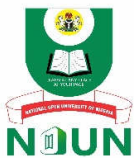


**COURSE
GUIDE**

**PAD 402
PUBLIC PROJECT MANAGEMENT & ANALYSIS**

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INTRODUCTION

This course, PAD 402 is a two credit unit compulsory course for students studying Public Administration at undergraduates and postgraduates level in the Faculty of Management Sciences.

The course has been conveniently arranged for you in twelve distinct but related units of study activities. In this course guide, you will find out what you need to know about the aims and objectives of the course, components of the course material, arrangement of the study units, assignments, and examinations.

THE COURSE AIM

The course is aimed at acquainting you with what Project, Planning is, what Project Preparation and Implementation are all about and getting you understand the practical aspects of preparing a plan, designing the needed projects and implementing them for national development. To ensure that this aim is achieved, some important background information will be provided and discussed, including:

- Concept and Significance of Project
- Project Preparation Aspects and Project Cycle
- Project Management
- Project appraisal
- Project Formulation
- Financial Appraisal
- Economic Analysis of Project
- Social Analyses of Project
- Project Planning
- Planning
- Approaches to Development Planning and Gender Analysis
- Monitoring and Evaluation

LEARNING OUTCOME

At the end of the course you should be able to know, understand and appreciate the following:

1. Concept and Significance of Project
2. Project Preparation Aspects and Project Cycle
3. Project Management
4. Project appraisal
5. Project Formulation
6. Financial Appraisal
7. Economic Analysis of Project

8. Social Analyses of Project
9. Project Planning
10. Planning
11. Approaches to Development Planning and Gender Analysis
12. Monitoring and Evaluation

COURSE MATERIAL

The course material package is composed of:

- The Course Guide
- The Study Units
- Self-Assessment Exercises
- References/Further Readings
- Possible answers to self-assessment exercise (s) within the content

THE STUDY UNITS

The study units are as listed below:

Module 1

- | | |
|--------|---|
| Unit 1 | Concept and Significance of Project |
| Unit 2 | Project Preparation Aspects and Project Cycle |
| Unit 3 | Project Management |
| Unit 4 | Project appraisal |

Module 2

- | | |
|--------|------------------------------|
| Unit 1 | Project Formulation |
| Unit 1 | Financial Appraisal |
| Unit 2 | Economic Analysis of Project |
| Unit 3 | Social Analyses of Project |

Module 3

- | | |
|--------|---|
| Unit 1 | Approaches to Development Planning |
| Unit 2 | Monitoring and Evaluation |
| Unit 3 | Introduction to Capital Budgeting or Capital Investment |
| Unit 4 | Project Planning, Analysis and Management |

ASSIGNMENTS

Each unit of the course has a self-assessment exercise. You will be expected to attempt them as this will enable you understand the content of the unit.

FINAL EXAMINATION AND GRADING

At the end of the course, you will be expected to participate in the final examinations as scheduled. The final examination constitutes 70 percent of the total score for the course while the assignment, test and attendance constitute 30 percent as the case may be.

SUMMARY

This course, **PAD 402: PROJECT UNITS** is ideal for project implementations of any country. It will enable you understand the whole business involved in planning, project implementation in both the public and the private sectors. Having successfully completed the course, you will be equipped with the latest global knowledge on project implementation decisions. Enjoy the course.

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MODULE 1

Unit 1	Concept and Significance of Project
Unit 2	Project Preparation Aspects and Project Cycle
Unit 3	Project Management
Unit 4	Project appraisal
Unit 5	Project Formulation

UNIT 1 CONCEPT AND SIGNIFICANCE OF PROJECT**Unit Structure**

- 1.1 Introduction
- 1.2 Learning Outcome
- 1.3 Main Content
 - 1.3.1 Meaning and Concept of a Project
 - 1.3.2 Definition of a Project'
 - 1.3.3 Features of a Project'
- 1.4 Project Concept
 - 1.4.1 Plan and Project Relationship
 - 1.4.2 Plans Require Projects"
 - 1.4.2 Projects Require Plans
- 1.5 Significance of Project
- 1.6 Summary
- 1.7 References/Further Readings
- 1.8 Possible Answers to self-assessment exercise (s) within the content

**1.1 Introduction**

This unit will explore the meaning and value of projects. You should be aware that the concept of projects is comparable to the components of an investment strategy. The plan cannot be effective if its component projects are flawed. This section will focus on the definition, concept, and relevance of projects. In section 1.3, the concept of the projects will be explained in detail.

**1.2 Learning Outcome**

By going through this unit, you will be able to;

- explain the project and project concept;
- discuss the significance of project to the country, planners and ", educationists;
- identify the inter-relationship between plan and project



1.3 Main Content

1.3.1 Meaning and Concept of a Project

Typically, a project requires the use of capital resources to produce productive assets. These assets provide returns over a period of time proportional to the life of the most restricting resource. The same might be generalized as adhering to a project's specific definitions:

1.3.2 Definition of a Project'

1. “Project is an investment activity meant for providing the returns for specific Clientele group for specific activity, specific objective and specific area development. It should facilitate analysis in planning, financing, implementation, monitoring, controlling and evaluation (Mc Dbnald, 2015)”.
2. A project is a proposal for an investment to create, expand and/or develop certain facilities in order to increase the production of goods and/or services in a community during a certain period of time. Furthermore, for evaluation purposes, a project is a unit of investment, which can be distinguished technically, commercially and economically from other investments (Mc Dbnald, 2015)”.
3. “Project is an activity for which money will be spent in an expectation of returns and which logically seems to lend itself to planning, financing, and implementation as a unit. It is the smallest operational element prepared and implemented as a separate entity in a national plan of programmes of agricultural development. It is a specific activity, with a specific starting point and a specific ending point, intended to accomplish specific objectives (Mc Dbnald, 2015)”. It is a unique activity noticeably different from preceding, similar investments, and it is likely to be different from succeeding ones, not a routine segment of an ongoing programme (Mc Dbnald, 2015)”.
4. “A project is an instrument of change. It is a coordinated series of actions resulting from a policy decision to change resource combinations and levels so as to contribute to the realization of the country's development objectives (Benzamin, 2015)”.

The first three definitions link investing activity to the advantages that result from it. The project is viewed as a dynamic element in the fourth definition. It states, "build the project in accordance with the plan." What should be altered and how should it be changed must be determined.

1.3.3 Features of a Project'

The important features of a project are as follows (Gittinger, 2012):

1. "The size of the project should be as small as possible and should also be economically, technically and administratively feasible. A number of projects could form a programme. The entire programme could be analysed as single project. This would invite the risk that the high returns from one component would mask the low returns from the other component of the programme. The administrators usually club projects of similar nature while seeking funding for the projects. Even in such situations individual components should be analyzed separately.
2. A project is an investment activity that can be evaluated separately. A project can be separated into parts; each of these can be defined as projects. Such projects should not be considered separately, if they are so closely related that one cannot be operated or fulfill its purpose without the other. For example, Dam and a main canal to distribute water cannot be considered as a two separate project as one part cannot work without the other. Such closely integrated projects should be considered as a one project.
3. The projects are considered and evaluated at all levels from a junior engineer to the Planning Commission or the World Bank: They are also evaluated at all depths ranging from mere inspection by experts to use of programming techniques and scientific guess work or prediction.
4. Same evaluation technique should be used to achieve consistent decisions at all levels and time of evaluation. Thus the junior engineer or settlement planner should be guided by the same principles and methods as are used in the final appraisal. It is difficult to practice the same in those projects where the aim is to maximize the social advantage for the whole country.
5. All the projects, whether of public or private sector, need to be analysed. The feasibility analysis of private sector projects would help government to approve such projects as well as to grant financial assistance- The public sector projects on the other hand need to-be thoroughly analysed, because public sector enterprises may not yield commercial profit, but they still demand support in the form of subsidies. The analysis would reveal the extent of subsidies needed so that necessary provisions can be done in the plan documents.
6. The biological nature of agricultural projects differentiates the agricultural projects from projects of other economic sectors. This feature of agricultural projects makes it harder to predict input-output relationships".

1.4 Project Concept

The project concept is “a component of the project cycle. In this phase, initial "project idea" development occurs. The choice to go on to the next phase of identification is contingent on the completion of project-concept development.

In the form of projects, the project-concept definition represents the country's development goals. In order to define the project concept, a thorough understanding of the country's agricultural development objectives and resource base is required, as well as an assessment of the options facing the country. During this process, questions such as "should the country invest heavily in irrigated agriculture or should It develop first its potential for rain fed agriculture?" must be answered by sectoral surveys covering both irrigated and rain fed agriculture.

Most agricultural projects do not undergo a comprehensive process of prioritization, selection, and screening. The World Bank also conducts agricultural sector surveys to a limited extent. These sector surveys aid in the assessment of priorities and the development of project ideas that are useful in identifying specific projects for Investment” (Little and Mirrlees, 2018).

SELF-ASSESSMENT EXERCISE

1.	What do you mean by a project?
2.	State the various features of a project,

1.4.1 Plan and Project Relationship

“Project selection and planning are intimately connected. Since, the planning is usually done at the center it is expected that projects could be selected for implementation at the center, However, all the projects need not be centrally planned and may be delegated to departments, municipalities and public companies whereas, the large projects must be centrally scrutinized, selected, and fitted into an investment programme (Little and Mirrlees, 2018)”.

1.4.2 Plans Require Projects"

“Creating a solid strategy for a region or country necessitates extensive knowledge about existing and planned initiatives. This is self-evident for a short-term operational plan (1-5 years) that must include definite and realizable plans, as well as a perspective plan (10-15 years) that is a medium-term quantitative sketch of economic trends. The long-term plans establish objective rates of growth for the gross national product, consumption, investment, and its financing by both domestic and

foreign savings. These plans should be based on reasonable assumptions about the amount of investment and output that will result from capacity operation (the capital-output ratio). The degree of realism of such plans is determined by understanding the rate at which good projects may be planned, designed, built, and brought into full operation. It also depends on understanding the predicted capital-output ratios in various areas of the economy. Such knowledge can be gained by researching investment and output trends in other economies, particularly industrialized economies. Economies, while employing such country's experiences, should be given for the fact that expenses are usually greater than predicted, and outputs are lower, in developing countries compared to industrialized countries. In developing countries, the capacity to design sound initiatives is frequently overstated, while the time required for their planning is frequently underestimated. In short, if a plan is to be coherent and realistic, it must include a critical evaluation of projects that have already been built within the country (Little and Mirrlees, 2018)".

A lot of viable strategies can be produced, but selecting the best one is challenging. To achieve this optimal plan, the government must constantly endeavor to allocate investment to those areas that would offer the highest returns. Thus, for optimal resource allocation among different sectors of the economy, the costs and benefits of different projects in each set must be appraised on a similar basis. Thus, a suitable plan can only be developed with extensive project planning and accurate project economic evaluation.

1.4.2 Projects Require Plans

"The economic appraisal of projects is carried out to identify the feasible projects' for implementation. The analyst is helped by plan knowledge in this process. The assessment of benefits necessitates estimation of the effective demand of the projects' product, which depends on how the economy will develop in the future and, in turn, on the long-term plan and policies of the "government. ... A product's complete demand can be satisfied by either native production or imports. Once again, the contribution of each of these sources of supply in satisfying overall demand would be determined by government policies regarding tariffs, currency rates, and import controls:.

It is common to use the current prices of scarce resources as adequate measures of real scarcities, but as development advances, scarcities change, necessitating the prediction of future prices and use of estimation of those costs benefits, which future. A likely future change in a price may be taken as an indication of the strength and scarcities which are operating and will operate in the economy.

The perspective planning would assist the planner in making educated guesses as to how scarcities will change, such as whether disguised or actual unemployment will rise or fall, whether the balance of payments position will become easier, and whether population growth will continue to increase at an accelerated rate (Mc Dbnald, 2015).

1.5 Significance of Project

The project is important as a tool for development, for obtaining outside assistance, as an effective unit for implementing investment, and as a subject for educational institutions. These are covered in depth here (Mc Dbnald, 2015):

1. "Projects are the "Cutting Edge of Development"

Projects are considered to be the "cutting edge of development". The major problem faced by the administrators is the implementation of development programmes. Poor project preparation is the prime cause for inefficient implementation of these programmes. Most of the countries have poor capacity to prepare and analyze projects. The administrators often underestimate the time and effort needed to prepare suitable projects. They focus more on policy formulation and planning of a much broader scope overlooking the fact that development cannot proceed unless specific project are there on which to spend money. The result is ill conceived and hastily drawn up projects".

2. Projects Role in Overall Development

"Projects are essential for development of an economy. Therefore, the project selected for implementation should be of high priority in the national development program. Thorough consideration should be given to all alternatives in the economy as a whole as also within the sub-sector (e.g., agriculture sector). Most often the countries undertake more formal sector studies on agricultural plans to set forth priorities and objectives. However, the should be on the overall development of the sector, which would ensure that the investment programmes are well balanced. The sector studies often draw a balance between alternative investments and options are given keeping in mind the linkage between agricultural sector growth and the growth in other sectors. They also study the institutional factor affecting the development and suggest the needed changes in institutional set up. It also suggests the governmental policies which need to be modified in order to provide .both the positive and negative incentive to aid in proper implementation of the programme. Such a well thought out and well developed strategy helps in

identification of specific projects. The initial feasibility studies are “taken up for these projects and are followed by detailed project preparation before investment is committed” (Mc Dbnald, 2015).

3. The Project Investment Decision

“There are several doable undertakings that can be carried out. However, they must be given priority because of limited resources. The project investment decision is not simply based on the analytical tools used for project prioritization. When making project investment selections, a few other considerations are taken into account. For instance, if there are two projects with similar project benefits—one is a settlement project, the other is a plantation project—the settlement project is picked for implementation because it would result in better income distribution. A political decision should be made about national investments that incorporates the best judgment of all those in charge of making wise decisions. The project analysis should not be viewed as a tool to replace this judgment; rather, it should be used as an extra tool to hone the judgment process and reduce the possibility of error.” (Mc Dbnald, 2015).

4. Funding for Programme vis-a-vis Project

“For instance, the external aid to agriculture sector is usually project based. There are a number of advantages to this approach, firstly, there is discipline involved at various steps of the project cycle. The project based lending makes monitoring and control easier by way of supervision. Projects assist and influence the country's investment strategy. They aid in directing resources towards the specific target groups and specific regional income group.

The disadvantage of such an approach is that it takes lot of precious time in preparation and implementation of the project. Most often the disbursement of the funds is behind the target and so the rate of absorption of a country for external financing resources for projects is much lower than would be the case with say, v. programme lending. The project has a number of components that are mutually supportive therefore multi-disciplinary approach helps in preparation of a sound project. The development projects have a diverse component such as social services, irrigation, roads, beneficiary participation, etc. Seeking the beneficiary participation is all the more skilled and time taking process. Therefore, such projects require more time and specialized staff, for better conceptualization of the project. Most often there is shortage of project staff and they are filled by

shifting the staff from other departments. Most of the programmes and projects lack sound training of their personnel going to run the project (Mc Dbnald, 2015)”.

