOR INVESTMENT PROJECTS

1. Manufacturing process/technology

a. Choice of technology: is influenced by

- Plant capacity
- Principal inputs
- Investment outlay and production cost
- Use by other units
- Product mix
- Latest developments
- Ease of absorption

b. Appropriateness of technology - methods of production suitable to local economic, social, and cultural conditions

2. Technical arrangements - arrangements to obtain technical knowhow needed for the proposed manufacturing process.

3. Material inputs and utilities

- Raw materials
- Processed materials & components
- Auxiliary materials and factory supplies
- Utilities

4. Product mix - guided by market required

5. Plant capacity (production capacity): Feasible normal capacity and Nominal maximum capacity

Plant capacity dependent on

- Technical requirements
- Input constraints
- Investment cost
- Market conditions
- Resources of the firm
- Government policy

6. Location and site is influenced by

- Proximity to raw materials
- Availability of infrastructure
- Labor situation
- Government policy
- Site selection

7. Machinery and equipments

8. Structures and civil works

- Site preparation and development
- Building and structures
- Outdoor works

9. Environmental aspects

10. Project charts and layouts

- General final layout
- Material flow diagram
- Product line diagram
- Transport layout
- Utility consumption layout
- Consumption layout
- Organizational layout
- Plant layout

11. Schedules for project implementation: reflects the plan of work concerning installation as well as initial operation

12. Need for considering alternatives

- Nature of the project
- Production process
- Quality of products scale of operation; time phasing; location

3.2.3. ORGANIZATIONAL ANALYSIS

Technical analysis of a project must be followed by organizational analysis. When a technological alternative is found viable, then the issue of organization in relation to this alternative must be considered. Terms and conditions which are offered by the constructors must be carefully weighted to make sure they are in line with the project's objectives. Organizational analysis also involves issues of operation. Operation requires that training of manpower to operate the machines and design of production systems be considered. Organizational analysis must aim at making it possible for the technological alternative to be in line with the proposed marketing and financial plans in addition to meeting the societal criteria.

Organizational analysis involves such issues as

- Transportation of machinery
- Construction of buildings
- Maintenance and commissioning.

Institutional or organizational/managerial dimension: is analysis of

- Socio-cultural patterns & institutions of stakeholders
- Looking into socio-cultural & economic setting
- Beneficiaries of a given project as well as stakeholders involved & the impact brought around in the process
- The lives of authority coordination & responsibility should be clearly defined
- To ensure effective & efficient management
- Examine the availability of skills on the labour market
- Considering the availability of skilled resources proposition of training is given consideration.

3.2.4 FINANCIAL ANALYSIS

Financial analysis of a project

- amounts to reviewing it form the angle of the entity (private or public) that will be responsible for its execution.
- seeks to ascertain financial viability of the proposed project in terms of ability to meet the burden of servicing debt & the return from the project.
- aims at verifying that under prevailing market conditions the project will become and remain viable.
- provides the basic data needed for the economic evaluation of the project
- is the starting point for such evaluation

A. REASONS FOR CONDUCTING FINANCIAL ANALYSIS

- To determine long term budgetary implications and provide an adequate financial plan for a proposed project
- To determine profitability of the project from owners and beneficiaries.
- To provide management information to aid operation and control

The important aspects of financial analysis are:

- Investment outlay & cost of project
- Means of financing
- Profitability of the project
- Break even point

- Cash flows of the project
  - Worth wholeness of the investment judged in terms various criteria of merit
- Projected financial position
- Level of risk

Two basic questions in financial analysis are

- Feasibility- what will work?
- Desirability- financial & economic analysis (compares cost and benefit (i.e. project worthwhile)

3.2.4.1 FINANCIAL ESTIMATES AND PROJECTIONS

To judge a project from the financial angle, we need information about the following

- Cost of project
- Means of financing
- Estimates of sales and production
- Cost of production
- Working capital requirement and its financing
- Estimates of working results profitability projections
- Break even point
- Projects cash flow statements

A. COST OF PROJECT

- Represent the sum of all items of outlays associated with a project which are supported by long-term funds
- is the sum of outlays on the following
  - Land site development
  - buildings and civil works
  - Plant and machinery
  - Technical knowhow and engineering fees
  - Expenses on foreign technicians and training
  - Miscellaneous fixed assets
  - Preliminary and capital issue expenses
  - Pre-operative expenses
  - Provision for contingencies
  - Margin money for working capital

B. MEANS OF FINANCING

- Sources of finance to meet the cost of the project
  - Share capital equity capital and preference capital
  - Term loans (birr term loans and foreign currency term loans
  - Debenture capital (non-convertible debentures and convertible debentures.
  - Deferred credit
  - Incentive sources(seed capital, assistance, capital subsidy, and tax deferment or exemption
  - Miscellaneous sources (unsecured loans, public deposits, and lease and hire purchase finance.
- To determine the specific means of finance for a given project, consider
  - norms and regulatory bodies and financial institutions
  - Key business considerations, cost, risk, control, and flexibility

C.ESTIMATES OF WORKING RESULTS PROFITABILITY PROJECTIONS

- forecasting of sales revenues is the starting point
- In estimating sales it is reasonable to assume that Capacity utilization would be somewhat low in the 1st year and rise thereafter gradually to reach the maximum level in the 3rd or 4th year of operation.

D. COST OF PRODUCTION

- Major components are
  - Material cost-comprises the cost of raw materials, chemicals, components, and consumable stores, required for production.
  - Utilities cost-is the sum of the cost of power, water, and fuel.
  - Labor cost-includes the cost of all manpower employed in the factory.
  - Factory overhead cost-are expenses on repairs and maintenance, rent, taxes, and insurance on factory assets.

E. WORKING CAPITAL

Working capital refers to the physical stocks needed to allow continuous production. These stocks have to be built up at the beginning of operations and may have a residual value at the end of the project's life. There are three components of working capital – initial stocks of materials are required at the beginning of the production and the level will depend upon planned annual production levels. For example, stock requirements may be defined as one month's worth of materials. If initial stocks are to be maintained at one-twelfth of annual requirements, they will have to be increased each year as production rises after the first commitment of stocks, further incremental commitments will need to be recorded in the project resource statement. Initial stocks need to be purchased in advance of production increases and so are recorded in the year before the output level to which they refer.

Similarly, the production process will give rise to final outputs that will be stored for a period before distribution. Again, the level of final stocks will be estimated as a proportion of annual production and will involve annual increments until the highest sustainable output level is reached. It may be that the investment process involves a commissioning period in which final stocks can be built up before normal production commences; however, subsequent increases in final stocks will occur each year as production levels increased. Final stocks embody the initial materials and the value of resources such as labor or energy, committed through the production process. The value of final stocks before distribution is therefore determined by production costs and not the price of final output. Thus final stocks should be valued not at the revenue that will achieve when they are finally sold but at the value of total operating costs embodied in their production.

Working capital also involves work in progress. At any point in time some materials will be passing through the production process. Such working capital is valued at the average of the initial stocks and the final stocks for the same year. The quantity of working capital to be valued like this depends upon the production period that is the time it takes for initial materials to be transformed into a finished product. For many purposes is usually a small proportion of annual output. The three components of working capital will generally have a residual value. This will be the total value of working capital at the highest sustainable level of output. The residual value of initial stocks, work in progress, and final stocks will accrue in the final operating year as stocks are reduced with the ending of production.

F. PROFITABILTY PROJECTIONS

Items

A. Cost of production
B. Total administrative expenses
C. Total sales expenses
D. Royalty and knowhow payable
E. Total cost of production(A+B+C+D)

F. Expected sales
G. Gross profit before interest (F-E)
H. Total financial expenses (interests mainly)
I. Depreciation charges
J. Operating profit (G-H-I)
K. Other income(income not part of the normal operations of a firm)
L. Preliminary expenses written off
M. Profit/loss before taxation (J+K-L)
N. Provision for taxation
O. Profit after taxation (M-N)
P. Retained profit(M-N) less dividends
Q. Net cash accrual(P+I+L)

3.2.5 ECONOMIC ANALYSIS (SOCIAL COST BENEFIT ANALYSIS)

A. INTRODUCTION TO SOCIAL COST BENEFIT ANALYSIS (SCBA)

- Is a methodology developed for evaluating investment projects from the point of view of the society (or economy) as a whole.
- Used primarily for evaluating public investments (though it can be applied to both private and public investments).
- Has received a lot of emphasis in the decades of 1960s and 1970s in view of the growing importance of public investments in many countries, particularly in developing countries where governments have played a significant role in the economic development.
- Is also relevant to a certain extent to private investments as these have now to be approved by various governmental and quasi-governmental agencies which bring to bear larger national considerations in their decisions.

In the context of planned economies, SCBA aids in evaluating individual projects within the planning framework which spells out national economic objectives and broad allocation of resources to various sectors. In other words, SCBA is concerned with tactical decision making within the framework of broad strategic choices defined by planning at the macro level. The perspectives and parameters provided by the macro level plans serve as the basis of SCBA which is a tool for analyzing and appraising individual projects.

Economic analysis (social cost benefit analysis):

- Is concerned with judging a project from the larger social point of view.
- Focuses on evaluation of social costs & benefits of a project.
- Is often different from monetary costs & benefits.
- Measures the direct economic benefits & costs in terms of shadow prices.
- Analyze the impact of the project on the distribution of income & on the level of savings & investment in the society &
- Analyze the contribution of the project towards the fulfilment of certain merit wants like self-sufficiency, employment, & social order.

Economic analysis is basically concerned with the following:

i. How to identify effects of project on the society;
ii. Qualification of effects of the proposed project; and
iii. Pricing of costs and benefits to reflect their values to society.

For financial analysis of projects, market prices are used. However, in many developing countries, there is a big gap between market prices and the social values of all goods and services (existence of market failure). This divergence between social and market prices makes it necessary to evaluate projects from the point of view of the society as opposed, for example, to the entrepreneur's point of view. In order to take into account this divergence, financial prices are adjusted to reflect the true value to society of the project's inputs and outputs.

Shadow prices or the opportunity cost of factors are used instead of the prevailing financial prices. Recent studies indicate that shadow rates such as the wage rate for unskilled labor often exceed the opportunity cost of labor; the increase in incomes may generate a cost to society in excess of the opportunity cost.

The situation described above occurs if current consumption is less valuable to society than current savings, when savings and investment are sub-optimal. In a situation of surplus labor, as in many developing countries, careful judgment on the use of shadow wage rates of unskilled workers may be required.

When intangible costs or benefits enter into project investment considerations, they raise problems of valuation. Intangible factors comprise a whole range of considerations such as income distribution, jobs created, regional development, national integration and security and environmental consideration.

Many development projects are usually undertaken to secure intangible benefits. Examples of such projects are education projects, domestic water projects and health projects. When considering projects with intangible cost and benefits, the least that an analysis should indicate is the number of people who will use the project. Such simple quantification is important for the process of project appraisal.

One method of dealing with a project which has wholly intangible benefits is the one referred to as the least-cost combination or cost effectiveness. In a recent debate on the value public universities to the country, the cost effectiveness method was used by assuming that if all the public universities were closed, then the present numbers of students will have to join private local universities or universities abroad. These two alternatives were costed and compared with the current cost of all public universities. It was shown that indeed public universities are a cost-effective approach to provision of university education in the country.

It happens that project analysis gives more emphasis to technical and economic aspects but social aspects of the project are inadequately analyzed. It is the general feeling in most developing countries, that the more the technical and complex the presentation, the more use of shadow prices, trade off, engineering co-efficient, the better the chances of finding a bilateral or multilateral donor. Such 'cosmetics' are sometimes unrelated to the basic reality of the project and simply misled the decision-makers.

Some of the mistakes which lead to the exclusion of social realities include the fact that foreign donors and international financing agencies turn out to be more committed to the project than the potential local beneficiaries. In this regard, participation should start at an early stage and active participation of a wide range of local stakeholders in the preparation and design of the project is essential. This is also a way of improving the feasibility of the project.

It should be realized that however, carefully a project has been analyzed, especially on aspects of the socio-economic factors; the reality in many developing countries may not reflect the analysis after project implementation. Many times, projects which are designed to benefit the unemployed and the poor in rural areas attract such people as the village shopkeeper, the bus owner, the local chief and other middle men so that their combined exploitation of the project negate or reduce the benefits to the targeted groups. In the end, 'good' project identification, preparation, and analysis will only be possible if wider issues of power structures, redistribution of income and transformation of institutions are first addressed.

From the point of view of:-

- The direct project beneficiaries
- Project as a whole
- Any financial intermediary
- The government

B. RATIONALE FOR SOCIAL COST BENEFIT ANALYSIS (SCBA)

a. **Market Imperfections-**Market prices which form the basis for computing the monetary costs and benefits from the point of view of the project sponsor ,reflect social values only under conditions of perfect competition, which are rarely, if ever realized by developing countries. When imperfections exist, market prices do not reflect social values. The common market imperfections found in developing countries are rationing, prescription of minimum wages and foreign exchange regulations.

b. **Externalities-** A project may have beneficial or negative external effects. It may be emphasized that externalities are relevant in SCBA because in such analysis all costs and benefits, irrespective to whom they accrue and whether they are paid or not are relevant.

c. **Taxes and Subsidies -** From the private point of view taxes are definite monetary costs and subsidies are definite monetary gains. From the social point of view however taxes and subsidies are generally regarded as transfer payments and hence considered irrelevant.

d. **Concern for savings -** From a social point of view the division of benefits between consumption and saving is relevant. The concern of the society for savings and investment is duly reflected in SCBA wherein a higher valuation is placed on savings and a lower valuation is put on consumption.

e. **Concern for redistribution -** In SCBA a rupee of benefit going to an economically poor section is considered more valuable than a rupee of benefit going to an affluent section.

f. **Merit Wants -** Goals and preferences not expressed in the market place but believed by policy makers to be in the larger interest ,may be referred to as merit wants. While merit wants are not relevant from the private point of view, they are important from the social point of view.

C. ECONOMIC ANALYSIS VS. FINANCIAL ANALYSIS

	Perspective	What is measured	Indicator
Financial analysis	Owners or lenders	Change in private income	NPV, FRR
Economic analysis	National economy	Change in national income	ENPV, ERR
Distributional analysis	All groups affected by the project	Distribution of change in national income	Proportion of ENPV going to target group

Item	Financial	Economic
Focus	Net financial result of project	Contribution to the development objectives return to the society
Purpose	Indication of incentive to implement	Determine if government or private investment justified on economic efficiency
Prices	Prevailing expected market price	Social or shadow prices
Taxes	Cost of production	Transfer of payment and not economic cost
Subsidies	Sources of revenue/ increase in individuals benefit	Transfer payment not an economic cost unless it is external loan
Interest rate	Market borrowing rate	Opportunity cost of capital

The following are the questions an economic analysis should answer

- What is the objective of the project?
- What will happen if the project proceeds or not?
- Is the project the best alternative?
- Does the project have separable components?
- Winners and Losers: Who enjoys the music and who pays for the piper?
- What is the project's Fiscal impact?
- Is the project financially sustainable?
- What is the project's Environmental impact?
- Is the project worthwhile?
- Is this a Risky project?

3.2.6 ENVIRONMENTAL ANALYSIS

- To promote a comprehensive, interdisciplinary investigation of environmental consequences of the project
- To develop an understanding of the scope and magnitude of incremental environmental impacts (with and without)
- To incorporate in the designs any existing regulatory requirements
- To identify measures for mitigation of adverse environmental impacts and possible enhancement of beneficial impact
- To identify critical environmental problems requiring further investigation
- To assess environmental impacts qualitatively and quantitatively

CHAPTER FOUR
PROJECT SELECTION AND APPRAISAL

Project Appraisal and Selection – Review → decision

- Technical
- Financial
- Commercial/Market
- Economic
- Social
- Environmental
- Institutional
- Appraisal report → decision (reject, amend, negotiate or agree)

Project appraisal involves a further analysis of the proposed project. At this stage, a critical review of the proposal is undertaken. The systematic & comprehensive review is usually undertaken by an independent team of experts in consultation with the stakeholders of the project. This provides an opportunity to re-examine every aspect of the project plan to assess whether the proposal is justified before large sums are committed. The appraisal process builds on the project plan but may involve new information if the appraisal team feels that some of the data used at preparation or some assumptions are faulty. The implications of the project on the society & the environment are also more thoroughly investigated & documented. Similarly, the technical design, financial measures, commercial aspects, incentives, economic parameters are thoroughly scrutinized. On the basis of an appraisal report, decisions are made about whether to go ahead with the project or not. The appraisal may also change the project plan or develop a new plan.

4.1 PROJECT APPRAISAL AND FUNDING DECISION

Project appraisal is the comprehensive & systematic assessment of all aspects of a proposed project. Funding decision will be made based on careful consideration of the project and perspective to ensure that the project represents a high-priority use of the donor's resources.

During the appraisal process, the donor will check whether or not the project:

- Belongs to sectoral focus area of the donor
- Meets the urgent needs of the community
- Is of optimum size (is just the right time or is it premature?)
- Is well designed, with reasonable cost and benefit estimate

In addition to this the appraiser will ask the following questions

- Have the objectives of the project been clearly stated?
- How does the project fit into the development priorities of the donor?
- Is the size of the project realistic with regard to the capacity of the org?
- Are the proposed method and process appropriate?
- Is the project site appropriate?
- Is the source of financing clearly identified (from community, NGO's?
- Is the amount of money required to implement the project adequate?
- Is proper cost estimate done for the project?
- Is the project in a sector that merits priority?
- What are the likely contributions of the project?
- What are the likely risks, and where are the weak points in the project?
- Does the organization have the capacity required to manage the project?

- Is the organizational structure of the project clearly defined?
- Are the project activities socially and culturally acceptable?
- Is the project gender sensitive?
- Which economic & social groups benefit from the project (women, youth elderly, disabled, etc.)?
- Are there significant social barriers or customers to respect?
- Does the project involve the sustainable use of natural resources (if applicable)?
- What effect does the project have on natural ecosystems (such as soil, water forests etc. (if applicable).

4.2 GENERIC PROJECT APPRAISAL CHECKLIST

OBJECTIVES

- Have the objectives of the project been clearly specified?
- How does the project fit into the development strategy & priorities of the country/region?
- What is its contribution to regional balance?

A. COMPONENTS AND COST STRUCTURE

- What are the percentage of technical assistance/consultancy input and the magnitude of overhead cost? (To the extent possible these should be minimized).
- Does the project give more emphasis to asset creation, training of beneficiaries, and provision of equipment for production, service or research purpose?

B. TECHNICAL

- Is the size of the project realistically viewed in light of technical efficiency, cost of production and prospective demand?
- Has the project been subjected to a feasibility study?
- Have all feasibility study conclusions been considered in the design? (Including labor and capital intensity of the project)
- Are the proposed methods and processes appropriate?
- Have alternative means of achieving the objectives and alternative project designs being considered?
- Is the project site appropriate?
- Does the proposed production capacity/service allow for achieving expected levels of output?