5. **The Subject of Project Analysis**

“Because they are not aware of the prospects for educational institutions to support the project-based approach to development in their nations, students have not given the topic of project analysis the attention it deserves. Only a small group of government officials in significant ministries who negotiate loans with external donors and those directly involved in project implementation are aware of the significance and function of projects. Additionally, there is a lack of course materials in this area of project analysis because the recognized existing literature mostly focuses on the economic analysis of projects, which is just one of the numerous facets of project formation.

The growing importance of the project-based approach to agricultural development in emerging nations has increased the need for skilled labor in their planning and execution. The technical support from the developed world fills a sizable portion of this expanding demand. This is typically "not a free gift to the receiving country since it has to be paid back to the donor. The technical support component for project implementation may reach as high as 25% of overall project expenses in some of the "poorest" African countries. Therefore, in order to produce a big number of skilled workers, it is necessary to promote this subject in educational institutions.

The issue of providing technical support for project planning and execution is turning into one of pride in one's country in many developing nations. Some governments have responded to this problem by creating project preparation units or cells, whose job it is to get projects ready for both exclusive domestic funding and financing with outside assistance. Such organizational growth generates a need for skilled labor (Mc Dbnald, 2015)”.



1.6 Summary

A project is an investing activity that develops assets that bring about advantages over time. A project is a crucial development building block. It is true, interconnected with the national plan, making it difficult to determine which is dependent upon the other. The project's importance is varied as a development unit, its benefits in seeking outside funding, and as a topic for educators.



1.7 References/Further Readings

Mc Dbnald, P. (2015). Investment Projects in Agriculture- Principles .and Case Studies, Longman Group Limited, Essex, U:K

Gittinger, J. P. (2012). Economic Analysis 0/Agricultural Projects. The John Hopkins University Press, Baltimore and London.

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1.8 Possible Answers to Self-Assessment Exercise(s) within the content

SELF-ASSESSMENT EXERCISE 1

What do you mean by a project?

Answer

1. A project is an investment activity designed to generate returns for a particular clientele group for the advancement of a particular activity, purpose, or place. Analysis in planning, financing, execution, monitoring, regulating, and evaluation should be made easier by it.
2. A project is a suggestion for an investment to build, develop, or expand specific infrastructure in order to boost the production of goods and/or services in a community over the course of a specific time period. A project is also a unit of investment for evaluation reasons that can be distinguished from other investments in terms of technology, commerce, and economics.
3. A project is an action that would involve the expenditure of money with the expectation of rewards and that logically would seem to be amenable to planning, finance, and implementation as a single step. It is the smallest operational component created and carried out independently in a national plan of agricultural development programs. It is a specialized action having a distinct beginning and end that is meant to achieve a distinct set of goals. It is a distinct activity that stands out visibly from earlier,

comparable investments, and it is likely to differ from subsequent ones. It is not a routine component of an ongoing program.

4. An instrument of transformation is a project. It is a coordinated set of measures that follow a policy choice to alter resource combinations and levels in order to support the achievement of the nation's development goals (Benzamin, 2015).

The first three definitions link the advantages of investing activity to the action itself. In the fourth definition, the project is viewed as a dynamic component. "Develop the project in accordance with the plan," it states. What has to be altered and how should it be changed must be determined.

SELF-ASSESSMENT EXERCISE 2

State the various features of a project

Answer

The following are some of a project's crucial components:

1. The project should be as manageable in scale as possible and should be realistic in terms of administration, technology, and economics. A program could be made up of a number of projects. A single project analysis might be performed on the entire program. This would expose the program to the risk that the large returns from one component would obscure the program's other component's poor returns. When requesting money for the projects, the administrators frequently group initiatives of a similar sort. Even in these circumstances, each component should be examined independently.
2. An investment activity that may be examined individually is a project. Parts of a project can be broken out; each of these is a project in its own right. If two initiatives are so tightly related that one cannot function or achieve its goals without the other, they should not be seen separately. For instance, a dam and a main canal for water distribution cannot be seen as two different projects because they are interdependent. Such tightly coupled initiatives ought to be treated as a single project.
3. The projects are taken into account and assessed at all levels, from a junior engineer to the Planning Commission or the World Bank. They are also assessed at various depths, from simple expert inspection to the use of programming techniques and scientific guesswork or prediction.

4. To ensure consistency in decisions made at all levels and times of evaluation, the same evaluation technique should be employed. Therefore, the final appraisal's guidelines and techniques should serve as a guide for the junior engineer or settlement planner. In initiatives where the goal is to maximize the social benefit for the entire nation, it is challenging to put this into practice.
5. It is necessary to analyze every project, whether it is in the public or private sector. The government would be able to approve private sector projects and provide financial support with the help of a feasibility study; however, public sector projects still need to be carefully examined because even though they may not generate a profit, they still need support in the form of subsidies. The study would show the quantity of subsidies required, allowing for the inclusion of the necessary clauses in the plan documents.
6. Agricultural projects are distinct from those in other economic sectors due to their biological origin. Because of this aspect of agricultural operations, it is more difficult to forecast input-output correlations..

UNIT 2 PROJECT PREPARATION ASPECTS AND PROJECT CYCLE

Unit Structure

- 2.2 Introduction
- 2.2 Learning Outcome
- 2.3 Main Content
 - 2.3.1 Types of Projects
 - 2.3.2 Aspects in Project Preparation
- 2.4 Project Cycle
- 2.5 Summary
- 2.6 References
- 2.7 Possible answers to self-assessment exercise (s) within the content



2.1 Introduction

This unit will be discussing Project Preparation Aspects and Project Cycle. The project could be classified into a number of groups based on the objectives set for the projects. These are: technological innovation, broadening the physical resource base, Improvement in the status of disadvantaged groups. Improvement in post-harvest handling and distribution, and institution building. Such a classification will help in choosing a particular project class for a particular country depending on the internal environment at that particular point of time.

A project follows a natural sequence of stages/phases. Each phase emerges from the preceding one and also leading to next stage. These stages are identification, preparation and analysis, appraisal, implementation and evaluation. An understanding of each stage of project cycle will help in development of a sound project and its efficient implementation.

There are certain aspects of project which must be considered in all stages of project planning and implementation in order to arrive at a sound project. These aspects are technical, institutional, organization, managerial, social, commercial, financial and economic.



2.2 Learning Outcome

By going through this unit, you will be in a position to:

- explain the different types of project;
- discuss the different phases through which a project passes; and
- Examine the considerations to be given while preparation of a project.



2.3 Project Cycle

2.3.1 Project Cycle

A project passes through a number of phases and each phase not only grows out of the preceding one but also leads to subsequent one. It is a self-renewing cycle so that the new project emanate from the old ones in a continuous manner. The various phases of project cycle are:

1. Identification,
2. Preparation and analysis,
3. Appraisal,
4. Implementation,
5. Monitoring and
6. Evaluation.

1. Identification

The first stage in the cycle is to find the potential projects. The thrust here is to delineate the main outlines of the project and to establish the overall viability of the project proposal.

Some of the sources from which projects could be identified are:

- a. The well informed technical specialists and local leaders are common source of information. The technical specialists while performing their duties identify many prospective project proposals.
- b. Agriculture and allied programmes proposed in the plans of the country as well as States.
- c. Areas identified as potential of further development through Government surveys. It may even identify specific projects, especially larger ones that merit consideration for future investment.
- d. Special development programmes like IRDP.
- e. New projects emerging out of existing projects, etc.

The major steps in the identification process consist of the following:

- a. Evaluation of the present situation: The main objective is to establish the development potential of the area and also to identify -the constraints to development.
- b. Identifying the relevant policy issues: The governmental policies such as pricing-policy; subsidies, taxation, water charges, etc., are examined and their impact on the project proposal is evaluated.

- c. Establishing the projects rationale: Overall justification is provided for the country to undertake the project and for lending institutions to support it.
- d. Developing the project's design and concept: Delineate the project objectives and the measures proposed for the project to achieve these. These are the core of the project and consist of main components of the project to be financed by the lending institutions.
- e. Setting the project's scale: The magnitude of the project is decided, such as size of irrigation command area, number of farmers to be reached, etc.
- f. Preparing preliminary estimates of cost and benefits: Prepare the rough estimates of the cost involved, major project components, and the extent of foreign exchange involved. Project benefits are also estimated in order to estimate the viability of the project.
- g. Proposing the organization and management structure: The main outlines of the proposed organization and process is prepared. The project's agency could be located within the mainstream of the government department or may require a separate arrangement.
- h. Spelling out the further work-requirements: Here, the studies and other requirements for the detailed project-preparation work should be spelled out.

2. **Preparation and Analysis**

Once the project is identified, the process of more detailed preparation and analysis of project plans starts. In this stage consideration must be given to each and every aspect of the project discuss earlier.

The first step in this stage is to take up feasibility study that will provide enough information for deciding whether to begin more advanced planning. The feasibility study provides opportunity to shape the project to fit its physical and social environment and to erasure that it will be high yielding.

It is better that the economic and financial feasibility studies are introduced in the early stage itself so that feasibility studies use these aspects in the project.

Once the feasibility studies have indicated which proposed project is likely to be worthwhile, detailed planning and analysis may begin. This is the stage when detailed studies commence- the carefully done soil surveys, detailed hydrological surveys, and thorough examination of cropping pattern. Month-by month

estimates of labour requirements, and detailed farm budget is prepared. I

Detailed planning takes time, 2-2years or longer. It may also be quite expensive.

Thorough preparation increases a projects' efficiency and helps ensure its smooth implementation in the future, so that the additional time and money required will probably be returned many times over by the increased return from the investment.

Project Preparation Aspects and Project Cycle

Preparation of the plan itself should be planned so that delays can be avoided and resources conserved. The timing of special studies need to be considered, and the services of the consultants should be scheduled so that they are available when needed.

3. Appraisal

The lending institutions/or aid donor appraise the project proposal submitted by countries. Often local or domestic agencies also undertake their own appraisal simultaneously. Once the project is found to be sound, the investment may proceed. But if the appraisal team finds lacunae in the project, the project plan may be altered or a new plan may be developed. Appraisal tries to find out that the major assumptions in the project are correct and realistic. It also establishes that the project has a satisfactory economic rate of return.

Appraisal is also done for the donor/client relationship relating to the financial package, conditions of disbursement, procurement and determining the issues relating to loan negotiations.

4. Implementation

Implementation is the most important part of the project cycle. The successful implementation and realization of the project depends on how realistic a project plan is. This reiterates the need for careful consideration to each aspect of project planning and analysis. A flexible approach should be adopted in implementing a project. The circumstances will change from time to time and the project manager should be able to react intelligently to such changes. As the project is implemented more is known about soils, their response to nitrogen applications, susceptibility to water-logging, and the like, leading to change in technical coefficients. Price changes may call for different cropping patterns or adjustments in inputs. The changes in economic or political environment will alter the way in which the project

should be implemented. Implementation is a process of refinement, of learning from experience. Implementation phase is divided into three different periods.

- a. Investment period: It is the period when major project investments are undertaken. It usually extends up to three to five years from the start of the project in case of agricultural projects. If the project is based on the financial assistance from external financing agency, this period may coincide with the agency's period for loan disbursements.
- b. Development period: This period begins with the start of production. This period lasts for 3 to 5 years, which may be extended if the project has components of cattle herds, tree crops, or other investment with long gestation period. The duration of this phase depends not only on the nature of physical inputs but also on the rate of adoption of new technology by the farmers.
- c. Project life: The project life is usually considered to be twenty-five to thirty years. However, the life of the project depends on the normal life of the major asset that the project has created.

5) Monitoring

It is the timely collection and analysis of data on the progress of a project, with the objective of identifying constraints which impede successful implementation. This is highly desirable when projects fail, to be completed as per time schedule or in the process of attaining the set goals. It is imperative to get the feedback on the problems faced so that effective measures can be taken up to plug the deficiencies, which hamper the speedy implementation. Monitoring is done continuously to offset various shortcomings that crop up from time to time with regard to various aspects of implementation.

5. Evaluation

This is the last phase of the project cycle. It is not confined to completed projects, and can be done several times during the life of the project. The elements of success and failure of a project are analyzed so as to consider those elements in future' plans.

Evaluation is taken up under following circumstances.

1. When the project is in trouble and needs corrective action.
2. While planning a follow up project.
3. When a project is terminated or is well into routine operation.

These could be broadly classified as:

- a. Mid-course evaluation/pre-project evaluation: It is 'done at "the very beginning in order to assess the economic feasibility of the project.
- b. Concurrent evaluation: It is done during the execution stage of the project and is meant to identify and analyse any pitfalls in the execution of the . project.
- c. Ex-post evaluation: It is done for the completed projects, in order to assess the achievements of the objectives set out by the projects.

The project management continuously evaluates the projects during its implementation phase. The concerned ministry, the planning body, or an external assistance agency also undertakes evaluation. In large and innovative projects, the projects administrative structure may provide a separate evaluation unit responsible for monitoring the project's implementation and for bringing problems to the attention of project's management. Many times 'the project management and the sponsoring agency would turn to outside evaluators.

The prime criterion for evaluation of a project is the extent to which the objectives set have been achieved. However, it should also be analysed whether the objectives were themselves appropriate and suitable or not. The project plan should be seen if it was appropriate to one in the light of the objectives set forth. Each objective should be examined whether it was considered well and provision for it was made or not.

The projects could be broadly classified into five groups:

- a. Projects on technological innovation.
- b. Projects on broadening physical resource base. "
- c. Projects on improvement of disadvantaged groups.
- d. Projects on post-harvest handling and distribution.
- e. Projects on institution building. . . Let's discuss the different type of projects in details.

2.3.2 Projects on technological Innovation

The major objective of technology-oriented projects is modernization of agriculture by increasing the productivity of existing enterprises. The main emphasis is to raise " physical output per unit of input i.e. increased yields per hectare, or per rupee invested, or per labour unit employed. This class of projects emanate from the existence of technological package adequately tested and suitable for wide spread , dissemination in the large part of the country. Efficient extension machinery is also necessary to raise skills of the farmers for early adoption and implementation of the new technology. The projects of this

type need small to modest capital investments but entail a .considerable increase in the working capital requirements. This encourages rapid adoption of technology by the large farmers and becomes a major barrier against their rapid adoption by the smallholder farmers and those who crop rented land. This barrier could be overcome with improvement in accessibility to credit and management skills of farmers. Examples of such types of project are: projects aimed at the introduction of superior varieties of seeds and planting materials; introduction of new and superior livestock breeds for meat, and or/milk and new or improved livestock raising systems; introduction of new fishing equipment and techniques to exploit the resources more fully; projects designed to raise the level of purchased farm inputs in agriculture, mainly fertilizers, pesticides and rodenticides, and may include input distribution systems; Projects aimed at farm mechanization also fall in this category, and include small farm tractors and cultivation equipment. The harnessing of small water supplies, entailing minor irrigation systems, pumping from streams or wells, 'is included here because the technology of water management is a major feature of such projects.

2.3.3 Projects on broadening physical resource base

These projects aim at bringing additional physical resources in to production, mainly water and land. These include irrigation projects-both surface and groundwater schemes; drainage schemes; watershed based projects, involving erosion control and a forestation; flood control; salinity control; and settlement projects involving new land. Large irrigation projects are favoured by most of the Governments because:

1. it is easy to get aid from donor countries or international lending agencies; conducting feasibility studies and supervision of construction is relatively, simple in such projects;
2. These projects provide higher level of production stability in areas of erratic rainfall. Large irrigations projects are accompanied by certain weaknesses too. These projects are highly capital intensive, and their origin is frequently the engineer's desk. The primary reason for shortfalls in performance is the lack of a multidisciplinary approach to this type of development. Lack of adequate involvement' of agronomist in cropping programme or crop-water use requirements; agricultural economists in the preparation of farm or in identifying markets; and organization specialization at the ground level for acquiring inputs, for water control. The delivery of water at-farms from the primary and secondary canals falls into a "no man's land" and flooding method of irrigation 'is widely prevalent. Therefore, complementary investments like land levelling, drainage channels, field channels etc, are' indispensable for optimum

utilization of water; This has led to initiation of command area development programmes in India , "Characteristic of large irrigation projects are:

1. it may have an adverse impact on income distribution
2. The number of beneficiaries is limited and the investment' per family is usually high.
3. They have long gestation periods requiring up to 22 years or more for the projects development benefits to be realized.
4. It involves' high foreign exchange component.
5. The organization of farm-level services and fanner training to ensure sound water management is a slow process.

2.3.4 Projects on improvement of disadvantaged groups

This class of project is oriented towards deliberate changes in the economic and welfare status of special groups. The primary aim of 'the project is to intervene in the market process and change the ownership structure of the factors of production and to channel the project's benefits towards designated target groups. This class of project has its genesis in the fact that in many societies growth has not been accompanied by development. Certain areas or groups in the country remain immune to the process of economic growth. The countries have experienced tremendous economic growth rates that exerted relatively little or no impact Oil the regional income disparities. The examples of such type of' projects are projects for agricultural credit, land settlement, land reform, nutrition and integrated rural." development. There is a thinking that the laws of a free market economy would contribute to a widening of this income gap. Therefore; conscious and fundamental steps are proposed to correct this situation. Price and subsidy, measures are considered inadequate to achieve this end, and structural changes aimed at the very sources of income must be introduced, e.g, redistributing ownership and control of the means of production in the modern sector of the economy.

2.3.5 Agricultural credit projects

The agricultural credit projects predominantly have production objectives. However, in many countries, the granting of credit to small farmers has been tacitly viewed as an income-transfer mechanism. The impact of increased production and net farm incomes has been questionable, as the recipients could use a large part of the credit for 'consumption purposes. In India the banks provide loans at 4 per cent rate of interest to weaker sections of the society under the Differential. Rate of Interest Scheme (DIR). Regional Rural Banks (RRBs)' grant loans to small and marginal farmers, agricultural labourers, cooperative

societies, cooperative farming societies for agricultural purposes, artisans, small entrepreneurs, etc., within the operational area of the RRB. Farmer Service Societies (FSS) provide integrated "credit service to the weaker sections of the rural areas, viz., small farmers, , marginal farmers, agricultural labourers and rural artisans, These are specialized agencies meant to cater to the needs of small farmers and disadvantaged sections of rural areas. The rationale for having separate institutions catering for large versus small farmer is justified considering the varying lending problems for the two. In case of large farmers, the role of credit is mainly that of a lubricant in an already dynamic context. The small farmer's static situation arises from many factors, and requires a comprehensive package approach in which credit is only one element. Therefore, apart from the larger staff needs of institutions dealing with small farmers, there are complementary measures required for introducing new technology, better land-tenure conditions, assured markets, facilities for provision of inputs, etc., if credit is to have an impact on production by small farmers. The high administrative costs of credit projects involving small farmers and the risk element arising from crop losses must be resolved if many small farmers are to be reached apart from maintaining the sustainability of such institutions.

2.3.6 Land-settlement projects

These projects are designed to settle previously economically disadvantaged farmers or landless farmers on new plots of land. Although production considerations naturally exist, social justice appears to be the main objective of such projects. The major constraint with this type of project is its heavy cost and therefore, the low prospects for replacing such development.

Financial limitations are likely to continue to be the most sever obstacle to the programme. Even though the basic services provided at the land-settlement clearance, roads, housing, health facilities, assistance during transitional period, are meagre and of poor quality, and much of the work is supposed to be done by the settlers, the cost of colonization is high.

Apart 'from the fact that per settler 'costs can be high the problem is that the classic type of settlement project benefits relatively few families and really does not make a significant impact on alleviating the problem, which it is designed to remedy. When such settlement revolves around the establishment of tree crops, it could require fully a decade before settlers begin to enjoy a sizeable net cash surplus. The establishment of an adequate infrastructure in new areas not only requires considerable capital, but there is also a time cost and an element of insecurity which delays the maturing of benefits.

In most countries agricultural-planners face land-tenure problems in project areas. The unfavourable land-tenure situation is a disincentive to tenants even in the use of current purchased inputs, such as fertilizers, and more so in undertaking longer term capital investment. The project analyst can convince political leaders to take up land resettlement on a priority basis. The international institutions could use loan policies as a leverage to induce action on the part of governments.

2.3.7 Rural development projects

Rural development projects are the major thrust of lending institutions, such as the World Bank, in the fight against poverty: two main features set these projects apart from other classes of agricultural projects;

1. There is a conscious effort to give a distributive bias to the projects output by having a broad-based group of beneficiaries as the target group;
2. it adopts multi-sectoral approach in the project's concept and formulation. Income distribution considerations would tend to locate the project in an area with masses of low-income farmers. While the direct number of beneficiaries from the project's production components may be modest, the total number of beneficiaries falling within the "influence zone" of the project and benefiting from-it may be considerably larger.

The multi-sectoral approach recognizes that while the rural poor are strongly dependent on agriculture for their livelihood, the determinants of "quality of life" embrace much more than agricultural pursuits. The inter-sectoral linkages should be given due consideration while formulation of projects intended towards poverty alleviation.

First, directly productive activities would provide the core around which the project should be assembled. This is important, as increases in of production would generate savings for further reinvestment leading to self-sustaining growth of the region.

Second, production support activities could be designed to remove infrastructure constraints to the area's overall economic development.

Third, social support elements appropriate to the area's needs, which includes health facilities- hospitals, dispensaries, clinics and diseases control programmes; educational facilities; village drinking water supplies; and community centers. It is important to know how existing services are administered; the location and extent of their clientele; the staffing and manning situation; the budgets- capital and operating; arrangements for maintenance of these services and the extent to which beneficiaries are required to contribute to the cost of such services.

2.3.8 Projects on post-harvest handling and distribution

These are essentially marketing and storage projects designed to provide more orderly marketing of products, and thereby reduce seasonal price fluctuations. Alternatively, where the crop is an important source of export income, the government may wish to intervene directly in the marketing operations. The implementation of such projects calls for heavy working capital requirements. This type of project results usually from a decision on pricing policy aimed at keeping prices within ranges for the population especially the urban part. Sometimes the intervention is geared to protect the interest of producers by minimizing the role of intermediary.

Marketing projects may also aim at providing infrastructure directly benefiting the farmer, e.g. farm to market roads, drying floors, and on-farm storage. This class of projects generally requires a strong commercially oriented management. The commercial orientation of such projects means that they can be more efficiently executed by the private sector with its dominant profit motive.

2.4 Projects on institution building

Institution building implies deliberate measures designed to strengthen local institutions so that they can successfully undertake development projects and programmes. Measures to increase the "absorptive capacity" of such countries to undertake agricultural investment projects require urgent attention but development institutions have not yet found plausible solutions to this;

A three approach is needed to overcome the institutional bottlenecks. The first is at the country planning level. The critical need here is to develop capacity for project generation since this activity cuts across many government departments and agencies, there is need for strong mechanism for coordination. The tasks at this level should, in fact, go beyond project generation to include provision of supporting services to the management of approved projects ready for implementation. Such factors as recruitment of consultants, letting of bids for contracts and obtaining release of foreign 'exchange, are subject to bureaucratic snarls resulting in delays in project implementation,

The second level of intervention would be at the project management level. The problem of shortage of local managerial skills has been overcome by seeking assistance from expatriate technical personnel, primarily from developed countries. It is done with the expectation that local nationals would receive on-the job training, However, the relevant body of experience that is meaningful for agricultural/project-

development work lies in the developing countries themselves. Selected countries could undertake training programmes for potential project managers To mother developing countries. Financing of such training could be done by aid donors, by regional development institutions, and by the countries themselves. Such an approach could well set the basis for a more formalized and systematic exchange between countries of their experience in agricultural development projects.

The third level of intervention would concentrate on farmers. There are two aspects to this;

1. Farm level organizations, where again shortage of managerial skills is always acute;
2. Developing farmer's skills so as to enable full utilization of the new technology.

While conceding that greater emphasis on institution-building could, in the short run, reduce the initial flow of a project's benefits, the medium and longer-term considerations of maintainable increases of production should not be neglected.

SELF-ASSESSMENT EXERCISE

1.	Name the various types of projects
2.	Give the few examples for projects on improvement of disadvantage groups?

2.5 Aspects in Project Preparation

The major dimensions of a project are:

1. technical,
2. institutional,
3. organizational,
4. managerial.IS) social;
5. commercial,
6. financial, and
7. Economic aspects.

All the aspects must be considered at every stage in the project planning and implementation cycle.

1. Technical aspects

The technical aspect is concerned with the technical feasibility of the project. It concerns the project's inputs (supplies) and outputs (production) of real goods and services. In an agricultural project it examines the soil type of the region and their potential, the availability of water its distribution and scope for development), the crop varieties and livestock breeds suitable for the area; the potential for mechanization and pest endemic in the area and the

kind of control that will be needed. These information are used to estimate the possible yield, the potential cropping pattern and input-output relationship. The examination of marketing and storage facilities are done to assess the efficiency in processing and marketing of the products.

To undertake the above analysis a lot of data is needed which could be collected through soil surveys, groundwater surveys, or collection of hydrological data, information about farmers may be collected through primary survey their current farming methods, and their social values to ensure realistic choices about technology. In some cases field trials may be needed to verify the yields obtainable.

The technical analysis serves the following important purposes:

- a. To establish the extent and capacity of a physical resource for development.
- b. To generate proposals for possible development alternatives and to justify the selected alternative.
- c. To establish the major physical components of the project.
- d. To establish the proposed development plan at the farm level.
- e. To provide the basis for deriving the project's cost estimate
- f. To establish the project's period and phasing.
- g. To provide the basis for detailed engineering and design during the construction phase.
- h. To supply the major inputs required for the economic analysis.
- i. To provide a basis for formulating the project's organization and management.

2. **Institutional aspect**

The institutional background of a project is a product of country's historical evolution and provides the framework within which the project will have to operate. The main task during project preparation is to identify the components of the institutional framework that have a bearing on the project. A few of the elements determining this background are government institutes, project authority, corporate bodies, land-tenure system, banking and credit institutions, farmers organizations and cooperation and religious customs and practices and social mores.

A brief description on each of these is as follows:

1. Government institutions: A thorough understanding of the administrative system of the region or the country is needed. Often there is a well-established balance between

the rights of the state vis-a-vis center. Within the state there would be further administrative sub-division up to the village level. For successful project implementation the cooperation of the administration at the lower levels is essential. The project area should be adjusted within a single administrative unit so as to minimize administrative hassles.

2. **Advantage:** The advantage of using the existing governmental setup is that it is least disruptive and therefore, does not generate problems of inequality among various branches of the civil service. The project through larger flow of resources also strengthens the developmental role of the department or division.

3. **Project Preparation Aspects and Project Cycle**

Disadvantage: Most of the projects do not easily go into departmental divisional lines. For example, in irrigation projects the civil headwork and major irrigation structures are executed by the irrigation department. Yet the benefits to irrigation development are realized on the farmer's field for which the department of agriculture has primary responsibility.

Project authority: An authority is established by law that vests the project implementing agency with special powers to undertake its task. It ensures coordination among the various government agencies involved, by the concentration and centralization of authority. It results in two parallel streams of governments.

Advantages: An authority has technical skill and financial resources to undertake the project efficiently. It has a shorter chain of command. Since the authority has its own resources, concentrated on narrowly prescribed area, 'it is able to demonstrate results rapidly.

Disadvantage: The authority is not fully aligned with the existing administrative system leading to friction and jealousy. The authority is mainly concerned with the physical achievement of the project, so as to get visible results. Institutions building get no or little priority. Thus the maintenance and operation of the assets created is left to the existing administrative structure, which have little enthusiasm or even skill. The existing administrative structure does not get experience in development projects.

- a. The authority may accord priority to certain project activities within the project areas, which usually do not harmonies with the regional priorities of various

participatory agencies and may drain resources away from other priorities in the country.

- b. Corporate entities: The corporations are needed to introduce business approach to problem concerning commercial objective which falls outside the usual stream of government activity. They can play a facilitating role by approving projects and making funds available to the private sector for those activities that the public sector wishes to promote.

Advantages: The corporations are best suited to exploitation of existing resources i.e., fisheries development, processing and marketing, etc.

Disadvantages: In the absence of sound management, corporations could become a drain on public resources. The autonomy enjoyed by them creates tensions within the usual administrative stream. Since corporations are usually profit oriented, and since their management may not be rewarded on the basis of profit performance, there is lack of incentive to work as hard at gaining profits as would be the case in a privately operated projects,

- c. Land-tenure systems: The land-ownership patterns and landlord-tenant relationships greatly influence production, employment opportunities and income distribution, Farm size distribution influences the intensity of utilization of farm land, and in motivating farmers to undertake innovations. Thus the owners of large farms may show significant differences from the owners of small farms in such features as attitudes towards risk-taking, introduction of innovations, managerial and farming skills and access to credits, all of which could exert an important bearing on the project's success. Moreover, the owner of a large farm is probably much more market oriented in his production planning than the owner of small farm, and therefore, is more responsive to general price movements.

Where the project analyst is concerned with the income distribution aspects of the project it is important to know the distribution of land holdings by size in order to identify the target groups of the project's beneficiaries.