C. Commercial

- Is there a dependable market for inputs (raw materials, labor, etc)?
- Is there access to local and/or overseas markets for the project's outputs/services?
- Is the production/services likely to be competitive on these markets (in terms of both price and quality)

D. Financial

- Are the sources of financing clearly identified (equity, loan, grant)?
- Is the amount of money required to implement and operate the project adequate and will it be timely available?
- What are the terms of financing the project?
- Is proper cost-benefit analysis being done for the project? Do the expected results bring about a reasonable return on the capital invested?
- What is the financial rate of return (FNPV, FIRR, etc)?
- Is sensitivity analysis made for the project?

- What are the net effects on the government's budget, allowing for any loss of customs duty on imports, the cost of fiscal incentives and allowances, and initial equity participation, and recurrent subsidy?

E. Economic

- Is the project in a sector, which deserves priority?
- What are the likely contributions of the project (foreign exchange earning/saving, employment generation, etc)
- What is the effect of the project on the balance of payments of the country (especially if it is a foreign investment, because more money could go out of the country in the form of interest and dividend etc.)?
- What are the externalities (positive/ negative impacts) that are likely to be caused by the project?
- What is the economic rate of return (EIRR) of the project?
- What are the likely risks, and where are the weak points/links in the project?
- What are the backward and forward linkages of the project with other sectors?

F. Institutional/Managerial

- Do the local executing agencies have the resources required to manage the project (do they manage it themselves, do they contract it out, etc)?
- To what extent is the involvement of the community in the design & ownership of the project?
- Is the organizational structure of the project clearly defined?
- What are the proposals for attracting and training the necessary managers and technicians?
- How will the owners influence the operational activities of the project?
- Where a foreign partners is involved, what are the terms of its involvement (equity, management contract, royalties, etc)?
- Are there any restrictive conditions by the owner of the technology (e.g. over exports, source of raw material, sources of new technology, supply of materials and components)?
- Will the suppliers supervise installations and oversee the first months or years of operation?
- Have local managers and foremen been trained to operate and maintain the chosen equipment?

G. Social

- Are the project activities socially acceptable?
- Which economic and social groups will benefit from the project? (Women, youth, the disabled, etc)
- Are there any social barriers or custom to respect?
- Does the project affect the current occupants and users of the site? If so, are any form of resettlement schemes envisaged and have the affected group been consulted?
- Does the project affect things of cultural or spiritual significance?

H. Environmental

- Have any environmental impact studies been made on the project?
- Does the project involve the sustainable use of natural resources or does it deplete the stocks of any natural resources?
- What effect does the project have on the productivity of natural ecosystem such as soil, water, forests, etc?
- Does the project have an impact on any rare of endangered species?
- Is there a need to make ongoing monitoring of environmental impacts as part of the project organization?

4.3 PROJECT SELECTION AND RANKING TECHNIQUES

Many organizations generate multiple proposals for various new initiatives on a continuing basis; however, budgetary and other constraints allow only a fraction of those efforts to occur. Choosing the right projects, which support the organization's mission and assist with the implementation of its strategic plan, becomes a crucial activity, starting with an objective evaluation of proposed initiatives. Evaluation of project Proposals presents an approach to rating competing proposals in a methodical, impartial fashion; the results are indispensable to the success of the subsequent project selection process. Organizations may implement this process in a variety of ways - from relying on unilateral decisions of a chief executive or designee, to convening cross functional deliberative councils. The frequency of an organization's evaluation/selection process may be dictated by many factors, including the size of the proposed projects, the vacillations of the budget cycle, and the occurrence of external mandates and internal imperatives.

SCREEN PROJECT PROPOSALS

Before a great deal of effort is expended on rating, prioritization & selection of proposed projects, it may be useful to screen competing proposals by asking some important questions, such as:

- Does the project support the organization's mission?
- Does the proposed solution align with the organization's strategic plan/technical architecture?
- Is there an available/plausible funding source for this effort?
- Does the project's cost/benefit analysis justify its initiation?

Unless a project is legislatively (or otherwise) mandated, simply working through these questions will result in elimination of some proposals from further consideration.

RATING PROJECT PROPOSALS

Rating of project proposals is generally performed by executive management or by a group designated by executive management (Project Selection Committee). The process is usually formal, with specific forms/formats & procedures. In smaller organizations, however, it may be more informal, and may even be combined with the selection process. In these cases, a brief presentation to the Commissioner, Director, or other organization head may be all that is required to commit resources (funding, personnel, equipment, etc.) and initiate the project.

Proposals are generally rated according to a set of specific criteria. The process may include a broad technical review to determine if the proposal follows current agency standards and technical architectures. The funding associated with a project is also a critical component of the rating process. A Performing Organization may have unique rules regarding funding for proposals. During Project Origination, the Project Sponsor must identify whether funds are expected from the Performing Organization's current/future operating budget, or whether additional funding sources are available. The level of approvals needed may vary depending on whether the project exceeds or falls below defined thresholds. Thresholds may be based on cost, involvement of more than one functional area, project needs within or outside of standards and procedures, or other areas specific to the Performing Organization. The rating process generally assigns a score to each project, to inform the selection process.

4.3.1 ANALYTICAL TOOL FOR RATING PROJECTS - PROJECT RATING INDEX

The steps involved in determining the project rating index are as follows:

- Identify factors relevant for project rating
- Assign weights to these factors, weights are supposed to reflect their relative importance)
- Adopt a rating scale(1-5 or 1-7) and rate the project proposal
- For each factor, multiply the rating score by the respective weights to get factor scores
- Add all the factor scores to get at overall project rating index
- Make decision to select or reject a proposed given project according to some threshold value.

All decisions should be made by the team of experts through consensus. For example, if threshold value is 3.5, then a rating index of 3 is rejected and accordingly a rating index of 3.8 is subjected for further revision-initiate pre-feasibility study. The basic purpose is to screen projects for feasibility studies.

4.3.2 NON-NUMERIC TOOLS/MODELS FOR SELECTION OF PROJECTS

a. **Sacred Cow:** In this model, a project is usually suggested by a senior and powerful individual in an organization and the idea is passed to the officers below. In many cases other offices are required to assist the boss to achieve what he or she wants. Although such projects may not pass rigorous analysis, the boss may persist until he is convinced that it can no longer work. Many projects in the public sector of developing countries have been initiated using the approach. Usually, the projects are initiated by powerful politicians such as Ministers with the aim of wanting to give their home areas the so-called 'accelerated development'.

b. **Operating necessity:** In this model, projects are initiated because they are required to keep a system in operation. These are threatening situations such as floods which will simply call for projects to be started without much evaluation. Funding of projects initiated in this manner is usually done without considering a lot of analysis that goes with project preparation and identification.

c. **Competitive necessity:** Projects are usually initiated and given a lot of support if they will help an organization to maintain a competitive edge over other organizations. Such projects are considered to be of survival importance to an organization and may not necessarily be required to go through careful numerical analysis.

d. **Product line extension:** This approach is used when a project is intended to develop and distribute a new product or products. Usually such a project, if intended to fill a gap or to strengthen a weak link or to take the organization to a new direction, will be judged favorably without careful calculations of the profitability of the project.

e. **Comparative benefit model:** This model is used where a firm has several projects which must be considered and some ranking given. In this model, the projects are sorted out into three categories, good, fair and poor. This is done according to some development list. Such a list may contain some doctrines such as if project is labor intensive, and then it must be given more priority. Admittedly some of these doctrines may not be very valid but they normally provide guidance to those involved in the process. The projects sorted out into the three categories are again ranked within each category using a merit list. In this way an organization will come up with a priority order of the available projects.

4.4 PRINCIPLES OF COST-BENEFIT ANALYSIS

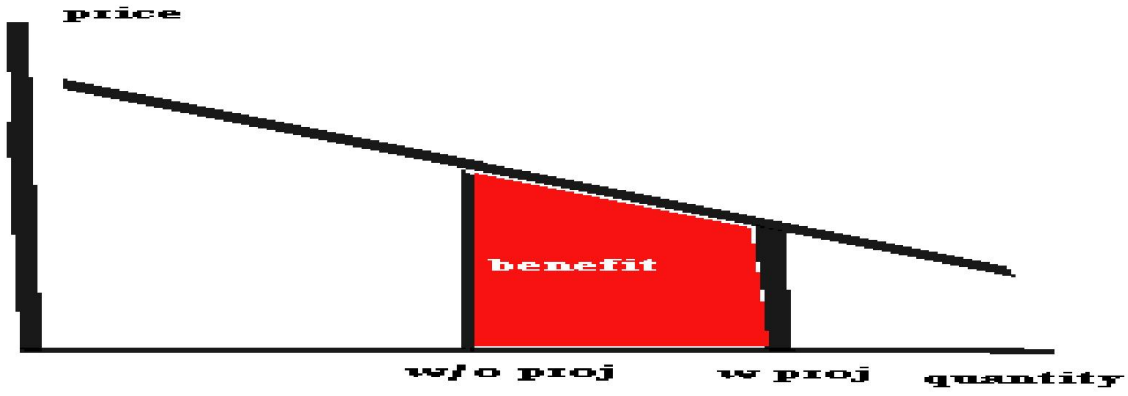
Cost-Benefit Analysis estimates and totals up the equivalent money value of the benefits and costs of projects to establish whether they are worthwhile. In order to reach a conclusion as to the desirability of a

project all aspects of the project, positive and negative, must be expressed in terms of a common unit; i.e., there must be a "bottom line." The most convenient common unit is money. This means that all benefits and costs of a project should be measured in terms of their equivalent money value.

Cost and benefit analysis valuations should represent consumers or producers valuations as revealed by their actual behavior. The valuation of benefits and costs should reflect preferences revealed by choices which have been made. The most challenging part of CBA is finding past choices which reveal the tradeoffs and equivalencies in preferences.

Benefits are usually measured by market choices**.** When consumers make purchases at market prices they reveal that the things they buy are at least as beneficial to them as the money they relinquish. Consumers will increase their consumption of any commodity up to the point where the benefit of an additional unit (marginal benefit) is equal to the marginal cost to them of that unit, the market price. Therefore for any consumer buying some of a commodity, the marginal benefit is equal to the market price. The marginal benefit will decline with the amount consumed just as the market price has to decline to get consumers to consume a greater quantity of the commodity. The relationship between the market price and the quantity consumed is called the demand schedule. Thus the demand schedule provides the information about marginal benefit that is needed to place a money value on an increase in consumption.

Gross benefits of an increase in consumption are an area under the demand curve**.** The increase in benefits resulting from an increase in consumption is the sum of the marginal benefit times each incremental increase in consumption. As the incremental increases considered are taken as smaller and smaller the sum goes to the area under the marginal benefit curve. But the marginal benefit curve is the same as the demand curve so the increase in benefits is the area under the demand curve. As shown in Figure 1 the area is over the range from the lower limit of consumption before the increase to consumption after the increase.



When the increase in consumption is small compared to the total consumption the gross benefit is adequately approximated, as is shown in a welfare analysis, by the market value of the increased consumption; i.e., market price times the increase in consumption.

Cost Benefit analysis involves a particular study area. The impacts of a project are defined for a particular study area, be it a city, region, state, nation or the world. The nature of the study area is usually specified

by the organization sponsoring the analysis. Many effects of a project may "net out" over one study area but not over a smaller one. The specification of the study area may be arbitrary but it may significantly affect the conclusions of the analysis.

4.5 PARETO OPTIMALITY & THE HICKS-KALDOR COMPENSATION PRINCIPLE

After project benefits and costs have been identified, valued in market prices and entered in cash flow, you determine whether the project will be profitable and should be selected for implementation.

A. Pareto welfare improvement criterion

- is the standard measure employed in welfare economics
- to determine whether a change in resource allocation will result in people being better off
- the theoretical justification states

A Pareto improvement in welfare is said to occur if at least one person is better off and no one is made worse off by a given change in economic conditions.

If projects are evaluated with this criterion, very few, if any, would be approved because there will always be someone who is made worse off by the improvement of project such as tax payer who does not receive any benefit.

B. Hicks-Kaldor compensation principle

- To overcome the restrictive nature of pareto unanimity rule, the concept of a potential Pareto improvement or the compensation principle was developed by Hicks and Kaldor.
- Is central to the theoretical justification for cost benefit analysis in welfare economics.

Hicks- Kaldor selection criterion

- is the basic selection criterion applicable to financial and economic analysis
- the theoretical justification states that a project should not be undertaken unless the benefits outweigh its costs
- states that a given change in the allocation of resources will potentially improve welfare if those who gain could compensate those who lose, and still be better off themselves.
- provides the rationale for choosing projects whose benefits outweigh their costs, even if the people who gain from a project are not the same as those who pays for it.
- the excess of benefits over costs is called the project's net benefit.
- A crucial element of is that it is not necessary for the gainers from a project to actually compensate the losers, only for them to be able to do so if they wished and still remain better-off than if the project had not been implemented. Hence a project that meets the Hicks Kaldor hypothetical compensation criterion will not necessarily result in an actual paerto welfare improvement, only a potential improvement.
- can be criticized because of its failure to address the distributional impacts of projects.
- Total welfare will not necessarily be increased even if a project meets this criterion unless those who gain receive the same increase in their utility from an extra unit of income as those from the project.

TIME PREFERENCE AND THE MARGINAL RATE OF TIME PREFERENCE

Before the above criterion can be used to decide which projects should be selected, it is necessary to address the problem of the difference in the timing of a projects costs and benefits. If these are occur over

a number of years, they will not be directly comparable. How long will the project be yielding benefits and generating costs? What is the present value of the costs and benefits that accrue at different periods of time?

Every input item (cost item) and every output item (benefit item) must be weighed up using the same unit. If the total value of benefits is greater than the total value of costs, the project is said to be an efficient scheme. The process of providing a monetary value to cost and benefit items has to take account of one important factor: time.

Indeed, when assessing projects one has to be aware that after the initial investment for a project is made, the project starts, at some point, to yield a stream of benefits which last over a period of time. On the other hand, a stream of costs will be generated over a period of time in order to sustain the project. Since the value of the measure unit (i.e., money) varies with time, costs and benefits must be adjusted by applying a discount factor to their nominal values. What is discounting? The notion of discounting is better understood when one understands the related notion of compounding.

Compounding is asking: "what is the future worth of a known present amount?"
Example 1: Suppose you deposit 1000 Birr 5 years in your term deposit account. Assume the bank pays an interest rate of 10 percent a year. How much will be your investment at its maturity?

- The initial amount principal = 1000 birr
- The rate of interest = 10 percent
- The time period = 5 years

Compounding

Year	Principal	Interest earned	Terminal value
1	1000.00	100.00	1100.00
2	1100.00	110.00	1210.00
3	1210.00	121.00	1331.00
4	1331.00	133.10	1464.10
5	1464.10	146.41	1610.51

The terminal value at the end of the time period is 1610.51.

The Concept of compounding

$$F = P(1+r)^n$$

Where,

F = Future Value
P = Principal
R = Rate
N = the year

Discounting – Reverse of compounding

Discounting is asking: "What is the present worth of a known, future amount?"

$$P = \frac{F}{(1+r)^n}$$

Example 2: Now suppose that you want to have 1610.51 in hand five years from now. How much do you have to deposit today, assuming that the money you give up spending for the time period will earn interest at 10 percent a year?

- The terminal value = 1610.51
- The interest rate = 10 percent
- The time period = 5 years
- $1610.51 = PV\ (1+ 0.10)^5$
- PV= 1000

In example 1, 1000 birr is the present value of 1610.51 birr five years from now at 10 percent. If the interest rate were 5 percent, the PV of 1610.51, five years from now would be 1261.9 birr. If the time period were 10 years instead of 5 years, the PV of 1610.51 at 10 percent would be 620.9.

These manipulations show that

- the present value is always less than the future value
- the longer the time period, the lower the present value, and
- the higher the interest rate, the lower the present value.

DISCOUNT RATE

Since the Net Present Value (NPV), i.e., the present value of benefits net of costs for a given time horizon, is a major criteria of project acceptance, the desirability of a project depends crucially on the value of the discount rate which is used in the net present value calculations. The market rate of interest is not appropriate when analyzing public projects, because public projects are expected to provide benefits to the entire society. As such, the discount rate must reflect the cost of delayed consumption to the society.

Exercise

1. Suppose you have won a lottery prize of 1,000,000 birr. Will you prefer to receive the amount today or in a year from today? Explain the reasons of your choice.
2. Suppose r = 3%, how much will 1,000,000 be worth in 5 years?
3. Suppose r = 7%, how much do you have to sacrifice today to receive 1,000,000 in 21 years?

The following table shows benefits and costs for the Grain processing project (in birr). Discount values for the stream of costs and benefits on the year basis using discount rate of 7%.

Year	Costs	Benefits
0	14000	
1	2800	10000
2	2800	10000
3	3100	8000
4	3100	8000

4.6 APPRAISAL/EVALUATION CRITERIA

Measures of project worth

- A project is worth undertaking from a particular viewpoint
- Concerned with the question as to whether the benefits are greater than the costs

Decision Criteria for Projects

a) With and without the project

The Analysis of a project should involve a with versus without comparison

The impact of a project is the difference between what the situation in the study area would be with and without the project. This that when a project is being evaluated the analysis must estimate not only what the situation would be with the project but also what it would be without the project.

Value of a project = compare with the project and without the project situation

Then measure the difference between the two

The question is what would have happened without the project?

b) Cost-benefit analysis

If the discounted present value of the benefits exceeds the discounted present value of the costs then the project is worthwhile. This is equivalent to the condition that the net benefit must be positive. Another equivalent condition is that the ratio of the present value of the benefits to the present value of the costs must be greater than one.

If there are more than one mutually exclusive projects that have positive net present value then there has to be further analysis. From the set of mutually exclusive projects the one that should be selected is the one with the highest net present value.

If the funds required to carry out all of the projects with positive net present value are less than the funds available this means the discount rate used in computing the present values is too low and does not reflect the true cost of capital. The present values must be recomputed using a higher discount rate. It may take some trial and error to find a discount rate such that the funds required for the projects with a positive net present value is no more than the funds available. Sometimes as an alternative to this procedure people try to select the best projects on the basis of some measure of goodness such as the internal rate of return or the benefit/cost ratio. This is not valid for several reasons.

The magnitude of the ratio of benefits to costs is to a degree arbitrary because some costs such as operating costs may be deducted from benefits and thus not be included in the cost figure. This is called netting out of operating costs. This netting out may be done for some projects and not for others. This manipulation of the benefits and costs will not affect the net benefits but it may change the benefit/cost ratio. However it will not raise the benefit cost ratio which is less than one to above one.