- d. Farmer organization and cooperatives: The cooperatives undertake a wide variety of activities covering production, marketing, input supply and distribution, and

operate their own extension services. However, the experience of cooperatives has been disappointing. The project analyst is well advised to explore the possible role that they could play, by making necessary provisions for strengthening them. A basic principle in project work should be to ensure that a cooperative does, in fact, meet a basic need of the bulk of participants. Despite repeated failures the cooperatives are still widely held to be the answer to many rural problems. Project planners should generally be cautious in this regard and critically examine relevant experience in the country and the project area.

3. **Organizational aspects**

Organization refers to the overall design and structure of the body of entity that would undertake the task of project execution. The proposed organization must have the capacity to carry out the assignments given to it and also be attuned to the institutional and legal framework of the country. It should take into consideration the political and social climate of the country. Let us discuss important organizational aspects in detail. i) Selecting an organization: The organization chosen for the project may be either an existing institution, strengthening the existing institution or creation of an entirely new organization. Organizational arrangements depend upon many factors including the following:

- a) The existence of institutions already empowered. It-o carry out the proposed functions.
- b) The capacity and inefficiency of these institutions, their success in assuming these functions, and the priority which they would be able to attach to the project activities.
- c) The sensitivity of components of the project to local conditions.

The urgency of implementing the project:

The extent to which an independence from governmental bureaucracy is a prerequisite for the successful implementation of the project. Internal organization. This pertains to the type of internal structure within the organization i.e., the departments, divisions, unit structure, etc. The basic principles to be followed are as follows:

- a. There must be clear lines of authority running from the top to the bottom of the organization. That is, the chain of command should be clear.
- b. The responsibility and authority of each supervisor should be clearly defined in writing.
- c. Responsibility should always be coupled with corresponding authority.

- d. Authority should be delegated as far down the line as possible. This implies that the decision making power should be placed as near as possible to the scene of action.
- e. The number of levels of authority should be kept at a minimum.
- f. The work of every person in the organization should be confined as far as possible to the performance of a single leading function. The organization should be flexible, so that it can be adjusted to changing conditions.
- h. The organization should be kept as simple as possible.
- I. Beneficiary participation: The involvement of beneficiaries, right from the planning to operation and monitoring and evaluation is a prerequisite for successful implementation of the project. The design of organizational arrangements to secure such involvement is very difficult. It is also important to identify the structure of social authority of the area and their leaders or representatives need to be identified and involved in the planning and management of the project.

Management

The task of management is to implement the project's objectives within the framework of the organizational structure provided for the project. A good management can make a deficient organization structure work but the reverse does not hold. There are four basic considerations in designing a management system for a project:

1. Definition of the objectives: A clear definition of the functions and activities are required to achieve the project's objective.
2. Allocation of responsibility: Allocate and assign responsibilities to various agencies or associations for the various project activities. Spell out the duties including the activities that the agency would be required to implement.
3. Coordination of activities: A suitable mechanism for coordination of the activities of participating agencies should be developed. This is very crucial in rural development projects that have a wide range of diverse activities occurring simultaneously.
4. Staffing the project: It is the executive function that encompasses the recruiting, selection, training, promotion and retirement of sub-ordinates. Finding good managers, skilled and semi-skilled workers are really a tough task in developing countries. The staffing problem emerges due to shortage of manpower both in quantitative and qualitative terms.
5. Social aspects

The social patterns, custom, culture, traditions and habits of the clientele a project will serve are assessed. The broader social implications like changes in living standards, material welfare, consumption habits,

income distribution effects, etc., of proposed investments are examined. In certain cases weights for income distribution are used so that projects benefiting lower income groups will be favoured. The adverse effect of project on particular groups or regions is examined. The issue of adverse environmental impact is also assessed. Preserving notable scenic attractions or unique wild life habitats is given high priority during site selection.

1. Environmental consideration: The development of agriculture and agriculturally related enterprises has adverse impact on the environment i.e., ecology- rainfall patterns, river flows, scenic and aesthetic aspects, health of the population. The developmental projects aggravate the rate of depletion of resources due to soil erosion, over-exploitation, overgrazing, by extraction at rates exceeding the maximum sustainable yield as in forestry and fishery ventures.
2. Multiplier effect: A project may have indirect effects such as multiplier effects and externalities which are felt outside the boundary of the project. The economic analysis does not measure these indirect benefits because of difficulty in measurement. The project planner should at least identify them to gauge their importance. For example, a project may reduce the rates of migration from rural to urban area and thereby reduce the cost of urbanization. On the other hand, predominantly export oriented estate plantation crops, may have an impact outside of the country's borders especially on other exporting countries.
3. Social effects of project: It is argued that agricultural projects can and do introduce negative social effects by further widening of the income disparities of beneficiaries that existed at the beginning of the project in the project area.
4. Commercial aspects
The commercial aspects of a project involves the arrangements for marketing the output produced by the project and the supply of inputs needed to build and operate the project. The analyst needs to assess the effective demand of the project output at a remunerative price. The market should be assessed for its capacity to absorb the excess production and the impact of product supply on price of the product. The viability of the project under changed price structure should be analyzed. Project should have provision for the processing of the products.

The analyst also needs to know whether appropriate arrangements are there for the supply of inputs such as of fertilizers, pesticides, and high-yielding seeds needed to adopt new technology or cropping patterns. Appropriate marketing channels exists, do they have capacity to supply needed inputs on times. Or there is need for new channels to be established by the project for new inputs. The arrangements for the

procurement of equipment and supplies also need to be 7) Financial aspects Project Preparation Aspects and Project Cycle Financial analysis measures the financial viability of the project, and is a necessary complement to the economic analysis in decisions to undertake the project. A project may have a number of beneficiaries and participating agencies. The impact of the project on each of these beneficiaries varies and therefore the need to undertake separate financial analysis for each. Therefore, analysis need to be done at the level of ultimate beneficiary- the farmer, intermediate institutions agricultural banks or development cooperatives, and at the central government.

The main objectives of financial analysis at the farmers or entrepreneur level are:

Assessing incentive aspects of the project and setting farm-income target.

The analysis needs to be done to know whether the assets created or acquired by the project, will result in sufficient additional revenue by debt servicing, so as to induce the investor to undertake the activities envisaged under the project? For example: are the incentives offered by irrigation project sufficient enough to induce the farmer to undertake double cropping.

1. Assessing viability at various stages of the project.

This is important for projects that produce products that become inputs for \ processing industry e.g., a food processing industry with components for on farm production of tomatoes, and processing. In such cases, the viability needs to be assessed at the farmer level as well as at industry level. Assessing borrower's repayment capacity and determining lending conditions. The financial analysis would help the credit institutions in assessing the borrower's capacity to meet amortization and interest payments on any debt. The income and expenditure statement for the project is prepared to help in scheduling of loan repayments.

2. Determining the contribution of beneficiaries to project costs.

The contribution the beneficiaries to project costs should be determined through the financial analysis. The mode of collection and to what level taxes and levies should be imposed is also determined.

The major objectives of financial analysis to assess the impact of the project on budgets of government institutions are:

1. **Formulating the projects' financing plan.**

While preparing a project a separate financial plan should be developed clearly indicating the respective contributions of the lending agency, the government and beneficiaries. to the project investment programme. The financial plan also shows the end use of the funds by broad groups, such as machinery and equipment purchases, farm credit, building construction, etc, it is also important to indicate the phasing of expenditure, i.e. year to year expenditure.

2. **Assessing the impact on government's budget**

The project usually has effect on both expenditure and income side. The expenditure side effect may be in the form of grants or equity contribution on which no repayment is expected, loans extended at rates far below the opportunity cost of capital, subsidies in different forms, infrastructure requirement such as electrification, rail connection, roads, etc.

The income effects may arise from sources such as; increased land and property taxes, export taxes on agricultural projects, income taxes from profits accruing to corporations and also indirect benefits that can be identified and assessed.

5. **Economic aspects**

The economic analysis gives a quantitative estimate of the project's impact on national economy. In project formulation, the economic analysis of agricultural projects is a tool employed post facto to justify a project already selected and designed. It is seldom used as a tool in earliest stages of project formulation to evaluate possible alternatives, and the impact' that such alternatives may have on the development objectives of the country. Thus, the present practice aims at establishing that the project selected has met the test of a minimum acceptable rate of return to the economy. It does not say to what extent the project contributes to the non-economic objectives of the government. It requires determination of the likelihood that a proposed project will contribute significantly to the development of the economy and that its contribution will be great enough to justify being scarce resources it will need. The point of view taken here is that of society as a whole.

The financial analysis takes the view point of individual participants while economic analysis takes the view of society. There are three important distinctions between the two which are enlisted as under:

1. In economic analysis taxes and subsidies are treated as transfer payments. The new income generated includes any tax, the project can bear during the production and sales tax, the buyers are willing to pay when they purchase the projects' products. These taxes, which are part of the total project benefit, are transferred to the government, which acts on behalf of the society as a whole, and are not treated as costs. A government subsidy to the project is a cost to the society, since subsidy is an expenditure of resources that the economy incurs to operate the project.
2. In financial analysis market prices are generally used. In economic analysis, however, some market prices may be changed so that they more accurately reflect social or economic values. These adjusted prices are called "shadow" or "accounting" prices. However, in both financial and economic analysis the projected prices are used, so both rely to a substantial extent on hypothetical responses.
3. The interest on capital is never separated and deducted from the gross return because it is part of the total return to the capital available-to the society as a whole and because it is that total return including interest, that economic analysis is designed to estimate. In financial analysis, interest paid to the external suppliers of money may be deducted to derive the benefit stream available to the owners of capital. But interest imputed or "paid" to the entity from whose point of view the financial analysis is being done is not treated as a cost because the interest is part of the total return to the equity capital contributed by the entity.



2.5 Summary

The projects could be broadly classified into five types:

1. Technological innovation,
2. Broadening the physical resource base,
3. Improved status of disadvantaged groups.
4. Improved post-harvest handling and distribution, and
5. Institution building. An understanding of each of the broad classes would be useful in developing a project for the development of particular region.

The major dimensions of project are:

1. technical;
2. institutional-organizational managerial,

3. social;
4. commercial;
5. financial; and
6. Economic aspects.

All the aspects must be thoughtfully considered at every stage in the project planning and implementation cycle.

A project passes through a number of stages and each phase not only grows out of the preceding one but also leads to subsequent one. It is a self-renewing cycle so that the new project emanate from the old ones in a continuous manner. The various phases of project cycle are identification; preparation and analysis, appraisal, implementation, monitoring and evaluation. By carefully following each phases in the project cycle would help in developing an appropriate project, feasible implementation and reformulation of a new project.



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2.7 Possible answers to self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 2

Name the various types of projects

The projects could be broadly classified into five groups:

- a. Projects on technological innovation.
- b. Projects on broadening physical resource base. "
- c. Projects on improvement of disadvantaged groups.
- d. Projects on post-harvest handling and distribution.
- e. Projects on institution building. . . Let's discuss the different type of projects in details.

Answer

SELF-ASSESSMENT 2

Give the few examples for projects on improvement of disadvantage groups?

Answer

This class of project is oriented towards deliberate changes in the economic and welfare status of special groups. The primary aim of 'the project is to intervene in the market process and change the ownership structure of the factors of production and to channel the project's benefits towards designated target groups. This class of project has its genesis in the fact that in many societies growth has not been accompanied by development. Certain areas or groups in the country remain immune to the process of economic growth. The countries have experienced tremendous economic growth rates that exerted relatively little or no impact Oil the regional income disparities. The examples of such type of' projects are projects for agricultural credit, land settlement, land reform, nutrition and integrated rural." development. There is a thinking that the laws of a free market economy would contribute to a widening of this income gap. Therefore; conscious and fundamental steps are proposed to correct this situation. Price and subsidy, measures are considered inadequate to achieve this end, and structural changes aimed at the very sources of income must be introduced, e.g, redistributing ownership and control of the means of production in the modern sector of the economy.

UNIT 3 PROJECT MANAGEMENT

Unit Structure

- 3.1 Introduction
- 3.2 Learning Outcome
- 3.3 Main Content
 - 3.3.1 Project Management: Concept and Elements
 - 3.3.2 Project Management Cycle
- 3.4 Project Management Techniques
- 3.5 Pre-requisites of Effective Project Management
- 3.6 Summary
- 3.7 References/Further Readings
- 3.8 Possible Answers to self-assessment exercise (s) within the content



3.1 Introduction

Project management has an important place in development as many of the urban development researchers and institutes are now days undertaking many research projects. Every project manager has to deal with different targets, different environment and different target groups. Appropriate knowledge and skill about the various aspects of project management will transform a project manager in to an excellent project manager. The project manager largely perform following roles: (i) plan the project along with other team members; (ii) prepare strategies, activities and arrange and allocate resources required for the achievement of project objectives; (iii) maintain relation between the project team, institution and the donor agency of the project; and (iv) successfully complete the project and disseminate its finding for the consumption of large audience. This unit deals in detail about the project management.



3.2 Learning Outcome

By end of this unit, you should be able to:

- Define concept and elements of project management;
- Describe various steps of project management cycle;
- Explain various project management techniques; and
- Discuss different pre-requisites of effective project management.



3.3 Main Content

3.3.1 Project Management: Concept and Elements

Project management is an important concept and topic because now a days all organizations either big or small are involved in the implementation of various projects. Lewis has opined that although management of projects has been going on for thousands of years, the practice has been widely recognized as a discipline in its own rights for only about ten years.

Before going to explain project management, it is essential to know, what is a project? A project is generally described as an initiative to bring about change. This is done in order to achieve specific objectives, within a timescale and in a given context. A project has normally an allocated budget. According to Project Management Institute “A project is any undertaking with a defined objective by which completion is identified. In practice most projects depend on finite or limited resources by which the objectives are to be accomplished.” Viv Martin listed out following attributes of a project:

1. has a clear purpose that can be achieved in a limited time;
2. has a clear end when the outcome has been achieved;
3. is resourced to achieve specific outcomes;
4. has someone acting as sponsor who expects the outcomes to be delivered on time; and
5. Is a one-off activity that would not normally be repeated.

Project Management has been evolved one of the important areas in the area of urban development. According to Richard Newton (2008), project management has been developed over the past few decades as it has become apparent that without a structured approach, people are not very good at completing projects successfully. The principal aim of project management is to see that projects are well formulated, effectively implemented; completed in time and end result is achieved. The project management is largely encircled in four important factors i.e cost, time, scope and quality. According to PMBOK “project management is application of knowledge, skills, tools and techniques to project activities to achieve project requirements. Project management is accomplished through the application and integration of the project management processes of initiating, planning, executing, monitoring, controlling and closing.”

Basic Elements of Project Management

The four basic elements of project management, which a project manager has to look into, are: cost time, scope and quality. All these

four elements are interconnected and have to be managed effectively for the successful implementation of the project.

1. Cost Management

An efficient project manager is evaluated on his or her ability to complete the project within the stipulated budget. The costs include estimated cost, actual cost and variable cost. Besides, there is contingency cost which takes into account the influence of weather, supplier and design allowances.