The project resource statement is used to determine the intrinsic worth of the project in terms of its utilization and creation of resources. There are a number of different methods of measuring project worth. The important ones are Pay Back Method, Net Present Value Method, Benefit Cost Ratio Method and the Internal Rate of Return**.**

Two types:-

- Discounting techniques
- Non discounting techniques

Discounted Measures

A. Net Present value (NPV)
B. Internal rate of return (IRR)
C. Benefit-Cost ratio

DISCOUNTED PROJECT ASSESSMENT CRITERIA

A. THE NET PRESENT VALUE (NPV)

- Simplest measure
- Measures aggregate surplus generated by the project
- PV of Benefit – PV of Costs

The principle of CBA is to weigh up the costs and benefits of any project. Ideally these costs (C,) and benefits (B) are expressed in money terms. Then, with costs and benefits distributed over time (t) and added up to some time horizon (T), we can obtain an expression for net benefits:

$$NB = \sum_{t=0}^{T} (Bt - Ct)$$

These benefits and costs must then be discounted using the discount rate. The Net Present Value (NPV) is:

$$NPV = \sum_{t=0}^{T} (Bt - Ct)\ 1/\ (1+r)^{t}$$

Example Consider a project which has the following cash flow stream

Year	Cash flow
0	1000000
1	200000
2	200000
3	300000
4	300000
5	350000

The cost of capital, r, for the firm is 10 percent. The net present value of the proposal is

$$NPV = \frac{200000}{(1.10)^1} + \frac{200{,}000}{(1.10)^2} + \frac{300000}{(1.10)^3} + \frac{300000}{(1.10)^4} + \frac{350000}{(1.10)^5}$$

NPV = -5273

Average cost of capital (K)

$$K = \sum_{i=1}^{n} W_i K_i$$

Where,

K = average cost of capital

W_i = proportion of weight of the i^{th} source of finance

K_i = cost of i^{th} source of finance

Two types of decisions can be made with the NPV rule:

a. Accept-Reject Decisions

When the project analyst is dealing with a single project, the decision to be made is whether the project should be accepted or rejected. The decision rule is:

Accept if NPV > 0

Reject if NPV < 0

b. Ranking decision

If there are several projects or several alternatives of the same project, the decision to be made consists of ranking the projects with positive NPV, because of financial resource limitations. The NPV rule is not recommended for this kind of decisions because it can lead to wrong decisions.

B. THE INTERNAL RATE OF RETURN (IRR)

If the NPV rule, the NPV cannot be calculated without a discount rate, r, which is independently selected. The IRR rule consists of computing an internal rate of return (IRR) of decisions and comparing with the social discount rate.

The IRR of a project is the rate which makes its NPV equal to zero.

$$NPV = \sum_{t=0}^{T} (Bt - Ct)\ 1/\ (1+r)^t = 0$$

The value of r which solves this equation is the IRR.

The decision rule is

- accept the project if IRR > r
- reject the project if IRR < r

where r is a predetermined discount rate.

Example

Year	Cash flow
0	100000
1	30000
2	30000
3	40000
4	45000

Calculate IRR

$$100000 = \frac{30000}{(1+r)^1} + \frac{30000}{(1+r)^2} + \frac{40000}{(1+r)^3} + \frac{45000}{(1+r)^4}$$

The calculation of IRR involves a process of trial and error.
Try different values of r till you find the right hand sided is equal to 100000.
Lets begin with try r = 15 percent
This makes the right side equal to 100802
This value is slightly higher than our target value, 100000.
So increase the value of r = 16, it will result 98,641
Since this value is now less than 100000, we conclude that the value of r lies between 15 percent and 16 percent.

Use the following procedure

i. Determine the NPV of the two closest rates of return
   NPV/15% - 802
   NPV/16%- 1359
ii. Find the sum of the absolute values of NPV obtained in step 1
   802+ 1359 = 2161
iii. Calculate the ratio of the NPV of the smaller discount rate to the sum obtained in step 2.
   802/2161= 0.37
iv. Add the number obtained in step 3 to the smallest discount rate
   15+ 0.37 = 15.37 percent

C. BENEFIT- COST (B/C) RATIO

The benefit-cost ratio is calculated by dividing the sum of discounted benefits by the sum of discounted costs. The BCR has a major shortcoming. It tends to favor small projects over larger ones. In spite of its shortcomings, the BCR rule remains, however, the best rule for ranking decisions.

There are two ways of defining the concept,

a) BCR = PVB/I, PVB - present values of benefit, I-initial investment outlay

- Ratio of the PV of benefits to the PV of costs
- Measure of efficiency

$$\text{B/C Ratio} = \frac{\text{PVB}}{\text{PVC}}$$

Decision criteria

B/C Ratio > 1 Then NPV +ve Accept
B/C Ratio < 1 Then NPV -ve Reject
B/C Ratio = 1 Then NPV 0 Marginal

Interpretation of Results

NPV -Accept all projects with a positive NPV when discounted at an appropriate rate of discount

IRR Accept all projects with an IRR above the test rate of discount b/c Accept all projects with a ratio above 1.00 when discounted at a rate reflecting the opportunity cost of capital.

b) NBCR - Net benefit cost ratio

$$\frac{NPV}{I} = \frac{PVB-I}{I} = \frac{PVB}{I} - 1 = BCR - 1$$

Decision rule

NBCR > 0 accept
NBCR < 0 reject
NBCR = 0 indifference

Attention is drawn to the following points

- For all three methods, a means of estimating the appropriate rate of discount is required
- The IRR method is least dependent on the selection of an appropriate rate of discount
- If the decision required is not the simple acceptance or rejection of a project proposal but the ranking of alternatives, further considerations come into play and the NPV should be used as the decision making criteria

Advantages and Disadvantages of measures of project worth when applied to independent projects

NPV

Advantages

- Gives the correct choice of projects
- Cope with both investment and recurrent expenditures
- Gives a measure of the absolute surplus derived from the project

Disadvantages

- The discount rate needs to be obtained externally
- Fails to indicate which project uses capital more efficiently

IRR

Advantages

- Easily understood
- Discount rate is determined internally
- Rank projects on the basis of most efficient use of capital

Disadvantages

- Omits a consideration of the size of an investment
- Opportunity cost of capital needs to be specified
- Tedious to calculate

NON - DISCOUNTED MEASURES OF PROJECT WORTH

Projects have to be appraised by multiple criteria.

Pay back method

Is also called the payoff period is one of the simplest and apparently one of the most frequently used methods of measuring the economic value of an investment.

The result of the pay back method of project worth is the number of years that it takes for the value of the initial capital investment to be recovered from the net benefit flow as indicated in the basic project statement.

The pay back method gives a single indicator for decision making i.e., number of years which can be set against a predetermined norm or against that of other competing projects.
Number of years required to recover the original investment cost.

e.g. if a project requires an original outlay of Birr 300 and is expected to produce a stream of cash proceeds of Birr 100 per year for 5 years, the payback period would be 300/100 = 3 years

4.7 APPROACHES AND TECHNIQUES FOR SCBA

Towards the end of the sixties and in the early seventies two principal approaches for SCBA emerged:

- UNIDO approach and
- The Little - Mirrless approach

UNIDO APPROACH

The UNIDO method of project appraisal involves five stages:

1. Calculation of the financial profitability of the project measured at market prices
2. Obtaining the net benefit of the project on savings and investment
3. Adjustments for the impact of the project on savings and investment
4. Adjustments for the impact of the project on income distribution
5. Adjustments for the impact of the project on merit goods and demerits goods whose social values differ from their economic values.

STEP 1. CALCULATION OF THE FINANCIAL PROFITABILITY OF THE PROJECT MEASURED AT MARKET PRICES

The measurement of financial profitability of the project in the first stage is similar to the financial evaluation discussed at greater length in the previous section. So skipping the first stage, we will discuss the remaining stages here.

STEP 2. OBTAINING THE NET ECONOMIC BENEFIT BASED ON SHADOW PRICING

This step is concerned with the determination of the net benefit of the project in terms of economic (efficiency) prices, also referred to as shadow prices.

2.1 Shadow pricing (Basic issues)

Before we deal with shadow pricing of specific resources, certain basic concepts and issues must be discussed:

2.1.1 Choice of Numeraire

One of the important aspects of shadow pricing is the determination of the numeraire, the unit of account in which the value of inputs or outputs is expressed.

To define the numeraire, the following questions have to be answered

- What unit of currency, domestic or foreign, should be used to express benefits and costs?
- Should costs and benefits be measured in current values or constant values?
- With reference to which point-present or future –should cost and benefits be evaluated?

- What use- consumption or investment- will be made of the income from the project?
- Should the income of the project be measured in terms of consumption or investment?
- With reference to which group should the income of the project be measured?

The specification of the UNIDO numeraire in terms of the above questions is "Net present consumption in the hands of people at the base level of consumption in the private sector in terms of constant price in domestic accounting birr."

2.1.2 Concept of tradability

A key issue in shadow pricing is whether the good is tradeable or not. Tradable goods & services that is potentially importable or exportable actually.

For a good that is tradable, the international price (border price) is a measure of its opportunity cost to the country. Therefore the shadow price is the border price, translated in domestic currency at market exchange rate.

Why? For a tradeable good, it is possible to substitute import for domestic production and vice versa; similarly it is possible to substitute export for domestic consumption and vice versa. Hence the international price, also referred to as the border price, represents the real value of the good in terms of economic efficiency.

2.1.3 Sources of shadow pricing

The UNIDO approach suggests three sources of shadow pricing, depending on the impact of the project on national economy. A project, as it uses and produces resources, may for any given input or output

- Increase or decrease the total consumption in the economy
- Decrease or increase production in the economy
- Decrease imports or increase imports and
- Increase exports or decrease exports

Therefore,

- If the impact of the project is on consumption in the economy, the basis of shadow pricing is consumer WTP
- If the impact of the project is on production in the economy, the basis of shadow pricing is the cost of production
- If the impact of the project is on international trade- increase in exports, decrease in imports, increase in imports, increase in imports, or decrease in exports-the basis of shadow pricing is the foreign exchange value.

2.1.4 Taxes

The general guidelines in the UNIDO approach with respect to taxes are as follows.

- When a project results in diversion of non-tradeable inputs which are fixed in supply from other producers or addition to non-traded consumer goods, taxes should be included
- When a project augments domestic production by other producers, taxes should be excluded
- For fully tradeable goods, taxes should be ignored

2.1.5 Consumers willingness to pay (WTP)

As noted above if the impact of the project is on consumption in the economy, the basis of shadow pricing is consumers WTP. How is this measured?

Example

DD' represents the demand schedule
SS' represents the supply schedule
E the equilibrium point
OQ the quantity bought and
OP the price per unit

Looking at the demand schedule we find that the consumer who buys the first unit of is willing to pay OD for that unit and the consumer who buys the last unit is willingness to pay OP for that unit.

The consumer WTP for various units is indicated by the schedule DE.
So the total WTP by consumers who buy the product is measured by the area ODEQ.
The price paid by them is only OPEQ
The difference between ODEQ and OPEQ, namely DEP, is referred to as the consumer surplus.

2.2 Shadow pricing of specific resources (inputs & outputs)

2.2.1 Tradable inputs and outputs

From consumption point of view
1) Increase in consumption implies increase in imports or decrease in exports
From production point of view
1) Increase in production leads to exports increase or decrease in imports
The shadow price is the border price, adjusted/translated in domestic currency at market exchange rate.

2.2.2 Non-tradable inputs and outputs

Non- tradeable goods and services are goods and services that do not fall into the international trade actually or potentially.

1. If CIF > Cost of domestic production => It implies cheaper locally
2. If FOB < Cost of domestic production => the good to be exported is too expensive

Valuation on the output side

1. If the impact of the project is to increase consumption the measure of the value will be the consumer WTP
2. If the impact of the project is to increase production the measure is the cost of production.

Valuation on the input side

1. If impact is to reduce the resources available for other firms measure will be the willingness of the others users to pay for the same resource
2. If the impact is to meet additional inputs (requirements) from own production, measure of value would be the cost of production
3. If the impact is to substitute other production of the same non-tradeable, the measure of value is the savings in the cost of production. (Value added)

Labor inputs

When a project hires labor

1. When a project takes labor away from other employments, the shadow price of labor is equal to what other users of labor are willing to pay.
2. The shadow price associated with inducing additional production of workers consists of the marginal product of labor in previous employment plus certain other costs.

This may also involve the import of resources –the wages they command plus premium remittance

3. This may induce the production of new workers –need to consider MPL (for unemployed MPL=0 reservation wage. Governments NGOS what wage level is acceptable to them; consider leisure time spent; increased consumption of food plus impact on savings in the economy.=> leading to shadow wage rate of unskilled labor.

2.2.3 Externalities

Since SCBA seeks to consider all costs and benefits, to whomsoever they may accrue, external effects also need to be taken into account. The valuation of external effects is rather difficult because they are often intangible in nature and there is no market price which can be used as starting point.

2.2.4 Capital inputs

The opportunity cost of capital depends on how the capital required for the product is generated. To the extent that it comes from additional savings, its opportunity cost is measured by the consumption rate of interest; to the extent that it comes from the denial of capital to alternative projects. In practice, the consumption rate of interest may be used as the discount rate.

Capital assets are purchased (tradable & non-tradable) follow the same procedure opportunity cost of capital

First rate of return by denying other projects

Consumption rate of investment from own savings-sacrifices of present consumption –data requirement is immense

2.2.5 Foreign exchange

The UNIDO method uses domestic currency as the numeraire. So the foreign exchange impact of the project must be identified and valued. The UNIDO method determines the shadow price of foreign exchange on the basis of marginal social value as revealed by the consumer willingness to pay for the goods that are allowed to be imported at the margin.

The shadow price of a foreign currency

E.g. commodities 1, 2, 3 & 4 are imported at margins, where

F1=0.3, F2=0.4, F3=0.2, F4=0.1

Q1=0.6, Q2=1.5, Q3=0.25, Q4=3

P1=16, P2=8, P3=40, P4=5

What is the shadow price of foreign exchange?

Stage 3 Measurement of the impact of distribution

Stage 3 and 4 of the UNIDO method are concerned with measuring the value of a project in terms of its contribution to savings and income redistribution. To facilitate such assessments, we must first measure the income gained or lost by individual groups within the society.

Groups

For income distribution analysis, the society may be divided into various groups. The UNIDO approach seeks to identify income gains and losses by the following

- Project
- Other private business
- Government
- Workers
- Consumers
- External sector

Measure of gain and loss

The gain or the loss to an individual group within the society as a result of the project is equal to the difference between the shadow price and the market price of each input or output in the case of physical resources or the difference between the price paid and the value received in the case of financial transactions.

Stage 4 Savings impacts & its value

LDC are faced with shortage of capital savings< consumption

4.1 Impact on savings

Formula

e.g.1. As a result of a project the income gained by the two groups is 100,000 & 500,000, MPS1=0.05, MPS2=0.1. What is the savings impact of the project?

4.2 Value of savings

How do you arrive at shadow price of savings?

1) the social value of one birr of savings the present value of a stream of additional consumption when this 1 birr is invested. It is a function of several factors
   - Productivity of capital
   - Social discount rate which reflects the social capital
   - Reinvestment rate of additional income

Formula

e.g. 2 let r=0.12, a=0.3, k=0.1 what is the shadow price of investment or savings (social value)

e.g. 3 What is the adjusted impact of savings for previous example 1 based on result of e.g. 2

Step 5 Income distribution impact

a) In the case of physical resources- gain or loss of to an individual within the society as the result of the project is equal to shadow price-market price

b) In the case of financial transactions

Shadow price=actual prices paid-the price they are WT receive

e.g. 4 Farmer in a certain area uses 1 million units of electricity generated by hydroelectric power. The befits derived by the farmers as measured by their WTP is 0.4 million birr. The tariff paid to electricity corporation is 0.25 million. What is the gain enjoyed by the farmers?

e.g. 5 A mining project requires 1,000 labourers. These are WT receive a wage rate of 4birr per day. The wage rate paid to the workers is however 10 birr per day. What is the gain of these workers?

Step 6. Adjustment for merit and demerit goods

B.LITTLE AND MIRLEES METHOD (L-M METHOD)

These are the two main theoretical approaches to Social Cost Benefit Analysis. Despite considerable similarities there are certain differences between the two approaches.

a. The UNIDO approach measures costs and benefits in terms of domestic prices whereas L-M approach measures costs and benefits in terms of international prices also referred to as border prices

b. The UNIDO approach measures costs and benefits in terms of consumption whereas the L-M approach measures costs and benefits in terms of uncommitted social income.

c. The stage-by-stage analysis recommended by the UNIDO approach focuses on efficency, savings, and redistribution considerations in different stages. The L-M approach however tends to view these considerations together

Conversion factors and the standard conversion factor:

The general rule for deriving shadow prices is to apply conversion factors to market prices. The conversion factor (CF) is

$$CF = \frac{\text{Shadow price}}{\text{Market price}}$$

If the conversion factor and the market price are known, the shadow price can be easily computed. Ideally, conversion factors for each category of goods and services or for each sector of the economy (sectoral conversion factors) should be available to the project analyst. Unfortunately, in most of the developing countries, project analysts have to use a Standard Conversion Factor (SCF) because the consumption of individual conversion factors (and even that of sectoral conversion factors) requires a great deal of data.

The SCF can be calculated as follows:

$$SCF = \frac{\text{Border price of value of all imports, without taxes}}{\text{Value of all imports plus all tariffs \& taxes on imports minus subsidies}}$$

4.8 RISK AND SENSITIVITY ANALYSIS

'Risk' is defined as the chance of things happening that could have an impact on the project, on the outcomes it achieves, or on the objectives of the various functions it undertakes. Risk is measured in terms of likelihood and consequence/s.

Risk acceptance: An informed decision to accept the consequence/s and likelihood of a particular risk.

Risk analysis: A systematic use of available information to determine how often specified events may occur and the magnitude of their consequences.

Risk assessment: The overall process of identification, analysis and evaluation of risk/s.

Risk avoidance: An informed decision not to become involved in a risk situation.

Risk evaluation: The process used to determine risk management priorities by comparing the level of risk against controllability or other criteria.

Risk identification: The process of determining what can happen, how it could occur, and why it is a risk.

Risk management: The systematic process of assessing and then dealing with risk in a way that effectively manages potential opportunities and adverse effects. The process entails consideration of the context, followed by identification, analysis, evaluation, and treatment of risks. It is an iterative process that also involves monitoring and review, and can usefully encompass a dialogue with stakeholders along the way.

Risk transfer: Shift some or all of responsibility for treating risk, and the burden for any loss, to another party.

Risk treatment: Selection and implementation of appropriate controls and options for dealing with risk.

Risk arises out of uncertainty. If you are deciding on a course of action, your need to manage risk arises out of this uncertainty and therefore the two elements of risk you need to consider are:

- What is the **likelihood** of something happening which you may or may not want to happen?
- What are the likely **consequences** if any one or all of the things that could happen do eventuate?

Risks can arise from both internal and external sources. They could include:

- adverse change in economic factors such as exchange rates;
- incorrect assumptions regarding project logic or sustainability considerations;
- client dissatisfaction or unfavourable publicity;
- a threat to physical safety or breach of security;
- mismanagement;
- failure of the partner government to meet its contributions to the project;
- failure of equipment;
- a breach of legal or contractual responsibility; and
- fraud and deficiencies in financial controls and reporting.

While it is not possible to have a totally risk-free environment, it may be possible to avoid, reduce, eliminate or transfer some of the risks. In fact, if the risks to successful outcomes identified at design are too high and cannot be adequately treated, a project might not proceed. This emphasizes the importance of initial risk assessment at the design stage.