2. Time Management

Time management is one important skill for any successful project manager. Most of the project fails due to poor time management by the project managers. For the effective management of time, a project has to break down into number of tasks which are to be accomplished within time frame. To prepare the project schedule, the project manager has to figure out what the tasks are, how long they will take, what resources they require and in what order they should be done.

3. Scope Management

The project manager at the outset need to clearly delineate scope of the project. The scope of the project will enable the project manager to judiciously plan required resources and manpower for the project. As project is time and cost bound, therefore, scope of the project needs to be appropriately framed within these constraints. Scope management comprises following main aspects such as authorizing the job, developing a scope statement that will define the boundaries of project, sub-dividing the work into manageable components with deliverables, verifying that the amount of work has been achieved and specifying scope change control procedures (Levis, 2007).

4. Quality Management

Quality management is last but not least element of project management. The success of the project is judged by the yardstick of quality of work it has produced. The successful project manager maintains the balance between cost, quantity and quality. According Levis (2007) quality management includes both quality assurance and quality control. The former means planning to meet quality requirements and the later emphasizes on the steps to be taken to monitor results to see if they conform to requirements.

SELF-ASSESSMENT EXERCISE

- | | |
|----|---|
| 1. | What do you mean by project? |
| 2. | Time management is an important element of project management- Discuss. |

3.3.2 Project Management Cycle

Project cycle has six main phases which is given in the form of cycle wheel below.

The six various phases of project management cycle are:

1. Need Identification
2. Initiation
3. Planning
4. Executing
5. Controlling
6. Closing

Need Identification

The development of project cycle begins with identification, whether there is a need of development project for a particular sector, area, community, etc. The identification usually comprises two main aspects i.e. situation analysis and problem analysis. Let us discuss these two important aspects in detail.

Situation Analysis

Understanding situation is the beginning of designing any development project or programme. Situation analysis broadly involves analysis of needs and assets, problem analysis and examining relevant interventions. According to Townen (2003) situation analysis is an activity which can firmly link planning to the realities in the field and thereby to the implementation of the project. The situation analysis may comprise analysis of the physical, economic, social, cultural and political environment within which the population live. Some of the development indicators to be used during the situation analysis of development of a project are: composition of population, housing, sanitation, health, employment, drinking water, education, land holding, industry, services etc. The context and type of information required is given in

Problem Analysis

The second step in need identification is problem analysis. For understanding a situation to be influenced by a project, it is essential to know the problem conditions which constitute development constraints as well as their causes. Problem analysis is of prime importance to developmental project planning, as it strongly influences the design of all possible developmental interventions. Problem identification is a deductive process. It is a state of affairs or facts or figures that cause difficulties and sufferings. The problem analysis not only investigates What is wrong ? But also try to understand 'Why' and 'How' it is wrong? In order to assign priority to the problem. It seeks to answer several questions these are:

1. What is the problem?
2. Why is this problem?
 - a. What are the probable causes of the problem?
 - b. How serious is the problem?
3. Who are affected by the problem?
 - a. How many are they?
 - b. Where are they located?
 - c. What are their characteristics?

According to FAO, the problem tree is a visual problem-analysis tool that can be effectively used by both the field development staff and the community to specify and investigate the causes and effects of a problem and to highlight the relationship between them. The problem tree analysis helps to find out solutions by mapping out the anatomy of cause and effect around an issue.

The roots of the tree, is the lower part of the drawing, metaphorically represent the causes of the main problem. The tree trunk at the centre of the drawing represents the main problem and the tree branches, on the upper side of the drawing, provide a visual representation of the effects of the main problem.

Initiation

Once the needs of the project are identified and decision is taken to do the project, the second step is to launch or initiate the project. There are number of activities associated in this stage. The project sponsor creates a project charter which delineates authorization of work on the project, define the authority, responsibility and accountability of the project team and establish scope boundaries of the project. The success of the project team veritably depends upon starting with complete and accurate information, management support and the authorization necessary to manage the project.

Planning

Planning phase is one of the important phases of the project cycle management. The project planning defines project activities that will be performed; the output that will be produced; and delineate how these activities will be accomplished and managed. Project planning defines each major task, estimates the time, resources and cost required, and provides a framework for management review and control. In other words, planning involves identifying and documenting scope, tasks, schedules, cost, risk, quality and staffing needs.

The project manager, along with his project team prepares project plan and gets it approved from the management. The project plan is a comprehensive document that allows a project team to begin and

complete the work necessary to achieve the project goal and objectives. The project plan will address how the project team will manage the project elements.

Executing

By the project plan is prepared, it gets ready for execution or implementation. The project team acquire all necessary resources required to carry out the project and ready to perform project activities. The project manger along with the project team put their energy and efforts in participating, observing and analysing the project activities so that the output is produced and goal and objectives of the project achieved. In other words one is to execute the work that must be done to come out with the product of the project. Further, executing also refers to implementing the project plan.

In nutshell, executing refers to coordinating and managing the project resources while executing the project plan, performing the planned project activities and ensuring that they are completed efficiently.

Monitoring/Controlling

The functions of the project manager at this stage is to monitor and compare actual performance with the planned performance and take corrective measures to get the desired outcome when there are significant differences. By monitoring and measuring progress regularly, identifying variances from plan and taking corrective action if required, project control ensures that project activities are met.

Closing out

Closing out is the last but not the least phase of project cycle management. Once the output is produced to the customer's satisfaction, the project is considered finished. However, this should not be the case. A final lesson-learned review should be done before the project is considered complete. Failing to do the lessons-learned review means that future project will likely to suffer. Although project close out is a routine process, it is an important one. According to Haugey, project closure means formal acceptance of the deliverables and disbanding of all the elements that were required to run the project.

3.4 Project Management Techniques

The project management techniques help the project manager to complete the project activities successfully and effectively and achieve the project goal and objectives within the assigned time period and budget. Broadly project management techniques are two types:

- a. Bar Charts
- b. Networks

Bar Chart Bar Charts are the pictorial representation of various tasks required to be performed for accomplishment of the project objectives. The bar charts are of two types:

- a. Gantt Chart and
- b. Milestone Chart

Gantt chart

Henry L Gantt in 1917 developed a system of bar charts for scheduling and reporting of a project. These charts, latter were known as Gantt Charts. It is a pictorial representation specifying the start and finish time for various tasks to be performed in a project on a horizontal time scale.

The Gantt chart as a tool is used: 3. to plan time scale of a project

1. To estimate resources required for a project
2. For graphical illustration of schedule of tasks to be completed
3. Helps to plan coordinate and track specific tasks for project
4. Good for small projects when the number of tasks or activities is small and not complex i.e. good for simple projects.

3.5 Pre-requisites of Effective Project Management

Some of the knowledge and skill required for the effective project management are as follow:

Project Integration Management

Project integration management ensures that the project is properly planned, executed, and controlled. In other words, every activity of the project must be well coordinated or integrated. The project is a culmination of activities and tasks and an integrated approach will enable the project to achieve its goal and objectives effectively. There must be proper coordination at each level from the management down the line workers level. It is studied that the project fails to achieve it goal at the grassroots level because of lack of people's participation. There many project findings have suggested that the community must be integrated into the whole process of project i.e planning, formulation of strategies, implementation as well as controlling of various project activities.

Project Time Management

In time completion of project not only gives a credit to the manager of but also can ensure further projects to the organization. Project time management refers to developing a time schedule that can be met and then controlling the activities to ensure that it happens. An efficient project manager tries to effectively manage the time and achieve the project tasks within the allocated time period. Taking long time adds to

the inefficiency of the project. While taking too less time sometimes put question mark on the quality of the project delivery.

Project Cost Management

Cost management implies that project should be completed within the formulated budget. Therefore, proper estimation of the cost of resources i.e. manpower, equipment, materials and other things like travel and other miscellaneous expenses. Cost are budgeted and tracked to keep the project within the budget. The project cost must be appropriately budgeted. For example, in most of the action research project the expenditures on project interventional activities needed to be more compared to hiring of manpower. Some times good project proposals are rejected not for the technical but for the financial bid. Therefore costing is critical to project management.

Project Human Resource Management

Human resources are key to project. It is supreme over all other resources. It involves identifying the people needed to do the job, defining their roles, and responsibilities. Acquiring efficient people as per their job requirement is critical to project management. Besides training and capacity building of the manpower is also important to human resources management. The human resource management also includes the salary packages, leisure and medical and other benefits. Sometimes project staffs are less motivated to work for poor benefits. Therefore, many organization depute its efficient staff to the project by offering them higher salary and grade.

Project Quality Management

The balancing between the quantity and quality of project deliverables is central to effective project management. Maintenance of quality is vital to project and any compromise with the quality will lead to dissensions among the project team and the beneficiaries. The quality of input and out-put of the project must be clearly visible. The qualified and experienced manpower employed in the project can effectively and efficiently manage the project then their counter parts those were less qualified and less experienced. Nepotism in selection process is a deterrent to quality.

Project Communication Management

Communication Management refers to planning, executing, and controlling the acquisition and dissemination of all information relevant to the needs of all project stakeholders. Transparency in communication is an accountability of the project manager. Democratic way of communication where all the stakeholders participate and share their opinion regarding various aspects of project is critical to a good project proposal formulation. Communication and dissemination of findings of

the project not only helps the policy makers to formulate policy but also helps the organization to fetch more projects.

Project Risk Management

Risk Management is a systematic process of identifying, quantifying, analysis and responding to project risk. Higher is the risk lower is the efficiency and effectiveness of the project. The efficiency and effectiveness of a project is influenced by the risk factor. For example the training of Commercial Sex Workers on HIV/AIDS in urban slum depends on the identification of CSWs which is a risk factor. According to Lewis it includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of advance events to project objectives. It is an extremely important aspect of project management.



3.6 Summary

Project Management is an important area of development, as all organizations big or small are implementing one or the other projects. The viability of many organization sometimes solely depends on projects. Besides, the funding agencies also needed to have adequate knowledge about the project management. The present unit at the outset has described the meaning and basic elements of project management. The second aspect which has been thoroughly covered in the unit is project cycle management. Later on, the project management technique which is vital to any project management has been discussed. The two techniques customarily used in project management are Gantt chart and Networks. The technicality in dealing with the project is judged from the technique used in project formulation. The last part of the unit contains the skill required for the project manager for the effective management of project.



3.7 References/Further Readings

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3.8 Possible Answers to self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 3

What do you mean by project?

Answer

A project is generally described as an initiative to bring about change. This is done in order to achieve specific objectives, within a timescale and in a given context. A project has normally an allocated budget. According to Project Management Institute “A project is any undertaking with a defined objective by which completion is identified. In practice most projects depend on finite or limited resources by which the objectives are to be accomplished.”

SELF-ASSESSMENT EXERCISE 2

Time management is an important element of project management-Discuss.

Answer

Time management is one important skill for any successful project manager. Most of the project fails due to poor time management by the project managers. For the effective management of time, a project has to break down into number of tasks which are to be accomplished within time frame. To prepare the project schedule, the project manager has to figure out what the tasks are, how long they will take, what resources they require and in what order they should be done.

UNIT 4 PROJECT APPRAISAL

Unit Structure

- 4.4 Introduction
- 4.2 Learning Outcome
- 4.3 Main Content
 - 4.3.1 Projects: Meaning and Concept
 - 4.3.2 Difference between a Project and a Programme
- 4.4 Criterion for Project Appraisal
- 4.5 Project Appraisal Techniques
- 4.6 Summary
- 4.7 References/Further Readings
- 4.8 Possible Answers to self-assessment exercise (s) within the content



4.1 Introduction

In the previous unit you have read about project formulation. This unit deals with the project appraisal techniques. Projects often provide the base for sustainable development intervention. Project appraisal is a generic term that refers to the process of assessing, in a structured way, the case for proceeding with a project or proposal. It often involves comparing various options, using economic appraisal or some other decision analysis technique. A good appraisal justifies spending money on a project. It is an important tool in decision making and lays the foundation for delivery and evaluation.



4.2 Learning Outcome

Appraisal asks fundamental questions about whether funding is required and whether a project offers good value for money. It can give confidence that public money is being put to good use, and help identify other funding to support a project.



4.3 Main Content

4.3.1 Projects: Meaning and Concept

What are Projects? Projects are the cutting edge of development. Projects are an investment activity in which financial resources are

expended to create capital assets that produce benefits over an extended period of time.

UNIDO defines a project as a proposal for an investment to create and develop certain facilities in order to increase the production of goods/services in a community during a certain period of time.

The Chartered Management Institute define a project as “an activity that has a beginning and an end which is carried out to achieve a particular purpose to a set quality within given time constraints and cost limits”.

A project may be defined as an activity for which money will be spent in an expectation of returns and which logically seems to lend itself to planning financing and implementation as a unit. It is the smallest operational element prepared and implemented as a separate entity in a national plan of programmes of development.

A project is also defined as a proposal for an investment to create, expand and develop certain facilities in order to increase the production of goods and services in a community during a certain period of time. Furthermore, for evaluation purposes, a project is a unit of investment, which can be distinguished technically, commercially and economically from other investments.

4.3.2 Difference between a Project and a Programme

Many people are uncertain about the difference between a project and a programme. A project is a temporary entity established to deliver specific (often tangible) outputs in line with predefined time, cost and quality constraints. Whereas, a program is a portfolio comprising of multiple projects that are managed and coordinated as one unit with the objective of achieving (often intangible) outcomes and benefits for the organization.

4.4 Criterion for Project Appraisal

By a project has been prepared, it is generally appropriate for a critical review or an independent appraisal to be conducted. This provides an opportunity to reexamine every aspect of the project plan to assess whether the proposal is appropriate and sound before large sums are committed. The appraisal process builds on the project plan, but it may involve new information if the specialists on the appraisal team feel that some of the data are questionable or some of the assumptions faulty. If the appraisal team concludes that the project plan is sound, the investment may proceed. But if the appraisal team finds serious flaws, it

may be necessary for the analyst to alter the project plan or to develop a new plan altogether.

If a project is to be financed by an international lending institution such as the World Bank or by a bilateral assistance agency, such an external lender will probably want a rather careful appraisal even if it has been closely associated with earlier steps in the project cycle. The World Bank, for example, routinely sends a separate mission to appraise proposed projects for which one of its member governments intends to borrow.

The preparation of a project entails consideration of many aspects. The major aspects to be considered during the appraisal of the project are:

1. Technical
2. Institutional
3. Organizational
4. Managerial
5. Social
6. Commercial
7. Financial
8. Economic
9. Sustainability

Let us now discuss each of these criteria of project appraisal.

1. Technical Aspect

The technical aspect of any project considers the technical feasibility of any project. It concerns with the technical aspect of a project from both input supply side and output delivery side. For example if you want to take up a metro project in a urban region, you may have to examine the soil type of the region for pillar strength, urban population to be benefited, availability of land, route etc. Such information can be collected through surveys.