Project outcomes necessarily depend on uncertain future events. The basic elements in the cost and benefit streams of projects-such as input and output prices and quantities seldom represent certain or almost certain events in the sense that they can be reasonably represented by single values. Uncertainty and risk are present whenever a project has more than one possible outcome. The measurement of economic costs therefore involves explicit or implicit probability judgments. We want to assess the influence of changes in the underlying variables on the NPV or IRR. E.g. input price, cost of capital, project life.etc). This section presents various tools for assessing risk; sensitivity analysis, switching values, and Scenario analysis.

4.8.1 SENSITIVITY ANALYSIS

Sensitivity analysis and project design

- Improving understanding of the nature and workings of the project, by seeing more clearly how change in one thing affects another

- Increasing expected NPV, by allowing the testing of variations in the design of the project
- Reducing risk by suggesting areas where particular precautions should be taken
- Indicating areas needing more investigation to improve knowledge of the values likely to taken by significant variables.

Project analysis involves the use of:-

- Estimate of required inputs to a project and their costs
- Forecasts: Are necessary of likely levels of future demand and outputs from a project
- Assumptions: Are embodied regarding the technology and standards to be adopted

All figures which enter a project resource flow are in fact forecasts based on a mixture of past data and assumptions about the future:

Sources of potential error:

- Basic data may be defective
- Method of making forecast may be inappropriate
- Assumptions about the future conditions may be unrealistic
- Future is inherently unpredictable

Sensitivity analysis - Key variables to test

- Price (s) of main outputs
- Price (s) of main inputs
- Volume of demand
- Level of capacity attained during the build-up period; &
- to be sustained in the long run
- The cost of investment
- The duration of the investment period
- The discount rate

Sensitivity analysis contributes to risk assessment by identifying the variables that most influence a project's net benefits and quantifying the extent of their influence. This kind of analysis consists of testing the effects of variations in selected cost and benefit variables on the project's IRR or NPV. Sensitivity analysis may help identify weak design options and pinpoint the need for obtaining additional information on some variables. It may also help convey some idea of project risk.

Selection of Variables and Depth of Analysis

When conducting sensitivity analysis the analyst should normally consider three specific areas.

a. **Aggregate costs and benefits.-**Simple sensitivity analysis of the effects of variations in total project costs and total project benefits often helps to indicate the joint influence of underlying variables. Except in special cases, however this type of aggregate analysis alone does not assist judgments on the range of likely variation or on the specific measures that might reduce project risks.
b. **Critical cost and benefit items-** Sensitivity tests are usually most effective if costs and benefits are disaggregated in some detail. While the use of sub- aggregates like investment costs, operating costs etc., can be helpful, sensitivity analysis is best done in respect of individual parameters that are most critical to the project. On the benefit side detailed sensitivity analysis typically includes such parameters as output prices or tariff levels, unit cost saving and expected rate of growth in demand for

project outputs. On the cost side such analysis typically involves productivity coefficients and prices of major inputs. Shadow prices used in the economic analysis should normally be examined in sensitivity analysis.

c. **The effects of delays-** Several types of delays can occur in projects, delays in starting the project, delays during the construction phase, or delays in reaching full capacity utilization (Industrial projects) or in reaching full development(agricultural projects).Analysts should include the relevant delay factors in sensitivity tests.

4.8.2 SWITCHING VALUES

The preferred approach to sensitivity analysis uses switching values. The switching value of a variable is that value at which the project's NPV becomes zero or the IRR equals the discount rate. We usually present switching values in terms of the percentage change in the value of variable needed to turn the project's NPV equal to zero. We may use switching values to identify which variables have the greatest effect on project outcomes. We may also present switching values of the relatively more important variables in order of declining sensitivity.

Presentation of switching values

Variable	Switching value (percent)
Yield per hectare	-25
Construction costs	40
Irrigated area per pump	-50
Shadow exchange rate	60

In this example, the most critical variable is yield. A decrease of more than 25% in the posited expected yield will make the NPV negative if other values remain as expected. If experience suggests that yield can easily be that much less than expected, perhaps because of poor quality extension services then the project is risky, unless actions can be taken to prevent such a shortfall.

The project's worth is also sensitive to construction costs; however, a 40% increase in these costs in real terms may be considered quite unlikely if, for example, the state of engineering for the project is advanced. The table also indicates that the project's NPV is not, by itself, sensitive to the shadow exchange rate used and, therefore, fairly crude estimates of that parameter might suffice in this particular case. Analysts should distinguish between factors that are completely beyond our control, such as rainfall and would market prices, and factors that are completely beyond our control, such as rain fall and world market prices, and factors that can be fully or partially controlled by project managers, such as implementation schedules and quality of extension services. Switching values of the shadow exchange rate of other major shadow prices should always be shown explicitly.

Sensitivity analysis has three major limitations. Firstly it does not take into account the probabilities of occurrence of events. Secondly it does not take in to account the correlations among the variables. Thirdly the practice of varying the values of sensitive variables by standard percentages does not necessarily bear any relation to the observed or likely variability of the underlying variables.

4.8.3 SCENARIO ANALYSIS

In sensitivity analysis typically one variable is varied at a time. If variables are interrelated as they are most likely to be, it will be helpful to look at some plausible scenarios, each scenario representing a consistent combination of variables. The steps involved in the scenario analysis are as follows:

1. Select the factor around which scenarios will be built. The factor chosen must be the largest source of uncertainty for the success of the project. It may be the state of the economy or interest rate or technological development or response of the market
2. Estimate the values of each of the variables in investment analysis (Investment outlay, revenues, costs, project life and so on) for each scenario.
3. Calculate the net present value and/or internal rate of return under each scenario.

Scenario analysis may be regarded as an improvement over sensitivity analysis because it considers variations in several variables together. However scenario analysis has its own limitations.

1. It is based on the assumption that there are few well delineated scenarios. This may not be true in many cases. It can be anywhere on the continuum between the extremes. When a continuum is converted in to three discrete states some information is lost.
2. Scenario analysis expands the concept of estimating the expected values. Thus in a case where there are 10 inputs the analyst has to estimate 30 expected values to do the scenario analysis.

The other tools used are breakeven analysis and Monte Carlo simulation and risk analysis. Monte Carlo analysis takes into account probabilities and correlations and identifies the likely impact of each variable on project outcomes. It can also take into account delays and other events that may impinge on project outcomes. More important it helps to assess the expected net present value of the project, the probability distribution of the outcome, and the probability of the project failure. By ranking the variables in terms of their impact on project outcomes and probability of occurrence, Monte Carlo simulation helps analysts design better projects and identify the variables worth tracking during the project performance. Until recently Monte Carlo simulations were time consuming, expensive, and difficult. With the advent of personal computers and readily available risk analysis programs, Monte Carlo techniques are as convenient to use as spread sheets.

4.9 COST EFFECTIVENESS CRITERIA AND ANALYSIS

Used to answer the question "Which project alternative can produce a set of level of benefits (or expected project results) for the cheapest cost?"

Steps in cost effectiveness analysis

- Definition of the scope and target population of the project
- Determination of the benefits wanted from the project
- Identification of alternative methods to give required benefits
- Calculation of the monetary costs of alternative projects
- Calculation of either the present value of the cost streams from discounting or the annual equivalent value
- Selection of the project alternative according to least cost and technical, environmental, social and sustainability factors

Cost-effectiveness analysis is widely used for health, education and other human resources development programs where it is not feasible to assign a monetary value to all the benefits involved and consequently where cost benefit analysis is not practical. If benefits are measured in some single non-monetary units such as no. of vaccines delivered, number of deaths averted etc. the analysis is called cost effectiveness. If the benefit consists of improvements in several dimensions it is a technique used to reduce the multidimensional measures of benefits to a single dimension. e.g. Healthy years of life gained (HYLGs). HYLGs combine two dimensions of benefits. (a) Years of healthy life saved because premature deaths are avoided as a result of an intervention and (b) healthy years of life saved because people avoid illness as a result of the intervention. HYLGs assign equal weights to both dimensions and therefore the combined measure is the sum of years saved regardless the cause. This is known as weighted cost effectiveness.

1. Identifying and Measuring Costs:
Identify all costs whether or not they will be charged to the project. Estimate the accounting cost. This is the actual amount paid for the good or service (salaries plus benefits for staff, annual rent or purchase price for land and the like.).Where costs are paid over a period of years, prepare a separate cost stream for each year. The costs in future in years should be discounted in order to compute the net present value of the costs. Indicate who actually pays each cost. A project may appear to have a high cost effectiveness ratio if many of the costs are being paid by other agencies.

2. Identifying and measuring outputs
It is important to keep in mind the distinction between outputs which are tangible products of a project (school buildings, number of students receiving literacy classes etc.) and benefits which are the increases in welfare (living standards) the project is intended to achieve. In practice most cost effectiveness analysis uses only one outcome indicator. If the wrong indicator is chosen the results could obviously be misleading. Where the number of indicators is small it may be better to present them without any weights. For example $64000 spent per death averted and 400 nonfatal flu cases averted. When weights are assigned to different indicators, the weighted scores can be combined to form a more complex index.

3. Computing the Cost-Effectiveness Ratio
The cost effectiveness ratio (R) is defined as R=C/U, where C=the average cost per case and U=the average number of units.

Cost-effective analysis can also be used to select the best version of a program. First it can help determine the optimal intensiveness of the program .Secondly cost effectiveness analysis may be used to select the alternative that produces the required output at the lowest cost. Thirdly it can be used to compare the costs of producing different levels of benefit or output.

Applying CEA to social programs
CEA is in principle well suited to the evaluation of social development programs particularly since benefits need not be monetized. However a number of methodological issues must be addressed in this case as well. First it is important to ensure that the appropriate indicator is selected. Second care must be taken to ensure that all costs have been identified and quantified. Among the costs that can be overlooked are goods and services provided free or below cost ; time and money spent by clients getting to, the opportunity cost of the time spent by the participants and social costs such as environmental deterioration ,health hazards, family dislocation and community conflict. Thirdly the output indicators from different projects must be comparable. A fourth question is how to evaluate a project that has a number of outcomes. Should only the most important outcome be assessed? Should a separate analysis be conducted for each major outcome? Or should weights be assigned to each outcome so that a composite score can be obtained? Fifth a number of issues must be addressed relating to the scalability of outputs. Sixth, a basic question to consider is how to interpret a cost effectiveness ratio.

CHAPTER FIVE
PROJECT PLANNING FOR IMPLEMENTATION

Planning refers to the process of envisaging what will be done and what will happen, as well as determining what needs to be done when a specific thing happens

Planning is a means of:-

- Organizing the work on a project
- Deciding who does what, when, how & for how much
- Determining the resource required
- Allocating these resources on time-phased basis
- Allocating and defining responsibility
- Communicating between all those involved on a project
- Coordinating all the activities and people involved
- Controlling progress
- Estimate time to completion
- Handling unexpected events and changes

Two outputs from the planning exercise

- Detailed work plan which forms the basis for project execution
- Financial Budget which facilitates the procurement, disbursement and control of funds required for the project

A work plan is a document developed by the manager and staff, which lists all planned activities, the date on which they will occur or by which they will be accomplished, the resources they will require, and the person who is responsible for efficient and effective program implementation and should be used regularly and consistently as a monitoring tool at all levels

Managing Project Implementation

- Translating project plans/studies into actual investment/implementation and operation is one of the most critical and difficult task.

IMPLEMENTATION can be described as

- a project stage which covers the actual development or construction of the project up to the point at which it becomes fully operational (including monitoring).
- it is a stage where the earlier preparations, designs, plans, analyses, assumptions, etc. are tested in harsh reality.
- It has to be noted that whatever project preparations are made, activities hardly go strictly according to the plan.

Planning the implementation stage of a project explicitly is one of the important activity in pre-project implementation. The better and more realistic a project implementation plan is, the more likely it is that the plan can be carried out effectively and expected outputs or benefits are realized.

HOW DO WE PLAN THE IMPLEMENTATION STAGE?

1. SELECTING AND/OR ESTABLISHING PROJECT IMPLEMENTATION UNIT (PIU)

A mismatch between project design and objectives and implementation capacity of responsible agency/institutions (public sector) →poor implementation performance→… to avoid/minimize the implementation problem it is recommended to establish a **PIU**

A **PIU** can be established as:

a) **An integral part of the responsible agency** which operate under the organization general rules (for small investment projects)
   Problem: bureaucratic up and downs.

b) **A separate project implementation** unit (for multi-component, complex and top priority projects) *(e.g Project like Gilgel Gibe)* Which operate under special rules and independent
   - In its administrative procedures
   - In use of funds
   - Staffing regulations, etc**.**

   Problem: - attract the best staff of the agency
   - Relatively costly**.**

2. DEVELOP MEASURABLE OBJECTIVES FOR IMPLEMENTATION

In the main project document (at the preparation stage) list of activities and tasks for each key result areas may not be expressed in measurable terms. Hence the key result areas of the project must be identified and listed more accurately, and Performance standards/ performance indicators/ performance criteria need to be developed for each key result area.

How do we develop performance indicators?

- Goal Analysis ----- it is a powerful technique for defining intangible (immeasurable) activities.
- Once we complete the goal analysis it would be possible to plan how project activities take shape in terms of:
- Timing
  - Budgeting
  - Personnel and
  - Other resource requirements, or

We can establish at the outset:

- As who will do what
- When & with whom
- What types of inputs needed
- What outputs expected and
- A workable schedule, etc of the project.

3. PLANNING IMPLEMENTATION

In order to complete the project

- On time
- within specified budget and
- quality standard all the activities must be systematically organized and planned.

Hence before getting started actual implementation we have to provide answers to the following questions.

- What are the goals and objectives of the project?
- What outputs are expected from the project?/What will the product or service be?
- What activities will be expected to be accomplished &
- What resources are required for each activity?
- Who are the principal participants in the project?
- When must the project be started and finished?
- Where will the project be actually executed?
- How will it be managed/monitored & evaluated?

For a project which do not have adequately prepared framework (detail components to be completed) an initial task for implementation planning would be drafting of a framework which is referred as the Work Break-Down Structure (WBS) of the project.

WBS is;

- a detailed listing of the deliverables (outputs) & activities (tasks) for completing the project.
- is a top-down or broad to specific hierarchical outcome of the work to perform.
- the breaking down of the project into management components & sub-components.

Benefits of Developing WBS are;

- It enforces the project manager, team members, and clients to delineate the steps required to undertake the project and deliver the service.
- It helps clarify ambiguities, bring out assumptions, narrow the scope of the project and raise critical issues early on through dialogue.
- To lay groundwork for developing an effective schedule and good budgetary plans.
- To hold people accountable for completing their tasks. With a well-defined WBS, a task can be assigned to a specific individual/group, who is then responsible for its completion. Hence people cannot hide under the "cover of broadness" of work.

In general the WBS can be used

- For setting project organization, including system of M&E.
- For identifying activities that are individually and/or collectively carried out, and
- To establish implementation schedule.

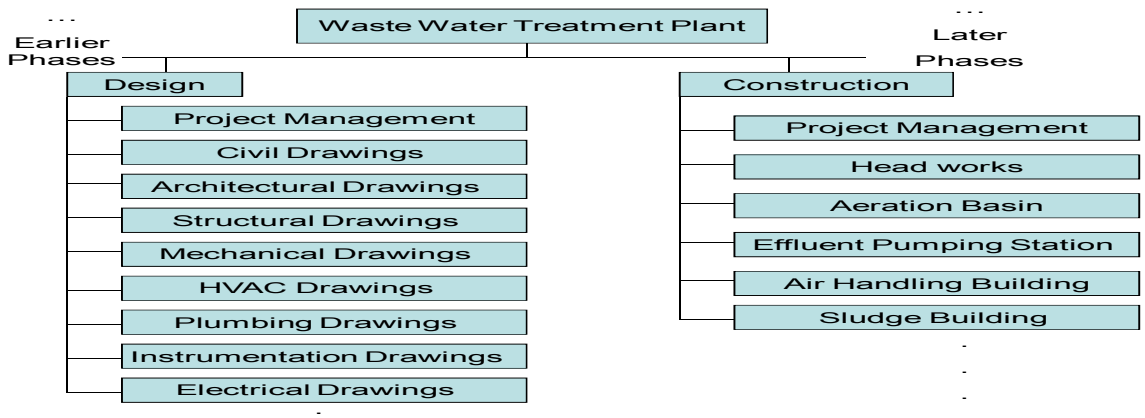
Once these factors have been determined, managers have a firm basis for establishing an implementation schedule. Whatever concentration is made on financial, economic, and technical feasibility studies, projects inadequately managed during implementation continue to fail or be expensively delayed**.**

Challenges in developing WBS are;

- It takes too much time. A large WBS (one that identifies several thousand activities) can take several weeks to develop.
- It requires effort and brainpower. More people must provide input and then approve the portion they are responsible to perform.
- It requires continual refinement. The first iteration is rarely right and as the project changes, so does the WBS.

Following the WBS indicate of each individual activity;

1. The sequence
2. The resources required
3. The estimated time, and
4. The responsible person/group for undertaking it.



4. ESTIMATING WORK-TIMES

- Time required for each activities/tasks.
- Gives an idea on the level of effort required to complete the project.
- Help to produce realistic activity plan & budget.

Consider the following factors when estimating activity time requirement.

- Availability of non-labor support
- Clarity & definitiveness of scope
- Complexity of the work
- Degree of available information to estimate
- Degree of uncertainty or risk in achieving the outcome
- Experience, knowledge and expertise of the team members of the project.
- Financial constraints on the project
- Location of team members working on the task.
- History of similar work performed.
- Legal constraints on the project
- Number of people assigned to the task
- Number of potential interruptions
- Priority of the task
- Productivity of tem members
- Project size
- Structured versus unstructured nature of the work to be performed
- Whether the completion date of the task is dictated.

Approaches to Estimate the Duration (Time & the CP)

- **Single Estimates, also called Deterministic Approach** (used in project which a lot of previous experience is available i.e. for those which has standard times for most construction works)
- **Multiple Estimates is also called Probabilistic Approach**

The most likely time (m): knows as modal value in statistics.
Optimistic time (a): the minimum time required to complete the project under most favorable conditions.
Pessimistic Time (b): the maximum time needed to complete the project under unfavorable situations.

The single expected time (t) required is;

$$t = (a+4m+b)/6$$

5. ESTABLISHING PROJECT IMPLEMENTATION SCHEDULE (PIS)

A SCEUDULE: is a list of things to do usually with times when they should be done.
Project Implementation Schedule is designed:

- To identify at the earliest possible stage actions required to implement different project components.
- To specify the sequence in which the components should be implemented
- To specify the time required to implement
- To specify the agency or group responsible for implementation**.**

Major Advantages of Scheduling

- Encourages planning
- Guideline project execution
- Help to establish day-to-day priorities
- Control of progress (targets/milestones)
- Achieve better resource allocation
- Minimize project costs

Features of Good Schedule

- All work items are included
- Sequence of work clearly shown
- Easy to understand
- Easy to revise
- Important work items highlighted
- Constraints easily detected.

Types of Project Scheduling Techniques

- MILESTONES CHART
- GANT (BAR) CAHRT
- NET-WORK SCHEDULING

A. MILESTONES CHART

- Simply uses tabular format to show project activities in the first column, the starting and finishing dates (time) in the subsequent column.
- It can also use the outlay of a bar chart, but uses an icon or symbol to mark the occurrence of events.
- Not frequently used in big and multi-component projects or programs.

Milestone	Schedule completion	Actual completion
Foundation completed	October 5	October 2
Framing competed	October 10	October 7
Exterior finished	October 25	
Electrical wiring completed	October 20	
Heating and air conditioning installed	October 25	
Interior finished	November 22	

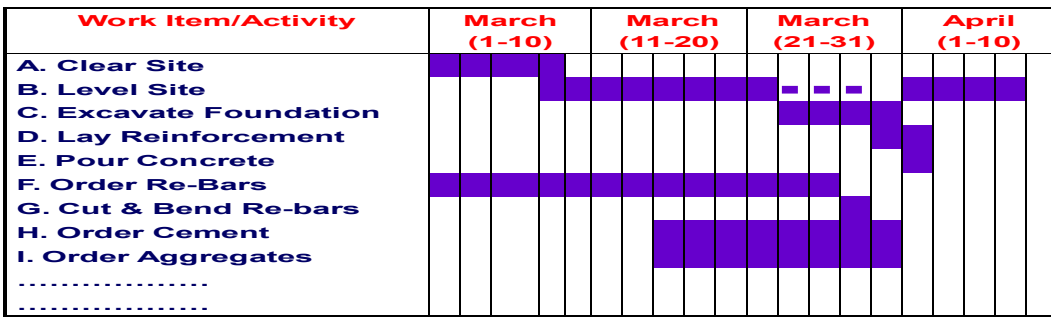
B.GANTT/BAR CHART

- Is a chart drawn to scale on a rectangular coordinate**.**
- Each activity listed down on the vertical axis & the duration shown on the horizontal axis.
- Horizontal solid line represents the activities duration.
- Horizontal dashed lines the activity float.

XYZ House Construction Project: Milestone Chart

Work Item/Activity	Start Date	Finish Date
Clear Site	March 1	March 7
Level Site	March 7	March 22
Excavate Foundation	March 22	March 29
Lay Reinforcement	March 29	April 1
Pour Concrete	April 1	April 2
Order Re-Bars	March 1	March 26
Cut & Bend Re-Bars	March 26	March 28
Order Cement	March 15	March 30
Order Aggregates	March 15	March 30
.....	.....	.....
.....	.....	.....

XYZ House Construction Project: Bar Chart



Advantages of Milestones & Gantt Chart:

- Familiar to many people
- Looks simple & easy to draft
- Neat in appearance
- Progress can be estimated by percentage
- Easy to read showing only one set or start and finish dates
- The bar/milestone provides a visual means to check the status of activities/tasks.
- Can be reduced in size**.**

Weaknesses of Milestones & Gantt Chart:

- Oversimplified.
- Doesn't show interrelationships (interdependencies) between activities/tasks ➔ Hence critical activities are not shown
- Progress expressed in percentage are often meaningless
- Difficult to update

C. NET-WORK SCHEDULING

- The most commonly used project management technique
- A graphical/arrow representation of a project plan
- Show the interrelationships of the various activities
- Networks are also called "arrow diagram"

Common Techniques in NWS are;

- **CRITICAL PATH METHOD/ SCHEDULING (CPM/CPS)**
- **PROGRAM EVALUATION & REVIEW TECHNIQUE (PERT)**

Critical Path Method/Scheduling (CPM/CPS)

- Defined as a schematic representation of the various events and activities of a project.
- Uses arrow net-working.
- With a view to identifying the most critical activities and events as well as estimating the time required to complete the project.

An Activity:

- Is a task which is necessary for the completion of a project.
- Requires time and/or resources to complete
- Has definable beginning and ending

An Event:

- Is a situation, or point in time, which represents either the start or completion of an activity or set of activities.
- The end of a project marks the end event, and the initial event, preceding the start of any activity, is called the start event.

The Net-Work:

- Is a diagrammatic representation of a project incorporating in a logical sequence, the various activities which together make up the project?

Net-Work Analysis:

• Is concerned both with planning the work and working according to plan. It provides information in a number of areas, such as;

- The sequence in which tasks need to be done to complete the project
- Tasks which are critical in their time for completion of the project
- Those tasks which are flexible in timing.
- The total time needed to complete the project.
- The cheapest way of speeding up the project
- Monitoring the progress of the project.

Diagrammatically we present as follows.

An activity by arrow (⟶)
An event by circle (●)
Events and activities are linked as follows

Tail Event **Head Event**

Advantages of Network Scheduling:

- Interrelationships between activities/tasks shown
- Simplifies scheduling of big, complex & geographically scattered projects
- Encourages collaboration in designing of implementation schedules
- Clarifies individual and joint responsibilities
- Critical activities clearly shown
- Permits rapid overall project analysis
- Can be computerized
- Easy to update by computer
- Provides a structured reporting system for management during implementation

Weaknesses/disadvantages of Network Scheduling:

- Unfamiliar to many people
- Looks complicated and intimidating
- Mathematically oriented
- New technical concepts & "language" introduced which is barrier to easily understand.
- Short-course formal training is required, even to use the manual system effectively. Additional training required to use the computer version of the system.
- Untidy appearance ------ it consume a lot of wall space.
- Laborious and time consuming to update manually
- Chart reduction is difficult
- Requires top management support, dedicated MIS staff & conscientious use and discipline through out the working levels of the project.

Planning the Project Implementation

Before constructing the arrow network

1st identify all the activities making up the project

2nd define the logical sequence in which the activities are to be done. (The above two are worked out simultaneously)

3rd tabulate the sequence of Activities

4th establish route through the net-work

5th estimate the duration (time) required to carry out the project activities.

Then:

- Construct the arrow net-work
- Analyze the net-work

***Example**: An irrigation rehabilitation project, which included repairing the barrage; redesigning and constructing the drainage system and renovation of canal earth works; lining to prevent seepage and the construction of paved road along one of the embankments; and conduct a trial operation.*

1. Identification of Activities

From the above project nine activities are identified as presented in the following table.

A. Field survey & design
B. Repair of canal earth works
C. Detailed design of drainage system
D. Repair barrage
E. Lay road foundation
F. Build canal structures (including lining)
G. Construction of drainage system
H. Road paving
I. Trial operations

2. Logical Sequence of Activities

The following information is available concerning the logical sequence of the activities.

- *The field survey & design must be carried out before repaid of the barrage or canal earth works can begin, or before the detailed design of the drainage system can be completed.*
- *The canal earth works must be carried out before construction of the canal structures or laying the road foundations along the bank can start.*
- *The road cannot be surface until (after) its foundations are laid and until the canal structures are completed.*
- *Drainage construction cannot start until (after) a new drainage system has been re-designed.*
- *Finally trial operations cannot commence until (after) the barrage has been repaired; the new drainage system completed and the road have been paved. No other restrictions hold.*

3. Tabulating the Sequence of Activities

The logical sequence of activities is set out in the following table, as per the restrictions given above.

Activities which must be completed before the activity in question can start (1)	Activity in Question (2)	Activities which can not start until after the activity in question has been completed (3)
None	A. Field survey & design	B,C,D
A	B. Repair canal earth works	E,F
A	C. Re-design drainage system	G
A	D. Repair barrage	I
B	E. Lay road foundations	H
B	F. Build canal structure	H
C	G. Construct drainage system	I
E,F	H. Surface road	I
D, G, H	I. Trial operations	None

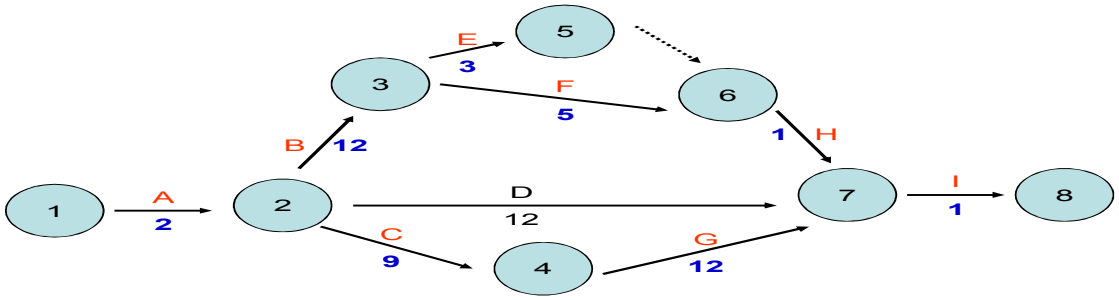
The arrow net-work can be constructed by making use of the above table.

4. Routes through the Net-Work

Activity 'A' must come first and activity 'I' last. There are four routes for traveling from 'A' to 'I'.

A~~~~B~~~~E~~~~H~~~~I
A~~~~B~~~~F~~~~H~~~~I
A~~~~C~~~~G~~~~I
A~~~~D~~~~I

The Net-Work Diagram

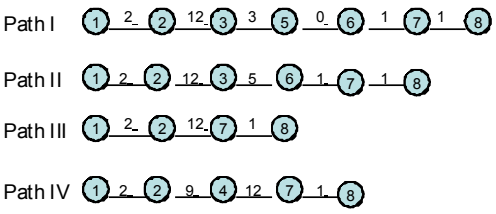


Analyzing the Net-Work

- *Estimate the overall duration of the project activities*
- *Identify the longest path through the net-work*
- *The longest path is known as a critical path*
- *The activities on that path are critical activities for the project*

Critical Activities are activities that, if even slightly delayed, will hold up the scheduled completion date of the entire project.

The network, on the irrigation project has four paths leading from event 1 (the start event) to event 8 (the end event). They are:-



Adding the durations

Path I needs 19 months
Path II needs 21 months
Path III needs 15 months
Path IV needs 24 months
The longest path is path IV (1-2-4-7-8) which takes a duration of 24 months and is the critical Path in this project.

Event Times:

- *Earliest Event Time (ET): is earliest possible time at which an event occurs.*
- *Latest Event Time (LT): is the latest possible time at which an event occurs within the overall project duration.*

Start and Finish Times of Activities:

The earliest and latest times at which each activity can start and finish can be computed using the relations. This helps to know;

(a) The Earliest Start Time --- how soon can the activity start.
(b) The Earliest Finish Time (EFT) --- how soon can the activity finish.
(c) The Latest Start Time (LST) --- how late can the activity start.
(d) The Latest Finish Time (LFT) --- how late can the activity finish.

5.2 PROJECT MANAGEMENT

- is the application of knowledge, skills, tools and techniques to project activities in order to met stakeholder needs and expectations from a project.
- Meeting stakeholders needs and expectations involve balancing competing demands among:
- Scope, time, cost and quality
- Stakeholders with differing needs and expectations.

Project Integration management: *describes the processes required to insure that the various elements of the project are properly coordinated. it consists of project plan development, project plan execution, and over all change control.*

Project Scope Management: *describes the processes required to insure that the project include all the work required, and only the work required, to complete the project successfully .It consists of initiation, scope planning, scope definition, scope verification, and scope change control.*

Projects Time Management: *describes the processes required to insure timely completion of the project. It consists of activity definition, activity sequencing, activity duration estimating, schedule development, and schedule control.*

Project cost management: *describes the processes required to insure that the project is completed within the approved budget. It consists of resource planning, cost estimating, cost budgeting and cost control.*

Project Quality Management: *describes the processes required to insure that the project will satisfy the needs for which it was undertaken. It consists of quality planning, quality assurance and quality control.*

Project Organizational and Human Resource Management: *describes the processes required to make the most effective use of the people involved to the project. It consists of organizational planning, staff acquisition, and team development.*

Project Communications Management: *describes the processes required to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information. It consists of communications planning, information distribution, performance reporting, and administrative project.*

Project Risk Management: *describes the processes concerned with identifying analyzing, and responding to project risk. It consists of risk identification, risk quantification, risk response development, and risk response control.*

Project Procurement Management: *describes the processes required to acquire goods and services from outside the performing organizations. It consists of procurement planning, solicitation planning, solicitation, source selection, contract administration and contract close-out.*

5.2.1 PROJECT ORGANIZATION

The attainment of development goals requires effective organization of tasks that lead towards these ends. There are various forms of organizations; one type of organization which is appropriate for one task may not be suitable for others. Projects in particular require special attention in terms of organization.

The lack of a clear organizational design creates manifold problems in the attainment of objectives. The term **project organization** is used to denote an inter-organizational team pulled together for a specific purpose. Personnel are drawn from the organizations functional units to perform a specific task. The organization is temporary, built around the purpose to be accomplished rather than on the basis of functional similarity, process, product, or other traditional bases. The essence of project organization is flexibility Routine and repetitive jobs are often carried out within the regular line organization hence they do not need to be organized as projects.

The project approach is required when the task:

- Is complicated and light must be shed from several directions;
- Is entirely new and there is uncertainty about how to handle it ;
- Involves several organizations or units and demands cooperation;
- Is cost –intensive and requires special follow –up;
- Is to be carried out within a definite period of time;
- Is limited and specified ; and
- Demands broad and active participation.

Projects as special organizations

- Projects are instruments of change.
- The need for change may come for various reasons such as:
    - A solution to particular problems.
    - Taking advantage of a new situation or opportunities;
    - The need to address a crisis.

Advantages of temporary project type organizations

Temporary organizations provide the following opportunities.

- Planning & structuring the work in a manner that flexibility responds to new conditions and needs.
- Pooling together skills and experience from different organizations, units, etc.
- Establishing lines of communication and work approaches tailored to the problem.
- Close follow-up of tasks and review of expected results at appropriate time or phases and getting timely decision.
- Encouraging collaborative efforts to accommodate change as easily as possible.

Institutional assessment is a means of finding whether a proposed project is realize in a given institutional context. This applies not only to those organizations that implement and operate projects but also to those sect oral and government institutions which have a degree of influence over project success. Institutional assessment covers both the institution and the environment in which it operates. It is concerned with two major concepts, namely project management and organization.

The two basic questions to be asked when conducting institutional appraisal of a project

- Is the organizational structure of the body which is to operate the project suitable for the purpose?
- Is that body's management adequate for the accorded task?

If the structure is found to be unsuitable or the management is incapable, ways of improving or transforming this situation must be considered. Many projects which have appeared sound from technical, economic and financial viewpoints have been partly or fully frustrated by institutional constraints. The nature and constrains of institutional setting and legal framework will play a large part in determining the organization's effectiveness in terms of project implementation. While assessing an institutional setting, the following aspects should be given attention.

In general there are three basic types of organizational structures for implementing projects, they are:

- **Functional Organization**
- **Projectised Organization**
- **Matrix Organization**

The best organizational design to use in the management of project is dependent on the particular circumstances of the project and its organizational and stakeholder environment.

A. FUNCTIONAL ORGANIZATION

- involves the use of existing structural lines within an organization.
- is called 'functional' because it involves the grouping of staff according to their specialized functions.
- reflects the traditional hierarchy, where each employee has only one superior.
- Employees are grouped on the basis of the functions to be carried out, such as marketing engineering, production, finance, etc.
- The managers provide for the use and integration of resources, maintain oversight over the use of such resources and assign people.
- Some time no single individual is designated as having overall projects responsibility.
- Rather each department and section within the function performs its work needed to ensure input into the project.
- There is no one person maintaining oversight for the management of the project except the functional manager, who is likely to be busy maintaining oversight over the operation of the total functional organizational unit.
- One approach is to have a functional organization manage the project using an individual acting as a focal point in the functional entity.

Advantages of functional organization

- Makes efficient use of resources through functional groupings
- Provides specialist support to staff through groupings of specialism.
- Provides an obvious path for career progression and job motivation,
- No upheaval after the project because staff remain in the same functional positions.

Disadvantages of functional organization

- Likely to be oriented to meeting the needs of functional departments rather than the project. (Inter-departmental politics and territorial battles)
- Responsibility for project co-ordination and execution may be unclear.

- Lacks flexibility and adaptability.(over dependence on the existing formal communication networks-immediate actions are hampered by divided control.
- Vertical lines of command lead to difficulties in communication at an operational level.

To overcome the above shortcomings:

- Insist on having a specific designation of relative authority and responsibility for the project.
- The use of rigorous established early planning on the project could help.
- Make sure that representatives from the functional organization help in developing the project plan.
- Train the functional representatives in the basics of project management.

B. PROJECTIZED ORGANIZATION (PURE PROJECT)

- This involves the creation of a separate and self contained organization with a specific goal of project implementation.
- In such a situation, a group of people having the required skills are organized into an autonomous setup with its own leadership, structure and responsibilities.
- The project manager is given full authority to run a project.
- The project is truly like a mini company.
- The project team is independent of major support from any major functional units or departments.
- Minor functional support in such matters as industrial relations, payroll, and public relations is provided by functional elements that take care of the entire organization.

Advantages

- All activities are centered around the achievement of project goals.
- Unity of command allows for rapid decision making.(The major advantage of the pure project organization is that the cost is increased because of duplication of effort and facilities.)

Disadvantages

- Possible duplication of inputs with other areas within the organization(One of the strongest disadvantages of this type of organization is that the cost is increased because of duplication of effort and facilities)
- Expensive and time consuming to establish.
- Removing staff from functional groupings reduces the amount of professional support they receive.
- Temporary structure may lead to problems of termination where staff members try to prolong activities to extend the life of the organization.

C. MATRIX ORGANIZATION

- Is also known as grid structure is a mosaic (intersection) of task (Project) and function (continuous work) of an organization.
- is a network of intersections between the project team & the regular functional departments/units.
- is a compromise between the hierarchical structure of the traditional functional organization and the project team design.
- Peters and Waterman in their book “In search of excellence” they claim that the matrix was complicated and ultimately an unworkable structure, which degenerates into an anarchy, and rapidly becomes bureaucratic and non creative.

- Advocates of the matrix organizational design offer many reasons for its efficiency and flexibility in marshalling and using the resources to support a project.
- The growing use of alternative forms of teams in contemporary organization will continue to make the matrix organizational form more flexible.
- Matrix is more a state of mind to encourage people to work together to create value for themselves and for the organization.
- When the matrix organization design is used in the management of projects there will be modifications in the existing patterns of authority- responsibility accountability, reporting relationships.
- The key to the successful matrix organization is the careful definition of the work breakdown structure (WBS) for the project and the development of an organizational structure that most appropriately fits the WBS.
- Within the WBS the work packages provide the focal point for the matrix organization.

HOW TO SELECT THE APPROPRIATE ORGANIZATIONAL STRUCTURE?

Understanding essence of the three forms of project organizations will help in the selection of the appropriate organization structure for a specific project.

- The starting point in determining the structure and shape of an organization is identification of activities and intended functions.
- This is derived from an analysis of project objectives, components and outputs as well as strategies to achieve these.

Two important factors to be considered are:

- The size and duration of the project
- Available and required skilled manpower within an organization (organizational capacity)

Generally, when the proposed project is large, complex and requires a long time to implement then a projectised organizational structure is most appropriate. On the other hand, if the proposed project is small or of short duration then it is possible to utilize the existing functional organization. If the requirements of a project can be met through the existing functional structure then there is no need to establish an alternative organizational structure. Matrix organizations are now becoming the most popular organizational structure due to their advantages.

5.2.2 PROJECT HUMAN RESOURCE MANAGEMENT

Human Resource Management refers to the philosophy, policies, procedures and practices related to the management of people within an organization.