2. Institutional Aspect

The institutional aspect of a project deals with the framework within which the project will have to operate. A complete knowledge of the institutional aspect helps identifying the components of institutional framework that will have a bearing on the project. Some of the elements that constitute the institutional framework include government institutions, project authority, corporate bodies, land systems, banking and credit institutions, religious customs, practices and social mores. There is a need to understand the administrative system of the region where the project has to be undertaken.

3. **Organizational Aspect**

Here the term organization refers to the structure of the body that would undertake the task of project execution. The proposed organization must have the capacity to carry out the assignments given to it. Some of the basic principles to be followed include:

- a. There must be clear lines of authority running from top to bottom of the organization and the chain of command should be clear.
- b. The responsibilities of each authority should be clearly defined in writing.
- c. The decision making power should be placed as near as possible to the scene of action.
- d. The number of levels of authority should be kept at minimum.
- e. The organization should be kept as simple as possible and should be flexible to adjust to changing conditions.

Management Aspect

The main task of management is to implement the project objectives within the framework of organizational structure. For good management, a clear definition of functions and activities are required. There is also a need for allocating responsibilities to various agencies for various project activities. A suitable mechanism for coordination of the activities of participating agencies should also be developed. Besides, proper staffing also comes under the purview of the management.

Social Aspect

It is very important to assess the social patterns, customs, culture, traditions and habits of the clientele. Various aspects like changes in living standards, material welfare, income distribution etc. In selecting some projects, weights are assigned for income distribution so that the projects which benefit the lower income group are benefitted. The adverse effect of the project on particular group is also examined. Preserving the environment and wildlife habitats is given high priority.

Commercial Aspect

The commercial aspects of a project involves the arrangements of marketing the output produced by the project and ensuring supply of inputs needed for the project to operate. There is a need to assess the effective demand of the project output and the prices that may prevail under the demand and supply situations. The analyst also needs to cautiously evaluate the impact of product supply on the price of the product and the viability of the project under such changed price situation.

Financial Aspect

Decisions about undertaking any project depend a lot on financial analysis of a project. As there could be many beneficiaries/participating agencies of any project, there is a need for separate financial analysis each.

Economic Aspect

The economic aspect is very important to be taken into consideration while appraising a project proposal. If it is a developmental project aims at improving the quality of life of the people in the project area, then what will be its economic impact in terms of raising income and standard of living of the people is essential.

Sustainability Aspect

Donor agencies are emphasising on the sustainability of the project by the intervention is withdrawn from the project area. While appraising the project proposal the reviewer must see that adequate attention has been given to the sustainability of the project by enquiring several questions i.e How will the project to be sustained by the project activities are withdrawn? Who will sustain it, both financially and technically? and What endeavour has been made by the proposer while proposing the project? and so on.

SELF-ASSESSMENT EXERCISE

1.	What are projects? How do they help in development?
2.	Describe with an example the technical aspects to be considered while preparing a project?

4.5 Project Appraisal Techniques

Project appraisal is the effort of calculating a project's viability. Appraisal involves a careful checking of the basic data, assumptions and methodology used in project preparation, an in-depth review of the work plan, cost estimates and proposed financing, an assessment of the projects organizational and management aspects, and finally the viability of project. The project appraisal criteria can be divided under two heads:

1. Non-Discounting Technique
 - a. Urgency
 - b. Payback Period
 - c. Accounting Rate of Return
 - d. Debt Service Coverage Ratio (DSCR)
2. Discounting Criteria Technique
 - a. Net Present Value (NPV)
 - b. Internal Rate of Return (IRR)
 - c. Benefit Cost Ratio (BCR)

- d. Annual Capital Charge Now we will discuss the techniques in detail

Non-Discounting Techniques

1. Urgency

According to this criterion, the projects that are more urgent get preference over those that are less urgent. However, one of the problems in using this criterion is to judge the urgency of any project. The decision taken may be subject to the personal bias of the decision maker. In view of this limitation, it should not be used for investment decision making.

2. Payback Period

In simple terms, the payback period is the length of time required to recover the initial cash outlay on the project. If the cash inflows are constant, then the payback period is calculated by dividing the initial outlay by the annual cash inflow. For example, a project which has an initial cash outlay of Rs 40,00,000 and a constant annual cash inflow of Rs 2,00,000 has a payback period of : $40,00,000 / 2,00,000 = 5$ years.

If the cash flow is not constant, e.g. if a project involves a cash outlay of 6,00,000 and generates cash inflow of Rs 4,00,000, Rs 4,50,000, Rs 4,50,000 and Rs 2,00,000 in the first, second, third and the fourth years respectively, its payback period is four years because the sum of cash inflow during four years is equal to the total outlay.

Decision making

According to the payback period criterion, the shorter the payback period, the more desirable is the project. Firms using this criterion, generally specify the maximum acceptable payback period.

Evaluation of this method

1. It is simple in concept and application.
2. It favours those projects that generate substantial inflows in earlier years and discriminate against projects that bring substantial cash flows only in later years.
3. As this criterion emphasises on earlier cash flows, it may be a good criterion when the firm is pressed with the problem of liquidity.
4. It fails to consider the time value of money thus violating the most basic principle of financial analysis which says that cash flows occurring at different points of time can be added or subtracted only by suitable compounding and discounting.
5. Since payback period is the measure of a project's capital recovery, it may divert attention from profitability.

In spite of the shortcoming of not using the time value of money, payback period is used with advantage in appraising investments for the following reasons:

- * The payback period may be considered roughly as the internal rate of return when annual cash flow is constant and the life of the project fairly long.
- * The payback period is somewhat akin to the breakeven point.
- * The payback period also gives information about the rate at which the uncertainty associated with the project is resolved. The shorter the payback period, the faster the uncertainty associated with the project is resolved.

Accounting Rate of Return The accounting rate of return or the simple rate is the measure of profitability which relates income to investment, both measured in accounting terms. As there are various ways of measuring income and investment, there are a large number of measures for accounting rate of return. The commonly used ones are given:

- 1) Average income by tax Initial investment
- 2) Average income by tax Average investment
- 3) Average income by tax but before interest
- 4) Average income by tax but before interest Average investment
- 5) Average income before interest and taxes
- 6) Average income before interest and taxes Average investment



4.6 Summary

In this unit we read about the meaning of projects. The unit also discusses the various aspects to be considered while preparing the project. Many people are uncertain about the difference between a project and a programme. In this unit we have discussed in detail the difference between a project and a programme. The various criterion for project appraisal, discounting and non-discounting techniques of project appraisal have also been discussed.



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4.8 Possible Answers to self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 4

- i. What are projects? How do they help in development?
- ii. What are Projects? Projects are the cutting edge of development.
- iii. Projects are an investment activity in which financial resources are expended to create capital assets that produce benefits over an extended period of time.
- iv. UNIDO defines a project as a proposal for an investment to create and develop certain facilities in order to increase the production of goods/services in a community during a certain period of time.
- v. The Chartered Management Institute define a project as “an activity that has a beginning and an end which is carried out to achieve a particular purpose to a set quality within given time constraints and cost limits”.
- vi. A project may be defined as an activity for which money will be spent in an expectation of returns and which logically seems to lend itself to planning financing and implementation as a unit. It is the smallest operational element prepared and implemented as a separate entity in a national plan of programmes of development.
- vii. A project is also defined as a proposal for an investment to create, expand and develop certain facilities in order to increase the production of goods and services in a community during a certain period of time.

Furthermore, for evaluation purposes, a project is a unit of investment, which can be distinguished technically, commercially and economically from other investments.

Answer**SELF-ASSESSMENT EXERCISE 2**

Describe with an example the technical aspects to be considered while preparing a project?

Answer

The major aspects to be considered during the appraisal of the project are:

1. Technical
2. Institutional
3. Organizational
4. Managerial
5. Social
6. Commercial
7. Financial
8. Economic
9. Sustainability

1. Technical Aspect

The technical aspect of any project considers the technical feasibility of any project. It concerns with the technical aspect of a project from both input supply side and output delivery side. For example if you want to take up a metro project in a urban region, you may have to examine the soil type of the region for pillar strength, urban population to be benefited, availability of land, route etc. Such information can be collected through surveys.

2. Institutional Aspect

The institutional aspect of a project deals with the framework within which the project will have to operate. A complete knowledge of the institutional aspect helps identifying the components of institutional framework that will have a bearing on the project. Some of the elements that constitute the institutional framework include government institutions, project authority, corporate bodies, land systems, banking and credit institutions, religious customs, practices and social mores. There is a need to understand the administrative system of the region where the project has to be undertaken.

3. Organizational Aspect

Here the term organization refers to the structure if the body that would undertake the task of project execution. The proposed organization must have the capacity to carry out the assignments given to it. Some of the basic principles to be followed include:

- a. There must be clear lines of authority running from top to bottom of the organization and the chain of command should be clear.
- b. The responsibilities of each authority should be clearly defined in writing.
- c. The decision making power should be placed as near as possible to the scene of action.
- d. The number of levels of authority should be kept at minimum.
- e. The organization should be kept as simple as possible and should be flexible to adjust to changing conditions.

Management Aspect

The main task of management is to implement the project objectives within the framework of organizational structure. For good management, a clear definition of functions and activities are required. There is also a need for allocating responsibilities to various agencies for various project activities. A suitable mechanism for coordination of the activities of participating agencies should also be developed. Besides, proper staffing also comes under the purview of the management.

Social Aspect

It is very important to assess the social patterns, customs, culture, traditions and habits of the clientele. Various aspects like changes in living standards, material welfare, income distribution etc. In selecting some projects, weights are assigned for income distribution so that the projects which benefit the lower income group are benefitted. The adverse effect of the project on particular group is also examined. Preserving the environment and wildlife habitats is given high priority.

Commercial Aspect

The commercial aspects of a project involves the arrangements of marketing the output produced by the project and ensuring supply of inputs needed for the project to operate. There is a need to assess the effective demand of the project output and the prices that may prevail under the demand and supply situations. The analyst also needs to cautiously evaluate the impact of product supply on the price of the product and the viability of the project under such changed price situation.

Financial Aspect

Decisions about undertaking any project depend a lot on financial analysis of a project. As there could be many beneficiaries/participating agencies of any project, there is a need for separate financial analysis each.

Economic Aspect

The economic aspect is very important to be taken into consideration while appraising a project proposal. If it is a developmental project aims at improving the quality of life of the people in the project area, then what will be its economic impact in terms of raising income and standard of living of the people is essential.

Sustainability Aspect

Donor agencies are emphasising on the sustainability of the project by the intervention is withdrawn from the project area.

UNIT 5 PROJECT FORMULATION

Unit Structure

- 5.1 Introduction
- 5.2 Learning Outcome
- 5.3 Main Content
 - 5.3.2 Project Proposal: Concept and Meaning
 - 5.3.3 Steps in Project Formulation
- 5.4 Format for Writing Project Proposal
- 5.5 Logistic Framework Approach in Project Formulation
- 5.6 Summary
- 5.7 References/Further Readings
- 5.8 Possible Answers to self-assessment exercise (s) within the content



5.1 Introduction

Preparing a project proposal is a daunting task for an individual or an organization. A project proposal on any aspect of urban development should identify the scope of the project to be undertaken and describe the audience to be benefited. It needs to cover the objectives, activities and expected outcomes to be derived out of the project. The proposal should also describe the resources, both financial and human, that will be needed to achieve the project goal and objectives. It has to propose a time frame for development and delivery of the programme.

The proposal must be carefully crafted and its presentation must be professional. It is important that the proposal be technically sound, grammatically correct, and well designed, because the project proposal would most likely to compete with similar proposals submitted by other agencies and consultants. The proposal must communicate ideas and plans with eloquence that it will rise to the top of possible competition.



5.2 Learning Outcome

By studying this unit, the students will be able to:

- Describe the meaning of project proposal
- Explain various steps in project proposal formulation
- Formulate a training project proposal for urban health workers
- prepare logistic framework of a urban health workers training project proposal



5.3 Main Content

5.3.1 Project Proposal: Concept and Meaning

According to Connor et.al (5996), “a proposal is a request for action. Its purpose is to persuade decision makers that a need exists for action and that the action described in the document is the best response to that need”.

According ITTO, “a project proposal is a detailed description of a series of activities aimed at solving a certain problem. The proposal should contain a detailed explanation of the:

- * Justification of the project
- * Activities and implementation time line
- * Methodology, and
- * Human, material and financial resources required

A project is a time-bound intervention consisting of a set of planned and interrelated activities executed to bring about a beneficial change. It has a start and a finish, involves a multidisciplinary team collaborating to implement activities within constraints of cost, time and quality and has a scope of work that is unique and subject to uncertainty.

5.3.3 Steps in Project Formulation

The formulation of a good project proposal is not an easy task. It requires a lot of exercise on the part of proposal formulator both before and during the preparation of project proposal. Before writing a project proposal, the project coordination or institution has to take care of following pre- project formulation aspects.

1. Review of past project proposals: A group that is involved in the formulation of project proposal needs to review similar types of project proposal formulated by its own institution or other institutions. This will give an idea about the strengths and weaknesses to the project coordinator while thinking about formulating any project.
2. Consulting experts, consultants, and previous project coordinators: A person or group formulating proposal could consult an expert in the area in which the intended project is going to be formulated and even can appoint a consultant who could be helpful in the preparation of the proposal. It is always better to consult a person who has already completed similar type of projects which are being attempted. The project coordinator formulating project proposal can consult his/her fellow

- colleagues who have already formulated similar types of project proposals.
3. Review past project evaluation reports: Before formulating a proposal, it is advisable to go through the reports prepared by a similar type of research organizations/institutions. The project evaluation report, besides, providing the components of project activities and strategies, will give details about the methodology, evaluation, and impact assessment strategy.
 4. Interact with the prospective beneficiaries: The project team can also interact with the prospective beneficiaries to be benefited from the project interventions and assess their need. It would be better if the coordinator could also interact with those who have already received benefits from the similar types of project.
 5. Check statistical data/ report: The data regarding a previous similar types of projects from various documents must be collected so that an appropriate project strategy is formulated.
 6. Hold focus group discussion: It is always better that the person who prepares a proposal undertakes a focus group discussion with the beneficiaries or the prospective clientele or the stakeholders. If it is a training project for grassroots level representatives e.g., urban local bodies, then the training organizer could conduct a focus group discussion with the elected representatives and functionaries of urban local bodies and assess their needs.

5.4 Format for Writing Project Proposal

By completing the ground work, the writing of a project proposal will begin. Here, we will mention the important components of a project proposal.