Project human resource management includes

- the processes required to make the most effective use of the people involved with a project
- the processes that are important to organize and manage the project team.

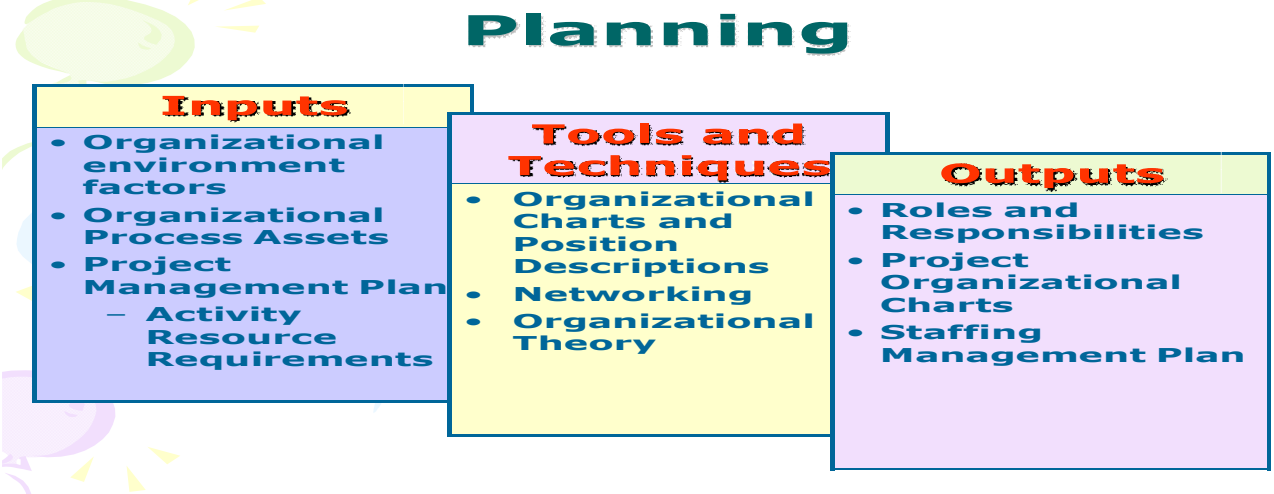
The Project team is comprised of the people who have assigned roles and responsibilities of completing the project. The type and number of project team members can often change as the project progresses

Project Human Resource Processes

1. Project Human resource planning
2. Acquiring the project team
3. Developing the project team
4. Managing the team

1. PROJECT HUMAN RESOURCE PLANNING-

- Define Human Resource requirements of project (Number and Kind)
- Identifying and documenting project roles, responsibilities, and reporting relationships



Roles and Responsibilities(Responsibility Assignment Matrixes (RAM) : is a matrix that maps the work of the project, to the people responsible for performing the work, Can be created in different ways to meet unique project needs.

Responsibility Assignment Matrix (RAM)

RACI Chart

RACI Chart	Person				
Activity	Abebe	Kebede	Alemu	Tola	Lema
Define	A	R	I	I	I
Design	I	A	R	C	C
Develop	I	A	R	C	C
Test	A	I	I	R	I

R= Responsible A= Accountable C= Consult I=Inform 16

Resource Histogram

Organizational Charts

- Functional
- Matrix
- Project Type

Staffing Management Plan

- Closely aligned with Roles and Responsibilities assignment:
- Identify all project stakeholders
- Identify their needs, expectations and objectives
- Determine the roles of each stakeholder on the project
- Determine the skills and knowledge of each stakeholder
- Assess the overall impact of stakeholders on the project
- Determine how stakeholders should be managed

Planning Issues

- **Project interfaces,** Organizational, Technical, Interpersonal
- **Staffing Requirements**
  - Kinds of competencies needed
  - From what kinds of individuals or groups
  - During what time frames
- **Constraints - factors that limit team's options Organizational constraints: e.g. Matrix strength, Collective bargaining agreements**
- **Template - Previous projects**
- **Staffing management plan**
  - How resources will be brought onto and taken off the team
  - Appropriate reassignment procedures may:
  - Reduce costs by eliminating "fill in" work
  - Improve morale by reducing employment uncertainties

2. ACQUIRING THE PROJECT TEAM

- Acquiring qualified people for teams is crucial
- The project manager has to work hard in recruiting the best
- Staffing plans and good hiring procedures are important, as are incentives for recruiting and retention

Staffing pool description

Team must consider characteristics of potential staff, such as…Previous experience, personal interests, personal characteristics, availability, competencies and proficiency

3. DEVELOPING THE PROJECT TEAM

- The main goal of team development is to help people work together more effectively to improve project performance.
- It takes teamwork to successfully complete most projects

Development Issues

- Team Building, Leadership Styles, Motivation Theories, Conflict Resolution and Problem Solving are some of the common focus areas for staff development

"*To be effective, Reward and Recognition systems must make the link between project performance and reward clear, explicit and achievable"*

- Projects may need their own Reward and Recognition system

4. PROJECT MANAGEMENT

- Project managers must lead their teams in performing various project activities.
- Regular performance assessment
- After assessing team performance and related information, the project manager must decide:
  - If changes should be requested to the project.
  - If corrective or preventive actions should be recommended.
  - If updates are needed to the project management plan or organizational process assets

s

Other Important Issues of Project Human Resource Management

- Conflict Management
- Motivation
- Reward and Recognition
- Overcoming Distance Issues

To achieve satisfactory human relations in the project setting, the project manager must successfully handle problems and challenges relating to:

- Authority
- Orientation
- Motivation
- Group functioning

5.2.3 PROJECT FINANCE AND FINANCIAL MANAGEMENT

This section is concerned with a key factor of development projects-money and its management. Resources such as people and equipment are essential requirements for the achievement of project objectives, but they can be deployed within the project only provided finance enables their availability. A major task for managers is therefore the management of this crucial resource that fuels the project organization. It can reasonably be argued that ultimate responsibility for managing the project finance is one of the key factors defining the role of the project manager.

The discussion of the management of finance is divided into four related areas. These are budgeting, financial management and accounting, investment appraisal and financial analysis. Budgeting is of crucial importance for the orderly implementation of a project and relates closely to the process of implementation planning. Financial management and accounting involves examination of the methods and purpose of accounting and in particular the organizational requirements for project accounting and management of financial information. Investment appraisal provides a link between the appraisal and implementation elements of the project cycle. The fourth area financial analysis includes a discussion of the interpretation of accounts and financial statements.

The advantages of the budget system can therefore be summarized as follows

1. It can be directly linked to the implementation planning exercise and therefore directly reflect the objectives of the project
2. The organizational structure of the project is defined in terms of zones of financial responsibility under the budget
3. Each project subsection is involved in determining its own objectives and work programme through the exercise
4. It stimulates communication within the project and helps to resolve conflicts
5. It provides a basis for allocating priorities and assists with resource allocation throughout the project structure
6. It provides the basis for a monitoring and control system which can allow for speedy corrective action if required
7. Budgeting allows management personnel to take responsibility for planning their work, setting targets and measuring their performance which can add up to a stimulus to obtaining higher levels of achievement.

A budget is an action plan

- For a specific period
- Covering all the facets of an organization or a project
- Containing specific targets to be achieved
- Expressed both in physical and financial terms

Features of a budget

- Unity
- Regularity
- Accuracy
- Clarity
- Publicity
- Operational

Purpose a budget, it can serve

- As a tool of accountability
- As a tool of management
- As an instrument of economic policy
- As a motivator (Involvement and commitment)
- As a contract
- As a financial control mechanism
- As a plan
- As a Communication mechanism
- As an operation guide
- As an instrument of democracy

Budgetary Approaches

- Line-item/object of expenditure budget
- Performance budget
- Program budget
- Zero base budget

1. Line-item budget

- Lists how much you will spend on every item
- What is bought?
- Expenditures are organized primarily by object of expenditure
- Keeps track of how much is spent on what

Character and structure

- Control oriented
- Focus on the accounting aspect of Gov't
- Establishes uniform system of accounts
- Are usually four codes

Advantages

- Accountability and management control
- Simple to understand

Limitations

- Issues of the three E's remain buried in object detail
- Doesn't go in line with contemporary financial management
- Focuses on fiscal compliance and accountability
- Inhibits the flexibility of managers
- Promotes incremental methodology of financial decision making

2. Performance Budget

- A budget where in expenditures is bases primarily upon measurable performance of activities and work programs.
- It may also incorporate other bases of expenditure classification character and object class, but these are given a subordinate status to activity performance
- Focus on evaluating the efficiency with which activities and work programs are accomplished-tools of cost accounting and work measurement
- Raises important question as
    - What are the agency's objectives?
    - What programs or activities does the agency have, and how are the requested appropriations are closely related to the objective and programs and activities?
    - What volume of work is required in each of the programs and activities?
    - How much and what level of products and/or services have past appropriations provided?
    - What level of activity or service should stakeholders expect if the currently requested appropriations are approved?

3. Program Budgeting

- Emphasizes programs, functions and activities-less on evaluation or control
- Budget information are organized around programs:-
- Group of interdependent, closely related activities or services that contribute to a common objective or set or objectives.

4. Zero base budgeting

- Each service or programs request must be justified in its entirely, starting from zero every year.
- It is designed to force annual review of all programs, activities and expenditures.

Four stages of budget process

- Budget preparation
- Budget ratification
- Budget implementation
- Budget auditing

The budget preparation process

Step 1 Preparation of the macro framework
Step 2 Allocating public expenditure b/n Fed. & Reg. Gov'ts
Step 3 Allocating b/n recurrent and capital budget at Fed. Level
Step 4 Budget call and ceiling notification
Step 5 Submission of budget proposal
Step 6 Budget hearing and defense
Step 7 Review and recommendation
Step 8 Submission to council of ministers
Step 9 Submission to the council of people's representatives
Step 10 Notification and publication
Step 11 Allotment

Budgeting is the process of preparing the action plan in sufficient detail for a specific operational period culminating in the financial budget. A budget is a sound basis for monitoring and control.

Budgetary control is a management technique used to plan, execute and control operations and activities aimed at achieving set targets with in a stipulated time frame.

Steps involved in budgetary control

- Preparation of a budget
- Identification of responsibility centers
- Adoption of mutually agreed targets
- Periodical monitoring of performance
- Careful comparison of performance with the plan
- Assessment of deviations or variances
- Initiation of corrective action aimed at ensuring that actual performance is according to plan

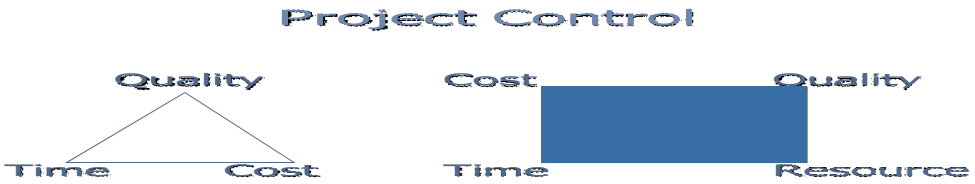
Prerequisites for a financial budget

Objectives of control through budgets in externally assisted projects

- To ensure that :-
  - the project is implemented according to schedule
  - its objectives are achieved,
  - its benefits reach the target group, and
  - funds provided are used for intended purposes
- To facilitate proper post-project evaluation, and
- To exact accountability from the beneficiary

5.2.4 PROJECT CONTROL

- is the process through which managers try to ensure that the actual events and activities conform to the plan.



Project control process

- Set the control period
- Determine the level of detail
- Control four key variables
  - Time (schedule)
  - Cost (Budget)
  - Resources (people, materials and equipment)
  - Scope (performance and quality)
- Adjust the current operational plan and revise baseline plan if necessary

Key Questions

- What was the plan?
- What are the actuals?
- What are the variances? Why?
- What are the trends and how do they extrapolate into the future?
- What actions are required?

Target setting

- is the defining of clear objectives for the project.
- includes the quantification of:
  - The starting point
  - The outcome required
  - The timescale
  - The constraints

Why set targets?

- Clear definition of what the project must achieve
- Regular agreed points against which progress can be measured
- Help the team and leader stay focused on the problem
- Keep the team focused on the future
- Identify any sequential dependency

Setting targets

There are six characteristics of a good target

- **Specific:** The target should be clearly defined
- **Measurable:** It must be visible and capable of being measured
- **Achievable**: There should be a reasonable (better than 50%) probability of success
- **Results oriented**: The target should be related to achieving improvements rather than just increasing activity. (Effectiveness rather than effort)
- **Time Bound**: Dates/times for achievement should be specified
- **Involvement:** Those who have to achieve the target should be involved in setting it.

Measurement

Measurement is the means of quantifying progress in two main areas:

- Measurement of progress
- Measurement of effect

The benefits of measurement include:

- You will know if you are tackling the real problem
- You will be discussing facts and figures, which will prevent "emotional" arguments
- You will be focusing on the way forward rather than dwelling on the past
- If you have selected the correct measurement you will know if and when you have achieved your targets
- They will be necessary to control you project's progress

Methods of reporting measurements

- Regular reports
- Exception (variance) reports
- Trend reports
- Spot sampling

A. VARIANCE ANALYSIS APPROACH (VAA)

Common variances in the control of projects are

- Scheduled start versus actual start
- Scheduled finish versus actual finish
- Scheduled time for an activity versus actual time for an activity
- Scheduled date of milestone versus actual date when the milestone was reached
- Budgeted cost versus actual cost
- Measured value versus actual cost
- Budgeted man-hours versus actual man-hours
- Budgeted unit cost versus actual unit cost
- Budgeted percent complete versus actual percent complete

The VAA is inadequate for project control because:-

- It is historical backward-looking method of analysis
- It does not use all the data available effectively and does not lend itself to an integrated approach with progress and cost
- It does not clearly indicate performance

I. Backward looking versus forward looking

Effective project control requires objective answers to the following questions:-

1. What happened in the past?

a) Are we on schedule, ahead of schedule, behind schedule, on the project as a whole and the individual parts of it? If we have variation from schedule, where did it occur, why did it occur and who is responsible for it? What effect will it have on the other parts of the project, and what can we do about it?

b) Is the work being completed to the budget estimate, or less than the budget estimate, or is the work costing more for the project as a whole and the individual parts of it?

If we have variation from budget, where did it occur, or what caused it, who is responsible for it, and what can we do about it?

2. What is going to happen in the future?

a) Are we going to be on schedule, on budget, or over schedule and over budget? What is the trend of progress and cost?

b) PM needs to be able to forecast the final cost, and the completion date from the project and for the individual parts of it.

3. Is the rate of work accelerating or decelerating as it should?

II. Variance analysis does not use the data available effectively to give integrated control.

Three sets of data

- The planned or budgeted expenditure of resources
- The actual expenditure of resources
- The earned value by this actual expenditure of resources

III. Variance analysis does not adequately indicate performance

B. PERFORMANCE ANALYSIS APPROACH

- Modern method of project control
- Based upon earned value concept

The earned value concept is based on the measurement of the budgeted value of the work actually carried out and its comparison with the budgeted value of the work that should have been carried out and what it actually costs.

Three basic terms

- BCWS-the budgeted cost for work scheduled
- BCWP-the budgeted cost for work performed
- ACWP-the actual cost of work performed

Using these three data elements, it is possible to evaluate

Its cost variance **=BCWP-ACWP** **Schedule variance in cost terms** **=BCWP-BCWS** **Cost performance index (CPI)** **=BCWP/ACWP** **Scheduled performance index in monetary term** **=BCWP/BCWS**
Estimate to complete the project (ETC) (where BAC=Budget at completion) = (BAC-BCWP)/CPI **Estimate at completion, that is the forecast cost (EAC)** **=ACWP+ETC**

Causes of cost overrun and schedule slips

- Bad estimate
- Inflation
- Delayed management decisions
- Poor management control
- Changes in design
- Shortage of planned resources
- Force majeure
- Problems with suppliers
- Changes in environment
- Under estimate risks
- Government policy measures

5.4 PROBLEMS IN PROJECT IMPLEMENTATION

Problems in project implementation can vary from sector to sector, project to project, region to region or from area to area. But the commonly encountered implementation problems are discussed below.

1. Financial Problems

Most common causes are;

- Inadequate allocation of budgetary funds
- Shortage of foreign exchanges
- Delay in budget releases
- General price and salary increases
- Change in tariff and interest rates
- Losses due to fluctuations in foreign exchange rates

Effects of financial difficulties on implementation are:

- Delay/interruption of project activities
- Cost increase/over-run
- Reduction in the scope of the project.

2. Management Problems (encompasses institutional problems)

- Root cause of implementation delays and cost overruns.
- Management problems can be manifested
  - In the top government administration
  - At the regional or local levels
  - In the upper or middle management of the project and/or implementing agencies.

Some Features of Management problems

- An ill defined organizational set-up
- Low salaries and poor staffing policies
- Lack of coordination among various agencies
- Discontinuity of management etc.
- Inadequate management monitoring and reporting system.
- Late identification & untimely reporting of problems to project management.
- Poor accountability
- Excessive paper work - "Red Tape"
- Out dated inadequate or non-existent policies.
- Decisions based on short-term benefits rather than long range planning.
- Inadequate funding, staff and/or other resources ➔resource deficiencies.
- Meetings too frequent
- Meetings too long
- Meetings have too many participants
- Inadequate feedback to project manager
- Inadequate communication to/and with stakeholders.
- Poor/unrealistic time estimates
- Poor/unrealistic cost estimates
- Poor project cost accounting and little or no task cost reporting.
- Failure to learn from past experience through on-going and past project reviews, evaluations, & audits, and continuing to repeat the same mistakes.
- Failure to acknowledge (and reward) the good performance of project participants.
- Unclear who is in charge ➔ Power struggles over authority
- Individual responsibilities for (and within) projects ➔ not clearly defined.
- Project managers responsible to more than one "Boss" at a time for a particular project.
- Project manager responsible for more than one project at any particular time.
- Lack of focus on, and understanding of project objectives.
- Lack of (inadequate) quantifiable indicators of success, or intermediate performance targets.

3. Technical Problems

- Results from the poor estimates and projections on the project activities and characteristics during the preparation stage. E.g. difficult soil conditions, poor quality of materials, technical defects in design, inadequate technical packages, inadequate awareness of the beneficiary groups, etc.

4. Political Problems

- Inadequate/lack of commitment from government (at all levels).

This may resulted from

- A rapid rotation of political appointees
- Inadequate awareness and conviction about the project.

5. Other Problems

- Policy problems
- Infrastructural problems
- Donor conditionality
- Lengthy project approval and
- Lengthy fund disbursement procedures of donor/financiers
- Low community involvement in project planning and implementation, etc.

5.5 PREREQUISITES FOR SUCCESSFUL PROJECT IMPLEMENTATION

Project implementation is said successful if completed;

- On time
- At or reasonably close to the original cost estimates, and
- With the expected benefits realized or exceeded

Principal Factors that account for project success

1. Political Commitment by all levels of the government body

- Strong and sustained commitment
- Continuing interest and active support through
  - The allocation of human, financial and other resources
  - Administrative and other political supports

Approach to ensure commitments- Stakeholders participation and consultation during project identification, preparation, and implementation, M&E.