1. **Title page:** The project proposal must start with a title page. The title page needs to clearly spell out the title of the project proposal, the name of the sponsoring agency and the institution submitting the project proposal, and the address of the institution from where the proposal originates.
2. **Abstract:** Many project proposal peer group evaluators may not have the sufficient time to read the entire project proposal. Therefore, it is prudent to give an abstract. The abstract needs to include the following aspects.
 - a. The problem statement
 - b. The project objectives
 - c. Implementing organisations
 - d. Key project activities
 - e. Expected outputs
 - f. Total project budget

3. **Introduction:** Briefly introduce the topic of the project, and why an project in the areas is deemed necessary. Introduction must be brief and to the point focusing on the topic on which project is being proposed.
4. **Problem statement:** The project formulator must clearly give some background of the problem which the project is trying to solve in order to make a case for the project. It also needs to clearly mention the needs of the target group which the project is attempting to address. Some of the essential points to be taken into consideration while narrating the problem statement are mentioned in the box below.

Problem Analysis

1. Describe the key problem identified and its causes and effects.
2. Delineate how these problems affect the target group.
3. Explain how addressing the causes will lead to the eradication of the key problem.
4. The description should be clear, concise and convincing.

5. **Project goal & objectives:** By delineating the statement of the problem, the second aspect to be covered in the project proposal is to clearly state the goal and objectives. The goal is the general aim of the project, while objectives are the core problems\ issues the project is trying to address to achieve the goal. Remember that there is one goal and more than one objective. The guidelines for preparing realistic objectives are given in the box below.
- 6.

Guideline for Objectives Formulation

In nutshell objective must be 'SMART'

S – Simple: It should be simple and covering one point at a time.

M– Measurable : It must be measurable so that a conclusion can be drawn
A – Attainable : It can be handled within the limit imposed by the time

R – Realistic : It must not be unrealistic which cannot be achieved

T – Time-bound: It must be so framed that it is achieved with the set time.

7. **Project Output:** The project output should describe the services or products which the coordination intend to deliver to the beneficiaries or the survey which the organizers/coordinator intends to administer over the respondents. The results needed to be more detail and can be presented in measurable terms. It should be remembered that the results should address the main causes of the problem that the target group faces. The following are key points to be taken into consideration while formulating out puts.

- a. It should clearly relate to the objectives and should be stated in such a way that these can be measured in quantity, time, and space.
 - b. It should be achievable with in the available resources.
 - c. It should not be confused with activities.
8. **Target group:** The project proposal needs to clearly define the target group and show how they will benefit from the project/programme. The project should give clear details of the designation, caste, and age; the gender breaks up of the target group which will be covered in the project. If possible, a list of categories of participants may be given as an annexure in the proposal.
 9. **Strategies:** The project proposal must clearly delineate strategies to be adopted during various steps of project implementation. The formulated strategies must be logically linked with the formulated objectives.
 10. **Project Implementation Plan:** The project implementation plan must describe activities and resources allocation in as much detail as possible. The time and place of project implementation must be clearly mentioned. It should also specify the experts and other institutions who will be involved during the process of conducting the project activities. The implementation plan may be divided into the following two key elements.

The activity plan: the activity plan must clearly include information about the activities to be conducted by the project. The activities must be drawn from the specific objectives and outputs formulated for the project. They should be stated in such a way that they precisely describe the actions or tasks to be undertaken by the project coordinator. It will be better if activities are further broken into tasks. Activities should indicate what will be done to transform inputs into outputs.

Some of the guidelines for the formulation of appropriate activities are:

- a. It should examine each output listed in the implementation plan.
- b. Formulate the complete set of activities required for achieving the stated objectives.
- c. Always verify that the formulated set of activities is sufficient for achieving the stated project output.
- d. Check the available set of inputs necessary for the implementation of formulated activities. A good tool for establishing activities is the work breakdown structure, which identifies groups of activities related to each project output and presents them in a hierarchical structure.

5.5 Logistic Framework Approach in Project Formulation

Now a day's most of the donor agencies are asking for logistic framework in preparing project proposals. The logical frame work analysis is an interactive process intended to promote clear conceptual thinking on what a project intends to do, and how it intends to do it. It is logical in the sense that it establishes internal relationships between project objectives, outputs and activities (inputs).

The steps that are used to construct a logical framework are given below.

Step 1: Define the overall goal which the project intends to achieve.

Step 2: Define the objectives (Purposes) to be achieved by the project.

Step 3: Define outputs for achieving the objective

Step 4: Formulate activities for achieving each output.

Step 5: Define assumptions under which success in achieving the objective of one level will contribute to achieving objectives at the next level.

Step 6: Define the Objectively Verifiable Indicator (OVI) at goal, objective, output and activity levels. The contents of logistic framework are given below in tabular form. Some of the terms used in logical framework are described below:

1. **Objectively Verifiable Indicators:** Means features which can be measured or at least described precisely in terms of quantity and quality, which would show a change in situation.
2. **Means of Verification:** Indicate where and in what form information on the achievement of objectives and results can be found.
3. **Assumptions:** conditions which could affect the progress of the project but which are not under direct control of project management.



5.6 Summary

Preparing a project proposal is a daunting task. The project proposal must be carefully crafted and its presentation must be professional, because most probably the project might be competing with similar proposals for grants. This unit at the outset has described the meaning of the project and various steps starting from the review of past project proposal to discussion on project while formulating a project proposal is dealt in detail. The project proposal required to be painted in a particular format. The fourth section of this unit has described in detail the format for writing project proposal. Logistic framework which now a days a requirement of bilateral and multi-lateral funding agencies is also discussed in the last section.



5.7 References/Further Readings

International Tropical Timber Organization (2009), Manual for Project Formulation, Third Edition; GI Series 53

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5.8 Possible Answers to self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 5

What are the different steps in project formulation?

Answer

Different steps in the project formulation are:

1. Review of past project proposals;
2. Consulting experts, consultants, and previous project coordinators;
3. Review past project evaluation reports;
4. Interact with the prospective beneficiaries;
5. Check statistical data/ report; and
6. Hold focus group discussion

SELF-ASSESSMENT EXERCISE 2

What is the full form of “SMART” objective?

Answer

In nutshell objective must be ‘SMART’

S – Simple: It should be simple and covering one point at a time.

M– Measurable: It must be measurable so that a conclusion can be drawn

A – Attainable: It can be handled within the limit imposed by the time

R – Realistic: It must not be unrealistic which cannot be achieved

T – Time-bound: It must be so framed that it is achieved with the set time.

MODULE 2

Unit 1	Financial Appraisal
Unit 2	Economic Analysis of Project
Unit 3	Social Analyses of Project
Unit 4	Project Planning
Unit 5	Planning

UNIT 1 FINANCIAL APPRAISAL

Unit Structure

- 1.1 Introduction
- 1.2 Learning Objective
- 1.3 Main Content
- 1.4 When to Undertake a Financial Analysis?
 - 1.4.1 How to Value Project Benefits and Costs in a Financial Analysis?
- 1.5 The Cash Flow in the Financial Analysis
- 1.6 Discounting in Project Analysis
- 1.7 Summary
- 1.8 References/Further Readings
- 1.9 Possible answers to self-assessment exercise (s) within the content



1.1 Introduction

Financial appraisal is a method used to evaluate the viability of a proposed project by assessing the value of net cash flows that result from its implementation. Financial appraisals differ from economic appraisals in the scope of their investigation, the range of impacts analysed and the methodology used. A financial appraisal essentially views investment decisions from the perspective of the organization undertaking the investment. It therefore measures only the direct effects on the cash flow of the organisation of an investment decision.

By contrast, an economic appraisal considers not only the impact of a project on the organisation sponsoring the project, but also considers the external benefits and costs of the project for other government agencies, private sector enterprises and individuals-regardless of whether or not such impacts are matched by monetary payments.

Financial appraisals also differ from economic appraisals in that: market prices and valuations are used in assessing benefits and costs, instead of measures such as willingness to pay and opportunity cost;

- the discount rate used represents the weighted average cost of debt and equity capital, rather than the estimated social opportunity cost of capital; and
- The discount rate and the cash flows to which it is applied are usually specified on a nominal basis as the cost of debt and cost of equity are observed only in nominal terms.

A financial analysis of a project is undertaken to assess whether it will be commercially profitable for the enterprise implementing it. A private firm will undertake a financial analysis of a potential investment in order to determine its impact on the firm's balance sheet. Governments and international agencies will also routinely undertake a financial analysis, as well as an economic analysis, of any project in which the output will be sold and a financial analysis will therefore have some meaning. In this unit we will be discussing the meaning, the need and methodology of financial appraisals.



1.2 Learning Objective

By end of this unit, you should be able to:

- Understand the meaning of financial appraisal;
- highlight the need for a financial analysis;
- and explain the methodology of financial analysis.



1.3 Main Content

1.3.1 When to Undertake a Financial Analysis?

A financial analysis must be undertaken if it is necessary to determine the financial profitability of a project to the project implementer. Normally it will only be worthwhile carrying out a financial analysis if the output of the project can be sold in the market, or otherwise valued in market prices. This will almost always be the case for a privately sponsored project, but will also apply to some government business undertakings. A private firm will primarily be interested in undertaking a financial analysis of any project it is considering, and only in some special circumstances will it wish to undertake an economic analysis.

Commercially oriented government authorities that are selling output, such as railway, electricity, telecommunications, or freeway authorities, will usually undertake a financial as well as an economic analysis of any new project they are considering. They need to assess the project's potential impact on their budget, as well as its impact on the country's welfare. For example, the Department of Telecommunication offers provision of telephone services at a reduced rate, it needs to examine the impact of the decision on their budget and overall public good. Another situation where a government will be interested in undertaking a financial analysis of a project is when the project is financially viable without the subsidy or other forms of assistance. In practice, governments and international agencies routinely undertake a financial as well as an economic analysis of any project where a financial analysis will have some meaning- essentially, if the output will be sold. It can then compare the results of the financial and economic evaluation, to determine the project's budgetary impact on the government, as the implementer, as well as its contribution to national welfare.

Even non-commercial government institutions may sometimes wish to choose between alternative facilities on the basis of essentially financial objectives. For example, in the case of a hospital service, the management of hospital could well be required to select the cheapest method of providing a given standard of accommodation or care. A national defence force will often choose between available alternative methods of achieving a physical goal, such as airborne troop management capacity, on the basis of the, cheapest financial option. This procedure is called cost minimization or cost effectiveness. It differs from a full financial analysis in that only the cost of a project is estimated in market or conceivably in economic prices. The benefits are specified in terms of some quantitative target, such as the number of patient beds to be provided or number of troops that can be moved.

1.3.1 How to Value Project Benefits and Costs in a Financial Analysis?

The financial benefits of a project are just the revenues received and the financial costs are expenditures that are actually incurred by the implementing agency as a result of the project. If a project is producing some good or service for sale, the revenue that the project implementers expect to receive each year from these sales will be the benefits of the project. The costs incurred are the expenditures made to establish and operate the project. These include capital costs, the cost of purchasing land, equipment, factory building, vehicles and office machines, and working capital, as well as its ongoing operating costs, for labour, raw materials, fuel and utilities.

In a financial analysis, all these receipts and expenditures are valued as they appear in the financial balance sheet of the project, and are therefore measured in market prices. Market prices are just the prices in the local economy, and include all applicable taxes, tariffs, trade mark-ups and commissions. Since the project's implementers will have to pay market prices for inputs they use and will receive market prices of the output they produce, the financial costs and benefits of the project are measured in these market prices.

Real or Nominal Prices

It is obviously very important to know whether the input and output projections given by the proposing firm or agency are valued in current prices (normal) or constant prices (real). This is necessary to ensure that the analysis is carried out in a consistent set of prices, so that the total net value of the project ultimately calculated is a real figure. Often, constant (say 1990) prices, rather than current prices, are used in a project's cash flow. A project's cash flow is merely the costs and benefits paid and produced by the project over its lifetime in the years that they occur. The use of constant prices simplifies the analysis, as it relieves the analyst of the need to make projections about the anticipated inflation rate in the country over the life of the project. This procedure is quite appropriate if input and output prices in domestic currency are expected to increase at approximately the same rate over the life of the project.

However, there are several situations where the use of constant prices may not be appropriate. The first is when the analyst is drawing up project financing plans. In this situation, the analyst will need to estimate expenditures in nominal terms to ensure that planned sources of finance will be sufficient to cover all project costs. The second is a situation where the investment is privately operated and will pay company tax. The financial analysis will need to be carried out in both nominal and real terms because the rate of inflation will affect the interest payments, depreciation allowance and the cost of holding stocks. All these will influence the firm's tax liability. Working capital requirements will also be affected by the level of inflation. Finally, if input prices are expected to rise at different rates over the life of the project, and vary from year to year, it will usually be simpler to include all prices in current terms.

Internal Transport and Handling Costs

It is important to be clear about where inputs and outputs should be priced in a project appraisal. In the case of a project's output, it could be valued at the project gate or in the market for the project's output. In a case of project inputs, they could be valued at the project gate, at the gate of the input supplier's factory or mine or at the port of entry into

the country. In order to determine which the appropriate price is, it is necessary to remember that in a 'financial appraisal it is I the net incremental benefit of the project to the implementing agent that is of I i interest., In the case of project outputs, they should therefore be valued at the market price received for them at the project gate. Transport costs from the project to market should be subtracted from the wholesale price received in the market. Project inputs should also be valued at their market cost at the project gate. This price will include the transport and handling cost of getting them there.

Local and Foreign Costs

Many a times project appraisals split costs (and sometimes benefits) between locally incurred and foreign exchange costs and benefits. This is useful if policy makers wish to judge the impact of the project on the balance payments, or if foreign financing agents such as aid agencies or multilateral banks wish to see the distribution of items eligible for aid grants or loans.

Usually, even if local and foreign costs are identified, in a financial analysis all costs and benefits are then expressed in local currency, converted at the official exchange rate. However, the foreign currency costs may in some instances be expressed in a common international currency like US Dollar, or in terms of the local currency of a bilateral aid donor country.

In order to separate the cash flow into local and foreign prices, and also to predict the future price of a project's tradable inputs and outputs, it may be necessary to make projections about future exchange rates. To do this it will be necessary to assess, inter alia, if local inflation rates are likely to diverge from average international inflation rates, and particularly those of the host country's major trading partners. If local inflation is expected to be higher than the average for major trading partners, devaluation of the local currency could be anticipated, increasing both the costs of imported inputs and the local currency value of exported outputs. If local inflation is expected to be lower than that of the country's major trading partners, it is likely that the local currency will appreciate over the life of the project. If this is a real appreciation, it will have the effect of lowering imported input prices as well as lowering the local currency receipts from exported outputs and/or reducing the international competitiveness of these exports.

The following section paragraphs discusses about how the inputs and outputs of a project that are valued in market prices should be incorporated into a project's cash flow in order to undertake a financial analysis.

SELF-ASSESSMENT EXERCISE

1. Discuss when to undertake the financial analysis.
2. Highlight how to value project benefits and cost in a financial analysis.