2. Simplicity of Design:

- Selection of proper project design (establishing design parameters)
- Establish simple and well-defined objectives and approaches
- Select appropriate technologies.

3. Careful Preparation

Sufficient preparation based on the type of the project. This includes;

- Detailed engineering and land acquisition
- Appropriate technological packages
- Socio-economic factors
- Environmental issues
- Organizational & institutional arrangements and
- Other required supporting services

For big projects conducting pilot project to test the proposed activities, approaches and technologies.

4. Good Management

- What are the qualities of good manger and management?

It consists performing satisfactorily 'key areas' of the project job. A 'key area' can be defined as a major component of a managerial job of such importance that failure to perform satisfactorily will endanger the whole job.

Standard List of Key Areas for a Project Manager (Approximation)

1. Prepare and Maintain a Project Work Plan

- *Review project priorities*
- *Prepare overall and progress work plans*
- *Update overall and progress work plans*

2. Maintain National and Local Information

- *Recall country problems and priorities*
- *Recall local problems and priorities*
- *Recall related programs/projects*
- *Recall cultural characteristics*
- *Recall social and economic characteristics*
- *Recall geographical characteristics*
- *Recall political characteristics*

3. Mobilize Project Resources

- *Recruit staff*
- *Obtain funds*
- *Secure facilities*
- *Procure equipment and supplies*

4. Manage Staff

- *Agree and review individual work plans*
- *Use appropriate management style*
- *Reward performance*
- *Manage staff training*

5. Manage Funds

- *Prepare estimate of expenditure*
- *Maintain budgetary planning and control systems*
- *Maintain controls for disbursement of funds*
- *Prepare financial reports*

6. Manage Materials and Facilities

- *Maintain inventories*
- *Maintain equipment, facilities, vehicles, etc.*
- *Maintain security systems*
- *Operate comprehensive insurance policies*

7. Monitor and Evaluate Progress

- *Monitor activities*
- *Monitor outputs*
- *Monitor administration*

8. Maintain Communications

- *Prepare manager reports*
- *Ensure team prepares reports*
- *Maintain record*
- *Maintain correspondences Maintain working relationships with national and local institutions and with related programs/projects.*

5.6 PROBLEMS IN PROJECT CYCLE MANAGEMENT

The Nature of Development Problems: The complexity & challenges of development problems are such that they cannot be characterised as 'well structured' development problems, as project planning methodologies would assume, problems & solutions cannot be thought through in advance but it is necessary for these to evolve as the project progresses.

Poor Data: Many project planning methodologies are dependent on large amounts of reliable data that are often not available. In these cases planners have often made assumptions, which have often been over optimistic about items such as costs involved, potential for increasing yield, potential for changing behaviour or adapting new technologies, etc.

Uncertainty: Many project environments are characterised by uncertainty & instability. However, there is a tendency not to make allowances in the projects for the impact of such factors such as a drought, changes in domestic or world prices, civil unrest.

Separation of Project Planning & Management: A disconnection between those who design projects & implement them enables participants to avoid taking responsibility for project outcomes. "The project design was fine but it was implemented badly" or "It was so badly designed there was little that could be done with it".

Lack of Beneficiary Participation: The failure to involve beneficiaries in all stages of project design, management & monitoring has often undermined ownership & alienated people from projects.

Projects & Politics: Planning methodologies often ignore political factors. They tend to ignore the fact that projects are designed, selected & implemented by people working in social contexts. By ignoring such a reality it reduces the opportunity for the intended beneficiaries (usually the powerless/ marginalized) to gain influence over the project process**.** The little attention paid to critical role of the 'Human Factor' in project cycle management. In essence successful application of PCM & its associated methodologies, tools & techniques are dependent on the vision, values & capacity of the people & institutions that apply them.

CHAPTER SIX
PROJECT MONITORING AND EVALUATION

6.1 WHAT IS MONITORING?

Monitoring (M) is an internal activity of program management, the purpose of which is to determine whether programs/projects have been implemented as planned or whether resources are being mobilized as planned and services or products are being delivered on schedule. The former is **input monitoring** and the latter is **output monitoring.** Monitoring is continuous internal management activity whose purpose is to ensure that a program/project achieves it defined objectives within a prescribed time-frame and budget. It involves the provision of regular feedback on the progress of program/project implementation and the problems faced during implementation. Monitoring consists of operational and administrative activities that track the resource acquisition and allocation, production or the delivery of services and cost records. Monitoring is a continuous process of gathering, analyzing and interpreting of information of the daily use of inputs and their conversion into outputs in order to enable timely adjustment or correction on the development program/project when necessary. Hence it is a basic part of implementation management.

FUNCTIONS OF MONITORING

- a management tool that contributes to effective and efficient implementation
- an internal project activity,
- an essential part of good management practice, and, therefore, an integral part of day-to-day management i.e. it must be integrated within the project management structure.
- an evaluative activity carried continuously which help us:
    - to identify shortcomings before it is too late
    - as to know why progress fell short of expectations,
    - to identify constraints and pointing the way toward measures to overcome them.
    - to adjust specific objectives (targets) depending on the situation (opportunities/obstacles) and revise the work plan accordingly.

Monitoring Focuses on:

- how the project operates, performance achieved and impacts observed.
- continuous comparison of the actual situation against the plan, in relation to physical progress, financial expenditure and quality of work.

TYPES OF MONITORING

1. Process monitoring

- deals with the use of resources,
    - the progress of activities, and
    - the way the activities are carried out
- is a means for reviewing and planning work on a regular basis

2. Impact monitoring

- considers changes brought as a result of the project (economic, social, organizational, technological, etc. or other intended and unintended results over a longer period).

Information Required for Monitoring

1. Management/Administration
2. Financial Progress
3. Physical progress
4. Beneficiary contact

How do we gather information for monitoring?

1. Progress Reports

- Prepared at regular intervals (frequency vary according to status & complexity of the project)
- Should be concise & informative

2. Progress Review Meetings

- Projects rarely run without problems
- PRM would help to identify and take timely action where and when problems arise or prevent from occurring.
- Frequency of the meeting depends upon the nature and time-scale of the project. But should not be carried more frequently than weekly.
- Minutes should carefully recorded and signed at.
- Do not allow discussions to be personalized in such meetings.

3. Site Visits

- Important means of communication in the monitoring & control of project physical activities progress.
- Has to be done to have an in depth impression in the performance of the project.
- Has to be conducted in a participatory way before progress review meeting is arranged

6.2 WHAT IS EVALUATION?

Evaluation may be defined as an internal or external management activity to access the appropriateness of a program/project design and implementation methods in achieving those specified objectives and more general development objectives; and to access the programs' results both intended and unintended and to access the factors affecting the level and distribution of benefits produced.

Evaluation (E) may be conducted within the project implementation or an outside organization. It can be used to access and improve the performance of an ongoing program or project to estimate the impact and evaluate the performance of completed project or programs. These activities are known as **impact evaluations and efficiency evaluations.**

When the two functions (M&E) are kept separate there seems to be substantial support for monitoring but limited support for evaluation. Evaluation is given much lower priority because it is seen as an activity that would be nice to support if time and resource is permitted- which unfortunately, is seldom the case. Therefore most of the US evaluation literature assumes monitoring and evaluation to be closely related and frequently the term **program evaluation** are taken to mean both monitoring and evaluation.

Evaluation is a systematical and periodical gathering, analyzing and interpreting information on the operation as well as the effects and impacts of a development program/project. It is an assessment of;

- the functioning of the project activities
- physical and financial performance and
- any impact resulted from it.

Evaluation

- draws on the data base created during the monitoring process,
- can be supplemented if necessary with additional field data on project impact, and reviewing the combined information over an extended period to judge the achievements.
- can be seen in two ways i.e in periods of evaluation and persons evaluating

PERIODS OF EVALUATION:

i. Ex-ante evaluation,
ii. Mid-term or on-going evaluation,
iii. Terminal evaluation; and
iv. Ex-post evaluation.

1. Ex-ante Evaluation:

- it is carried out before the start of implementation
- to assess the feasibility, potential effects and impacts of the proposed program or project /appraisal/
- can be looked as a "base line" study in which the situation of the project area, the target group and its environment is described.
- Data & information gathered through this evaluation helps at a latter stage to compare the effects and impacts of the program or project.

2. On-going Evaluation

- It takes place while the implementation of the planned project is on-progress
- It primarily focuses on project performance
- May help to analyze the relation between outputs and effects
- Help to modify the design and implementation strategies.
- Its distinguishing feature from later evaluations (terminal and ex-post) is that correction to the current project still can be made on the basis of findings and recommendations which may lead to a redefinition of objectives or a change in implementation strategies
- Unlike monitoring, it does not deal with daily problems, but produces periodical assessment
- It is an important evaluation tool for project success since it would provide an opportunity for corrections on some mistakes observed on the implementation process. This means that it can lead to suitable modifications in the project

Major items covered during on-going evaluation include (not exhaustive list)

- organization structure and management capacities of the project
- progress and problems in staff recruitment and placement
- Procurement of necessary goods and services from national and international sources (in many projects, procurement delays are a major obstacle to effective implementation)
- progress in establishing delivery systems for supplying the necessary inputs and services

- progress in physical work (construction), including the quality of work
- Progress in financial expenditure
- volume and quality of inputs and services made available, etc.

Note that at this stage evaluators will not be able to assess the full effects and impacts of the project.

3. Terminal Evaluation: Known as a project completion report

- is conducted when the funding for the project comes to an end.
- The distinguishing features of terminal evaluation are;
  - ✓ it takes longer time for review of the initial outputs and effects
  - ✓ it undertakes a careful examination of performance
  - ✓ it assess the sustainability of the benefits accruing to the target area/group from the project

In the terminal evaluation, in addition to the project records, a wide range of data and information gathered from various sources should be reviewed. Recommendations from terminal evaluation are primarily directed to improve the planning and design of future projects or make corrections for other on-going similar projects.

4. Ex-post Evaluation: Often called impact evaluation

- Designed as in-depth studies of the impact of a project that has been already executed or an intervention (support) given for certain development activities
- Carried some time after the program/project activity has been terminated in order to determine its impact on the target group and the local area.

Based on Evaluating Person, evaluation can be

1. Internal Evaluation:

- Performed by persons who have a direct role in the program/project
- Can be done by the management team or persons assigned from the implementing agency
- On-going evaluation can be performed by internal evaluators

2. External Evaluation:

- It is carried by persons/institutions from outside the program/project
- In most cases it is conducted by the funding/ sponsoring/ agencies with formally designated persons outside the project at fixed points in time
- Terminal and ex-post evaluation is often conducted by external evaluators (in some cases also on-going evaluation).

Why Analyze Impacts?

- To know the positive and negative (anticipated and unanticipated) changes occurred as a result of the implemented project or to assess impacts resulted from the program/project on the targeted group area as well as on the local, regional & national social, economic, etc. development.
- To mobilize or not additional resources on similar projects.
- To identify the problems confronted during implementation and operation and make corrections on other similar on-going projects
- To get feed-back in order to prepare/design new projects which are more practical, action oriented and problem solving.

The impact analyses should be undertaken with close contact and consultation with all stakeholders in the project.

How and What to Analyze? Assessment of the positive and negative impacts of a project (especially public sector investment) must be targeted not only to the specific area situation where the project is physically implemented but also to the overall long-term local, regional and national economic development**.**

The following are the stages which could help you for the impact assessment of a single project. It can be adapted as required by a particular project under consideration. Note that some of the questions may not be relevant to all projects.

STAGE 1.ESTABLISHING THE ACTIVITIES BEING ANALYZED

- What were the objectives of the project i.e. what did the project set out to achieve?
- Who were intended to be the beneficiaries and how were they to benefit?
    - Number and types of people, areas,
    - institutions, etc. expected to benefit
    - Social and economic activities that enhanced by the project,
    - Special groups expected to benefit, etc
- What were the main intended inputs from the organizations responsible to implement the project, from the beneficiaries and other supporting bodies i.e. contribution in gaining capital, technical support, labor and material contribution etc. for the project activities?
- What was the implementation plan?

STAGE 2. ANALYSIS OF IMPLEMENTATION

At this stage we consider what actually happened to the program/project and any problem that arose. These are:-

- Were the inputs provided as planned from all sources?
- How they were delivered both in quantity and time?
- Have outputs been achieved as expected?
- Were the work schedules and time tables adhered or were there delays in implementation?
- What problems if any, caused delay in implementation
- What were the consequences of the delay?
- Has the management of the project been adequate?
- How the project costs (capital and operating) did compared with those foreseen at appraisal?
- Overall, what were the strengths and weaknesses of the project both in planning and implementation? etc.

STAGE 3. ASSESSING PROJECT ACHIEVEMENTS

Here we look at what the program/ project actually achieved vis-à-vis its original objectives. The major points to be considered are:

- Did the project achieved its main objectives i.e. have outputs been used as expected?
- Did the objectives change during the life of the project?
- Who were the main beneficiaries? Did they actually benefit from the project's output?

- What capacity the beneficiaries developed in exploiting the local economic potentials? Such as raw materials available, local skills, markets, etc.
- What was the level of the stakeholders/ beneficiary groups involvement in supporting the project?
- Was there any linkage or net-working created by the project with others in the area and/or outside the area such as technology, institutional, production, marketing and other linkages?
- What overall changes were observed?
- Were there unanticipated results of the project either beneficial or harmful? Such as growth in number of crimes, in-migration, etc.
- What were the most important factors explaining success or failure?
    - Inadequate or untimely budget release from the project funding bodies
    - No or inadequate cooperation from relevant government institutions
    - Lack of access to important project inputs and services
    - Inaccessibility to appropriate technology
    - Lack of skilled and unskilled labor
    - Inadequate incentives, etc.

STAGE 4. CONCLUSION AND RECOMMENDATION

Finally findings from the impact analysis have to be brought together and conclusions drawn. Among the points to be considered are:-

- What are the key lessons that emerge from the project(s) design and implementation?
- What factors contributed form the success or failure of the project(s)?
- Is there new and particular problem revealed during the project implementation?
- How do the findings compared with those of previous impact analysis? (if exist any)
- What recommendations raised directly from this project for the continued operations of this project or for future similar projects?

Who can Evaluate Community Based Program/Projects?

- Until recently only 'experts' could carry out monitoring and evaluation of projects/ programs (for all types of projects)
- However, community based or targeted projects needs full involvement of local people and other partners during M&E (not only in collecting information and statistics relating to their own development work).

Evaluation Methods

The commonly used methods include;

- Keeping and using regular records
- Meetings
- Discussion groups
- Work progress assessment workshops
- Assessment of regular reports (weekly, monthly, quarterly and yearly)
- Interviews
- Analysis of existing information
- Field visits or observation

Steps in Developing Evaluation Tools

- Review project objectives
- Convert project objectives into evaluation objectives
- Identify and list down key factors
- Select indicators for key factors
- Determine the key factor that should be used for developing the evaluation tools
- Utilize the key indicators in formulating key questions
- Check the relevance of the key questions to the information needs
- Pre-test evaluation tools, orient evaluators on the tools and put the tools to use

6.3 COMMON FEATURES & DIFFERENCES B/N M&E

In many cases;

- both M&E use the same data collection and analysis system
- the indicators for monitoring may be included in the range of information required for evaluation.

MAJOR DIFFERENCE B/N M&E

	MONITORING	EVALUATION
OBJECTIVES	▪ To determine the efficiency & legitimacy of the application and use of inputs as well as their conversion into outputs ▪ To facilitate an adjustment of activity plans, time schedules or budgets (focuses on inputs, process, output and work plan)	▪ To determine whether the objectives set were realistic, given the capacities with which & the circumstances in which they had to be fulfilled ▪ To undertake review of things done i.e. to assess the impact of the project activities (Focus on effectiveness, and relevance or impact)
FREQUENCY/ REFERENCE PERIOD	▪ It takes place during the execution of a program/ project activity ▪ It is a continuous feedback system that remains in force throughout the program/ project implementation stage	▪ Carried out periodically i.e. before the implementation of the program/ project and on different periods while the planned activities are on progress as well as after it become operational
PRIMARY USERS	▪ It is a tool for project managers to use in judging and influencing the progress of implementation.	▪ Results are used by funding agencies and other relevant institution in future program/ projects design
DATA GATHERED	▪ Primarily quantitative	▪ Primarily qualitative

COMPLEMENTARY FEATURES OF M&E

MONITORING	EVALUATION
▪ Implementation oriented ▪ Tracks results ▪ Assess intermediate results ▪ Focus on timeliness ▪ Emphasis on multi-level results ▪ Informs Budgeting ▪ Strengthens accountability for managing results ▪ Essential for program implementation and Improvements ▪ Can use disaggregated data	▪ Policy oriented ▪ Explain results ▪ Assess attributes ▪ Focus in rigor ▪ Emphasis on final results ▪ Informs broad resources allocation ▪ Strengthens accountability for results themselves ▪ Essential for strategy development ▪ May need aggregated data

6.4 USEFULNESS OF M&E

M&E studies can be of direct use to policy makers, planners and managers in four different ways:

- It can help a country to improve its methods of identifying and selecting projects and programs by ensuring that these endeavors are consistent with national development objectives and they will have a good chance of succeeding and that they are using the most cost effective strategy for achieving the intended objectives.
- M&E studies can determine whether the project is being implemented efficiently, is responsive to the concerns of the intended beneficiaries and will have its potential problems detected and corrected as quickly as possible.
- They measure whether projects and programs that are underway are achieving their intended social and economic objectives as well as contributing to sectoral and national development objectives.
- Evaluation studies can be used to assess the impact of projects on wider developmental objectives such as protecting the environmental and managing the natural resources, alleviating poverty and giving women full economic, social and political participation in all aspects of development.

6.5 ORGANIZATION FOR M&E

To serve as a management tool, monitoring system that fit the management system should be organized at each level of management. The organizational arrangement and staff size depends on the project type.

The staff of M & E unit can contribute, among others, in the following activities.

- Sort, summarize, and disseminate the information flowing from the various units and staff engaged in implementing the project.
- Analyze the administrative files and records pertaining to the project implementation.
- Collect and analyze data from the intended beneficiaries of the project to supplement the available records and reports.
- Identify problems being encountered by the project and conduct diagnostic studies bearing on these problems
- Maintain in a retrievable format the various data series overtime as an aid to later evaluation
- Prepare reports

6.6 SETTING-UP MONITORING AND EVALUATION SYSTEM

An effective implementation of projects requires putting in place appropriate and efficient M&E system. The system aims; at gathering, processing, reporting and utilizing information in the progress of activities, outputs, outcomes and impacts of projects. Hence before we proceed to actual M&E activity we need to design and set-up a system.

Precise design for M&E information system may differ from sector to sector and from project to project depending on each project's;

- objectives,
- nature and
- environment

The system designed must ensure effective vertical and horizontal information flows between the different levels of organizations.

The two commonly used approaches are called;

1. The conventional or "blueprint" and
2. The process approach

1. Conventional or "Blueprint" approach

Here the project planning and appraisal team specify;

- the M&E system's objectives,
- the required data,
- the studies to be undertaken,
- the organizational placement of the unit,
- the personnel and budgetary needs, and
- the formats used and the reporting mechanisms.

2. The "process" approach

Permits project managers, partners and M&E staff to develop formats to collect and analyze data on the subjects and problems they view as important for project implementation. In many instances a monitoring information system can incorporate both approaches. A broad design for the M&E system can be blueprinted at the design and appraisal stage of a project, and throughout the implementation process the staff can exercise considerable flexibility in responding to new challenges and opportunities emerged

6.7 STEPS IN DEVELOPING M&E SYSTEM

- Determining the objectives of M&E
- Identify and involve key stakeholders
- Define what should be monitored and evaluated
- Determine the priority areas to be monitored and evaluated
- Identify and allocate resources for M&E
- Identify and indicate key elements, factors and indicators to be focused on for M&E
- Design and test M&E instruments
- Plan how you will execute M&E
- Determine how data will be collected, processed and analyzed
- Prepare, disseminate and use the M&E report

While designing M&E systems it is important to pay special attention to the following items.

- The participation level of stakeholders
- Gender considerations
- Impacts on the environment
- Child welfare and impact on marginalized & disadvantaged groups

6.8 PREREQUISITES FOR A SUCCESSFUL M&E SYSTEM

- Managers have to want the system & be committed to its use.
- Decisions on the data to be collected should be based on the problems that will need to be solved during implementation.
- Requirements for data collection have to be adapted to realistic standards of accuracy, timeliness & cost.
- The system has to be designed at an early stage of project preparation & baseline data collected well in advance.

6.9 REPORTING

- is a systematic activity of processing and distributing information to partners depending on the type of information they require.
- is a tool through which we know what happened or what we got from M&E activities
- Monitoring report focuses on what goes into a project/program and its out puts
- Evaluation report deals with what we got from the development intervention
- Reporting requirements depends upon the users objectives and needs.

FEATURES OF GOOD REPORTS

- narrates an event or an activity
- is a formal way of presentation
- is prepared for a specific audience
- explains how the information is gathered
- states why the information is collected and how useful it is
- may include conclusion reached
- may also include recommendation as required

Points to be considered during report preparation

- Define the objective of the report
- Identify your audience
- Know what the audience wants to know
- Determine the time frame for reporting
- Design appropriate data collection tools
- Use good formats for reporting
- Carefully select useful information for your target users
- State conclusions and recommendations (as necessary)
- Circulate the draft report to get comments for improvements
- Review as necessary and prepare summary of main findings, conclusions & recommendation (if your report is big)
- Distribute to those concerned

Types of Reports

There are various small categories of reports. The two types are:

Informative: contains only facts and figure (leaves the analysis, interpretation, conclusion and recommendation to the users)

Interpretive: includes analysis, interpretation, conclusions and recommendations by the writer of the report.

Structure of Reports

Depends on:

- What is required
- Who needs the report, and
- How much information is desired

Structure of full-fledged formal reports:

- Title page
- Acknowledgement
- Table of content
- Executive summary
- Introduction
- Analyses and findings
- Conclusions
- Lessons learned
- Recommendations
- Attachments
- References
- List of interviewees, etc

Checklist for controlling the quality of M&E reports

- Does the title reflect the contents of the report?
- Have the terms of reference for the report been properly followed?
- Does the report contain the required items?
- Does the introduction clearly state the purposes of the report?
- Are the findings based on the data gathered?
- Are the conclusions based on the findings?
- Is the report divided into related units and sub-units
- Is the language clear and simple?
- Are all the references fully stated?
- Is the report prepared for the right audience?
- Does the report fit into the capacity of the users?
- Are the recommendations viable, concrete and practicable?
- Is the report attractively presented?

6.10 MAJOR PROBLEMS OF THE M&E PROCESS

- Inadequate or lack of M&E unit and staff both at the project level and higher implementing body. In most cases M & E system is not either properly established or not provided adequate attention and resources where it exists.
- Poor accountability for failures and inadequate reward for special efforts made on the successful project implementation.
- Limited training opportunity for M&E personnel in projects or offices where the unit exists.
- Limited information source on project progress. Even when information is available it doesn't answer the right questions. Frequently where the system exists it focus only on quantitative financial aspects and physical implementation of the program/project.
- Late arrival of information required for monitoring.
- Too costly to collect information.
- Disregard of previous M&E findings in the design of new projects.
- High mobility of project staff disrupting continuity of M&E functions.

6.11 PARTICIPATORY M&E

It is a process in which primary and other stakeholders collaborate and take an active part in assessing & evaluating the performance and achievement of a development intervention.

Significant Features of Participatory M&E are

- Focus on process & outcomes
- Uses multiple approaches
- Encourages diverse views

- Creates a learning experience
- Involves experts as facilitators
- Relatively simple and flexible design
- Stakeholders are key factors for the activity

6.12 CURRENT STATUS OF MONITORING & EVALUATION IN DEVELOPING COUNTRIES

As per the World Bank estimates the success rates of projects in developing countries is less than 50%. This figure does not fully reflect the project performance. It refers to the project implementation stage, in which infrastructure is constructed, equipment installed and service delivery system established. Little is known about the sustainability of the project and their intended impacts. In view of these problems it has become essential for the governments and donors agencies to put more emphasis on M&E.

Now as many as hundred developing countries perform some kind of M&E activities. The OECD (Organization for Economic Cooperation and Development) has estimated that as average donor agency conducts 10 to 30 evaluations in a year, while USAID and World Bank conduct as many as 250 evaluations in a year.

The focus of M&E studies in most developing countries to be narrow. A high proportion of M&E resources are devoted to physical and financial implementation of large projects and little attention is devoted to sustainability of the project, the quality of social development projects, the distribution of project benefits among various socio-economic groups or geographical regions, the extent to which the projects have achieved the intended impacts or the effect development strategies have had on the environment.

6.13 CURRENT STATUS OF SOCIAL PROGRAM EVALUATION

Social programs refer to the broad range of programs designed to improve the quality of life by improving the capacities of citizens to participate in social, economic and political activities at the local or national levels. Examples are health, nutrition, housing water supply, local transportation, vocational and technical training, credit, integrated rural development, small business development.

HOW SOCIAL PROGRAMS (SP) ARE TO BE EVALUATED?

a. SP are evaluated in the same way as a capital investment project is evaluated. For example, an educational project will be appraised on the basis of the economic rate of return and a health project may be appraised by using the cost effectiveness analysis. This type of assessment tends to concentrate more on monetary inputs or possibly physical outputs.

b. This approach is followed by UN agencies, governments, and NGOs which is based on the concept that things like literacy, primary health, housing, and drinking water are basic human rights and do not require economic justification. Evaluations focus on cost effectiveness of the delivery systems and accessibility to intended target groups. Regressive impact evaluations are rarely conducted because program justification does not depend on a particular economic impact. Both approaches (A&B) are supply driven.

c. This approach has been adopted by NGOs, bilateral donors and UNICEF, and World Bank. This approach is based on the notion that the principle objective of social development should be to help indigenous communities or underprivileged groups and to develop the organizational capacity and

knowledge needed to identify and satisfy their own needs. There is no standard way of evaluating such programs. A number of new methodologies are evolving. They are beneficiary assessment methodology, social impact assessment, to integrating the qualitative and quantitative methods, rapid assessment procedures, holistic evaluations.

The context in which studies is conducted to evaluate project efficiency in the production of outputs and impacts

Questions on the minds of clients • How much does it cost to produce each project output? • Are there other ways to produce the same outputs more economically? • How would the cost-effectiveness of the project be affected by a large –scale replication? • Does the project produce a good return on the resources invested? • Could the resources have produced a higher yield if they had been invested in a different project? • How are project benefits distributed between geographical and income groups?
Kinds of studies • Cost-effectiveness studies • Cost- benefit studies (economic analysis)
Timing f the studies • During project identification and appraisal to assess the likely costs and benefits of alternative projects • During preparation of the project completion report. • When the project has been operating for several years, to reassess the economic rate of return as an indicator of project sustainability
How are the studies used • To help in the selection of projects and delivery systems offering the highest potential outputs and benefits at the lowest costs. • To assess (before the project begins) and to evaluate (after the project is completed) the distribution of benefits • To assess the sustainability of the ongoing projects • To improve the data base for the selection of new projects

The context in which project impact evaluation are conducted

Questions on the minds of clients • Is the project producing the intended benefits? • How large are the benefits? • Who actually receives the benefits? Who does not? • What factors account for the variations in impacts?
Kinds of studies • Rigorous quasi-experimental designs with before and after measurements and a carefully selected control group • Continuous panel studies • Rapid and economical impact assessments

• Qualitative impact assessments using participant observation and related techniques • Broader studies to assess environmental impacts
Timing of the studies • Preliminary impact estimates can be made while the project is still being implemented • For quasi-experimental baseline data should be collected before implementation begins and at least one and ideally several, repeat measurements should be made once the project is operating. • Rapid ex-pos evaluation can be re-interviewed periodically throughout implementation and the early years of project operation.
How the studies are used • Preliminary impact studies are used to assess whether impacts are likely to be achieved. Corrective measures can be taken. • Panel studies and qualitative evaluations can identify at an early stage groups who are not benefiting or who are negatively affected by the project. • Since most impact studies are conducted after projects are operating, their main purpose is to help improve the selection and design of future projects. • Macro studies are used to monitor environmental impacts and to take corrective measures at the national, regional or local levels.

The timing and purpose of the main kinds of monitoring studies

Study	Purpose	Timing
Performance monitoring	To track the use of project inputs and production of outputs and to identify delays and problems.	Reports produced monthly or quarterly throughout the period of project implementation.
Financial monitoring	To monitor the correct use of funds, disbursements, and internal cash flow and assess cost-effectiveness.	Weekly or monthly, quarterly and annually
Diagnostic monitoring	To understand why implementation and sustainability problems have occurred and propose solutions	Follow-up to examine problems identified in performance monitoring; or conducted periodically to assess implementation performance.
Midterm assessment of project performance	To assess the overall progress of the project in order to identify key issues and required changes.	Midpoint of the implementation phase.
Project completion report (PCR) and project audit	To assess the project implementation performance of the executing agency; followed by an independent audit to evaluate the extent to which loan agreement terms are being met.	PCR prepared within six months of final loan disbursement; audit follows submission of PCR.
Monitoring operations, maintenance and sustainability	To assess the capacity of the project to continue delivering intended services and benefits throughout its planned economic life.	Once project is operational, studies can be conducted on a periodic basis or at one point in time (for example, after five years)

6.14 PROBLEMS WITH CURRENT APPROACHES TO MONITORING AND EVALUATION

The problems associated with M/E can be classified in to four major groups.

1. Organizational and Political Problems

Central M/E Agencies (CMEA) are frequently perceived as a threat or as a powerful resource that needs to be controlled. As a result CMEA's are often switched from one ministry or department to another or have their powers or resources greatly reduced. Other organizational problems arise when the M/E functions are located in an appropriate agency, when functions are assigned to different agencies and thus are difficult to coordinate, or when coordination problems restrict the flow of information between the central agency and the intended users. It is also common to find NGO's many of which have extensive evaluation experience –excluded from collaborating in the evaluation of public sector programs. Donor agencies have considerable influence on the content and organization of M/E systems. The fact that donors and borrowers often need different kinds of information can create a further set of problems.

2. Managerial Problems

Many M/E agencies at the project sectoral and national levels have failed to establish clear procedures for identifying the main users of the information they produce, for comparing the importance of studies requested by different national and international organizations and for defining the kinds of information required by each potential user. Consequently the potential users compliant that the studies do not provide the information they require for that information is produced to late or in a form that is not easily understood. The highly centralized nature of many CMEAs means that M/E information is used mainly by central government agencies to control line ministries and project units and is not considered a management tool to be used by project managers. Many managers thus see M/E as a threat, or at least an inconvenience and they are unwilling to cooperate in data collection or analysis. This has also created concern about the quality and reliability of the M/E information provided by line agencies. Even though a broad range of federally and state funded programs have mandated that such evaluations be conducted, and even though the potential utility of evaluation is widely recognized, many programs managers still seem reluctant to initiate evaluations, for the following reasons:

Minimization of accountability

The pressure to reduce the size of government has brought a new sense of risk. Managers are aware that legislators and budget departments are seeking programs that can be cut or scaled down. Consequently there is a fear that any kind of evaluation result could be used to justify closing the program. At the same time, no benefits are expected from a positive evaluation.

Lack of confidence that evaluation products will yield practical benefits, exceeding their costs.

Lack of rewards associated with sponsoring evaluations

Length of time required to begin an evaluation

The process of obtaining approval to conduct an evaluation and then to complete the procurement process for contracting consultants, is often very slow and cumbersome. Many managers do not feel the evaluation results are likely to justify the effort involved.

Length of time to produce results

Another set of managerial problems relate to the difficulties of recruiting and retaining qualified staff for the M/E units. Often the kinds of researchers required for these units are not appropriately defined in the

civil service structure. As a result it can be difficult to offer, competitive employment conditions. Also the lack of clearly defined career for evaluators can discourage the qualified staff from entering this field.

3. Problem of Focus

CMEAs usually focus on the monitoring of project implementation, and few studies are conducted to determine how programs operate, how they are sustained, or whether they are able to produce the intended impacts. Thus, although a great deal of information is collected on whether programs are implemented on time and within their budgets, little is known about the massive social and economic development programs actually achieve the intended objectives and produce the benefits or changes for which they were designed.

One reason for this implementation bias is that most developing countries the capital investment budget is usually far greater than the operations or revenue budgets from which funds are obtained for operations and maintenance. Because most government resources go into project implementation, this is the area in which there is most demand for careful monitoring and because international aid agencies are mainly involved with project implementation, they too are more interested in monitoring implementation. Many M/E units are thus located in agencies created to oversee project implementation. Since many of these agencies are disbanded once implementation is completed they cannot manage long term impact evaluations.

Another constraint on the use of evaluation is that most governments and implementing agencies focus more on the assessment of inputs than on the evaluation of outputs and products. This limits the demands for evaluations of the quality or cost effectiveness of outputs or the estimation of impacts.

A broader problem arises from the fact that most governments and policy makers operate within a one year or at the most two year time horizon. Most countries continue to operate on annual budget cycles, and consequently planners and operational agencies tend to focus on the short term implementation objectives. This means that one of the most powerful applications of evaluations – mainly long term prospective studies – is rarely used. It is pointed out that some of the more innovative local and state authorities have moved towards ten year planning and budget cycles. This approach when combined with strategic planning can generate a whole new range of prospective and retrospective evaluation studies that will help planners and managers project the future on the basis of systematic analysis of past and present experience.

4. Methodological Problems

During the 1970s a number of large scale impact evaluations using quasi experimental designs were financed by international aid agencies in sectors such as health, housing and agriculture. The results of most of these evaluations were disappointing, and now many government authorities and donors argue it is impossible for rigorous impact evaluations to be cost effective and operationally useful. Thus the proponents of impact evaluations are required to defend the technical feasibility of rigorous impact evaluations, while at the same time responding to criticisms that the result of such evaluations are too academic or arrived too late to be of any operational use. Some of the other methodological problems include the mono-method bias, that arises from relying on a single (small number of) data collection methods; the preference for the quantitative methods and the tendency to ignore many valuable qualitative methods; the preference for static comparisons between points in time rather than an analysis of process

of change and excessive reliance on computers and the lack of concern for the constraints that computerization imposes on the kinds of data collected or on the quality and validity of data.

6.15 EVALUATING SOCIAL DEVELOPMENT PROGRAMS: FURTHER PROBLEMS AND RECOMMENDED APPROACHES

1 Further Problems

The M/E of social development programs can run into still other kinds of problems of a less general nature. First owing to the large number of donors or nationally funded programs that must be monitored, social development programs are often monitored using the same procedures and reporting formats employed in capital investment and economic development projects. These monitoring systems are based on a set easily quantified physical and financial indicators, many of which are not entirely appropriate for social development projects, since their outputs are not easy to identify or measure. Second, many social development programs use a flexible participatory approach in which project objectives are defined in consultation with intended beneficiaries and often over a period of time as the project evolves this make it difficult to establish objectives at the start of the project and to define a set of criteria for evaluating the objectives to complicate matters further different stakeholder groups may have different objectives. Third it is often difficult to assess the links between the project outputs and the production of desired impacts. For example infant mortality, school performance or household income are affected by so many factors that it is extremely difficult to isolate the contribution of a particular project. The contribution becomes even more difficult to evaluate when programs have broad objectives such as alleviating poverty or improving the social and economic participation of women.

2 Recommended Approaches

The following are some of the key lessons and recommendations derived from recent studies and publications.

- It is essential to involve all major stakeholders in the evaluation process and from the initial stages of identifying the need for studies and defining objectives.
- Without eliminating input and process evaluation, much greater importance of given to the evaluation of outputs and products. It must not be forgotten that programs are funded and organized to achieve certain objectives – that an effective evaluation must provide policy makers and managers with consistent feedback on the extent to which these objectives are being achieved and on the factors that are interfering with that endeavor.
- Greater attention must be devoted to assessing the quality of programs rather than simply examining quantitative indicators of inputs and outputs.
- Evaluators must help managers understand how evaluation can become a management tool for improving performance. Evaluators must also maintain a much closer relationship with managers than they normally do.
- More emphasis must be put on policy evaluation. One of the greatest potential uses of evaluation data is in the systematic analysis of what is known about a particular problem or type of program so as to help policy makers select the policy or program most likely to achieve the desired objective.

Although it is important to incorporate social programs into established national M/E systems, these systems must be enhanced in a number of ways to reflect the special characteristics of social development programs.

- The intended beneficiaries should be involved in the planning, execution and interpretation of the M/E studies. This means that the perspectives of different stakeholders should be identified and incorporated into the planning and interpretation of the studies. The beneficiaries' assessment methods being developed by the World Bank are among the many examples of how this approach can be applied.
- Social analysis should be incorporated as a standard component of project appraisal. Thus an assessment of social and institutional soundness of a project should be evaluated in exactly the same way as its economic and financial soundness.
- Social development projects are frequently more concerned with institution building at the community and local level than with achieving precisely defined outcomes. Consequently much greater attention is placed on the evaluation of process of project selection, implementation, operation and replication, closely related to this is the emphasis on institutional assessment. However, this project should also be concerned with the outcomes they hope to sustain.
- Rapid appraisal methods should be developed to standardize so that they can be used as a regular part of data collection and analysis during appraisal, monitoring and diagnostics phases.
- More flexibility must be introduced in the M/E process in recognition of the fact that the objectives of the program will evolve as the program develops this means that the evaluation must describe and assess the implementation process as well as outputs.
- It will be helpful to develop a model of the project implementation process. Such a model identifies the assumption on which the project is based, describes the intended methods of project implementation and identifies the assumed links between inputs, implementation, outputs and impacts. The intended model is then compared with actual implementation experience and the reasons for deviation and unexpected outcomes are examined and explained.
- Non-governmental organizations should be asked to participate in all stages of the evaluation.
- It is important to establish a number of independent indicators of key outputs and impacts so as to obtain more reliable ways of assessing and explaining project performance and outcomes. This will normally involve both quantitative and qualitative indicators. The methodologies for reconciling the different indicators are referred to as triangulation.