1.4 The Cash Flow in the Financial Analysis

It comprises the following input and output components:

The Financial Cash Flow

The financial cash flow of a project is the stream of financial costs and benefits, or expenditures and receipts, which will be generated by the project over its economic life, and will not be produced in its absence. Before the cash flow of a project can be estimated, it will be necessary for the project sponsors to undertake detailed market research into product markets and prices. They must find out if there will be market for the project's output and what it can be sold for. Then the analyst will need to assess the sources, quantities and costs of required capital assets, raw materials and labour, to estimate the likely costs of the project. It may also be necessary to determine anticipated inflation rates and exchange rate movements, as they may affect the valuation of the project's expenditures and receipts.

Project Life

Early in the process of constructing a project's financial cash flow it will be necessary to determine the length of the project's economic life. This will be the optimal period over which the project should be run to maximise its return to the project implementer. The project's life is frequently set equal to the technical life of the equipment used. However, various factors, such as the technological obsolescence of equipment, changing tastes, international competitiveness or the extent of a natural resource or mineral deposit, may result in the economic life of the project being shorter than the technical life of the equipment employed. If the project is expected to have long term environment impacts, it may be necessary to extend the length of the cash flow so that these costs (or benefits) can be measured.

Capital Costs

The capital costs of a project can be divided into fixed capital costs, or the cost of acquiring fixed assets like plant and equipment, start-up costs, and working capital, which finances the operating expenses of the enterprise. In a financial analysis, all forms of capital expenditure should be entered in the financial cash flow in the years in which the project actually has to pay for them. For example, if the project receives a soft loan from the supplier of its equipment, which involves a grace period

before repaying the loan, the cost of this equipment will not be included in the cash flow until it must be paid for by the project.

Operating Costs

The project's operating costs cover its recurrent outlays on labour services (wages and salaries), raw materials, energy, utilities (water, waste removal, etc.), marketing, transport, insurance, taxes and debt service over the life of the project. Each operating cost is entered in the cash flow in the year (month or quarter) in which it is incurred. Total operating costs may also be expressed in terms of costs per unit of output. As was mentioned previously, unit operating costs are likely to be somewhat higher in the first year or two of a project, so the difference between start-up costs under capital costs, and steady state operating will be included in the operating costs.

Treatment of Taxes

In addition to a financial analysis undertaken from the owner's point of view the , company tax paid on project profits can be calculated in order to determine the project's net present value by tax. A government may do this to determine whether a project seeking subsidies or concessions will be financially profitable by tax or not. A private firm may merely wish to know if a proposed investment will be profitable by tax, given the tax regime of the country concerned.

The taxable income of the project will be determined by subtracting all operating costs, interest payments and allowable depreciation on the capital assets from the firm's revenue earnings each year. The appropriate company income tax rate is then applied to this taxable income to determine the project's taxation liability.

If the country gives incentives to new investments in the form of tax holidays or accelerated depreciation of assets, these should be taken into account in the project's taxable income and tax liability. The tax liability is subtracted from taxable income to obtain the project's net of tax income.

Project Benefits

In a financial analysis, the project's benefits equal the cash receipts actually received by the project from the sale of goods or services it produces, or the market value equivalent of home consumed output in the case of non-marketed output. This can be the revenue from sales, rent or royalties, depending on the nature of the project. Other revenue earned from, for example, bank deposits, the sale of fixed assets or insurance claims, will also be included as separate items under project receipts or benefits.

Net Benefits

The project's net benefit stream is calculated as the difference between the total revenue (or benefit) stream and its expenditure (costs) stream.

1.5 Discounting in Project Analysis

In project analysis, any costs and benefits of a project that are received in future periods are discounted, or deflated by some factor, r , to reflect their lower value to the individual (or society) than currently available income. The factor used to discount future costs and benefits is called the discount rate and is usually expressed as a percentage.

Once future net income streams have been discounted in this way, expenditures and revenues from all the different time periods will be valued in units of similar value - present day units of currency. They will then be directly comparable with each other and can be added together. Adding the discounted net benefits from each year of the project's life, its discounted net benefit flow, gives a single monetary value called the project's net present value, NPV.

The net present value criterion of a project is the single most important measure of the project's worth. If a project's NPV is positive (i.e. its discounted benefits exceed its discounted costs), then the project should be accepted. If its NPV is negative (its discounted costs exceed its discounted benefits), then the project should be rejected.

In the above table, an 8% discount rate is used to mechanically discount the net benefits of a railway project. The project's NPV can then be estimated by just adding up these discounted net benefits. Columns (1), (2) and (3) show the non-discounted costs, benefits and net benefits (benefits-costs) of the railway project. Column (4) gives the discount factor, $1/(1+0.08)^t$, by which the non-discounted net benefits in column (3) are multiplied, to obtain the discounted value of these net benefits in each year, t , shown in column (5). These discounted net benefits can then be added together to obtain the total discounted net benefits, or net present value, of the project. The bottom line of the table shows that the NPV comes to \$10.4 million if an 8% discount rate is used. A NPV greater than zero indicates that the discounted benefits of the project are expected to be greater than its discounted costs and the project will therefore be worth undertaking.

This example illustrates how crucially the estimation of a project's NPV depends on the discount rate employed. A lower discount rate would have deflated future income by less and increased NPV of the project. A higher discount rate would have deflated future income more heavily and decreased the NPV of the project possibly changing it from positive

to negative. The selection of the appropriate discount rate is therefore a very important issue in project appraisal.

The Discount Rate in Financial Analysis

In a financial analysis market prices are used to value project inputs and outputs, even if these prices are distorted. Market prices are used so that the financial profitability of the project to its implementer can be determined. The market price of capital to the project implementer is the market interest rate, and this represents the cost to the implementer of investing capital in the project. The correct approach to determining the financial discount rate, the discount rate used in the financial analysis, is therefore to estimate the actual cost of capital to the project implementer. This will vary depending on whether at the margin the implementer is a borrower or lender of investible funds.

If the project implementer is a net borrower, the interest rate at which the enterprise can borrow is the opportunity cost of funds employed. This market borrowing rate should be used as the financial discount rate for any project appraisal undertaken by the enterprise. If the project implementer intends to draw some funds from its own financial resources and some from market borrowings, the weighted cost of the capital it obtains from these different sources will be the appropriate financial discount rate.

If the firm or the government Considering a project is a net lender, in the absence of the project it could invest these funds in the financial market and earn the market lending rate. The opportunity cost of the funds to be used for the project will therefore be the by tax market lending rate that it could earn on this capital. The project must earn at least this market lending rate for it to be worth doing and the by- tax lending rate should therefore be used as the financial discount rate for any project appraisals undertaken by this enterprise. In reality the enterprise will usually want to earn some margin above the market lending rate if the project is considered a riskier use of the firm's funds than available financial investments.

Discounted Project Assessment Criteria

The two most commonly used discounted measures of a project's net benefit are its net present value and internal rate of return. The domestic resource cost ratio, benefit cost ratio and net benefit investment ratio are also be discussed below:

Project Net Present Value (NPV)

The NPV measure of project worth is the most useful and one of the most commonly used criteria for determining whether a project should be accepted. The net present value of a project is simply the present

value, PV, of its net benefit stream. It is obtained by discounting the stream of net benefits produced by the project over its lifetime, back to its value in the chosen base period, usually the present

B_t are project benefits in period t

C_t are project costs in period t

r is the appropriate financial or economic discount rate

n is the number of years for which the project will operate

In the NPV of a railway project was estimated mechanically. The net benefits of the project each year were deflated by a factor equal to $1/(1+r)^t$, where r was the discount rate and t the year in which the net benefits of the project were received. These discounted net benefits were then added together for the ' n ' years of the project. Under this decision rule a project is potentially worthwhile or viable if the NPV is greater than zero; i.e. the discounted value of benefits is greater than the discounted costs. If projects are mutually exclusive, the project which yields the highest NPV would be chosen.

The Internal Rate of Return of a Project (IRR)

The internal rate of return, IRR, of a project is probably the most commonly used assessment criterion in project appraisal. This is primarily because the concept of an IRR is in some ways comparable to the profit rate of a project and is therefore easy for non-economists to understand. Furthermore, it does not rely on the selection of a predetermined discount rate.

The internal rate of return is the discount rate that, if used to discount a project's costs and benefits, will just make the project's net present value equal to zero. Thus the internal rate of return is the discount rate, r^* .

Since the internal rate of return is the discount rate internal to the project, its calculation does not depend on prior selection of a discount rate. A project's internal rate of return can therefore be thought of as the discount rate at which it would be just worthwhile doing the project. For a financial analysis, it would be the maximum interest rate that the project could afford to pay on its funds and still recover all its investment and operating costs.

A project is potentially worthwhile if the IRR is greater than the test discount rate. If projects are mutually exclusive, this rule would suggest that the project with the highest IRR should be chosen.

The Net Benefit Investment Ratio (NBIR)

The net benefit investment ratio, NBIR, is the most convenient selection criterion to use when there is a single period budget constraint.

The decision rule for the net benefit investment ratio is that all projects that have a net benefit investment ratio greater than unity should be selected. This selection criterion is completely compatible with those for the net present value and the internal rate of return of a project.

The Benefit Cost Ratio (BCR)

The benefit cost ratio was the earliest discounted project assessment criterion to be employed. However, due to problems associated with its applied use, it is rarely used in project appraisal today.

The benefit cost ratio is simply the ratio of the sum of the project's discounted benefits to the sum of its discounted investment and operating costs.



1.6 Summary

Governments and individuals can usually pursue only limited objectives when they choose projects on the basis of a financial appraisal. In most circumstances, a financial analysis using market prices to value a project's inputs and outputs will merely tell the analyst whether a project will be financially profitable. These market prices usually contain many distortions such as taxes, tariffs and price controls and do not reflect the true costs and benefits to the economy of a project's use of particular inputs and production of various outputs. Therefore a financial analysis will only rarely measure a project's contribution to the community's welfare.



1.7 References/Further Readings

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1.8 Possible answers to self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 1

Discuss when to undertake the financial analysis.

Answer

- i. A financial analysis must be undertaken if it is necessary to determine the financial profitability of a project to the project implementer.
- ii. Financial analysis can be carryout if the output of the project can be sold in the market, or otherwise valued in market prices.
- iii. This analysis can be carryout if the output of the project can be sold in the market, or otherwise valued in market prices.
- iv. This analysis can be applied for a private sponsored project, and to an extent it can be also apply to some government business undertaking. Commercially oriented government agencies that are selling output will usually undertake a financial as well as an economic analysis of any new project they are considering.
- v. Another situation where a government will be interested in undertaking a financial analysis of a project is when the project is financially viable without the subsidy.

SELF-ASSESSMENT EXERCISE 2

Highlight how to value project benefits and cost in a financial analysis

Answer

- i. The financial benefits of a project are just the revenues received and the financial costs are expenditures that are actually incurred by the implementing agency as a result of the project.
- ii. If a project is producing some good or service for sale, the revenue that the project implementers expect to receive each year from these sales will be the benefits of the project.
- iii. The costs incurred are the expenditures made to establish and operate the project.

- iv. In a financial analysis, all these receipts and expenditures are valued as they appear in the financial balance sheet of the project, and are therefore measured in market prices.
- v. It is obviously very important to know whether the input and output projections given by the proposing firm or agency are valued in current prices (normal) or constant prices (real).
- vi. It is important to be clear about where inputs and outputs should be priced in a project appraisal.
- vii. Some project appraisals split costs (and sometimes benefits) between locally incurred and foreign exchange costs and benefits.
- viii. This is useful if policy makers wish to judge the impact of the project on the balance payments, or if foreign financing agents such as aid agencies or multilateral banks wish to see the distribution of items eligible for aid grants or loans.

UNIT 2 ECONOMIC ANALYSIS OF PROJECT

Unit Structure

- 2.1 Introduction
- 2.2. Learning Outcome
- 2.3 Main Content
 - 2.3.1 Role of Cost Benefit Analysis in Project Development
 - 2.3.2 Financial Analysis and Economic Analysis: Distinction
- 2.4 Steps in Preparing a Full Economic Evaluation
- 2.6 Summary
- 2.7 References/Further Readings
- 2.8 Possible Answers to Self-assessment exercise (s) within the content



2.1 Introduction

An economic analysis, also called a cost benefit analysis, is an extension of a financial analysis. An economic analysis is employed mainly by governments and international agencies to determine whether or not particular projects or policies will improve a community's welfare and should therefore be supported. As cost benefit analysis enables the analyst to determine if a project will make a positive contribution to the welfare of a country, it should routinely be undertaken to evaluate major government-funded projects and policies. The government should also undertake a cost benefit analysis of any private project seeking government subsidies or policy support, such as tariff protection.

When a cost benefit analysis is undertaken, micro economic, macroeconomic and international trade theory is applied to real world situations in order to answer questions such as these:

1. Should a new bridge be built, or should the existing ferry service be upgraded?
2. Should an export-oriented aluminum refinery be established, or should the unprocessed bauxite and coal be exported?
3. Should computers be imported or assembled locally?
4. Will this irrigation project be a better use of resources and lead to a greater increase in community welfare than that highway project?
5. What fuel should be used to generate electricity?

For the government to answer these questions, it is necessary that it goes beyond a financial appraisal, which determines how commercially profitable these alternative policies and potential investments would be. This is essential for a number of reasons. The first is that governments

typically have broader and more complex objectives, which they wish to achieve from public good and social service provision and policymaking generally, than mere profit maximisation. If governments only wished to maximise profits from the operation of state enterprises, they would be well advised to privatize them, as the private sector is likely to be more efficient at pursuing this goal. Government objectives fall broadly under the heading of "optimisation of community welfare". The most straightforward economic objective is the optimization of the level of GNP per capita. Other objectives may include preserving the environment, redistributing income to particular target groups or regions and enhancing national security. Even from this short list it is obvious that there may be conflict between some of these objectives. One of the major reasons that governments use cost benefit analysis is to determine the impact of various competing projects on community welfare, defined in terms of all these different criteria.

The other major reason for the use of cost benefit analysis lies in the many distortions and imperfections that affect prices in factor and goods markets. In many countries market prices, that is, prices quoted in domestic markets, reflect a range of distortions, including taxes, subsidies, controlled prices, tariffs, and monopoly or monopsony rents. These factors distort market prices so that they no longer reflect the true economic value that people place on consuming such goods and services (their demand price), or the true cost to the economy of producing them (their supply price). If a government wishes to determine which projects will make a positive contribution to community welfare, it will not necessarily be able to use the market prices of the projects' inputs and outputs to calculate their true costs and benefits to society.

When undertaking a cost benefit analysis, the project analyst will try to correct for such distortions by calculating economic, or shadow, prices. The shadow prices of the project's inputs and outputs, like labour and capital, goods that enter international trade, traded goods, and those that do not, non-traded goods, will reflect the true economic value of these inputs and outputs to the economy concerned. In a cost benefit analysis shadow prices for projects' inputs and outputs are substituted for market prices.



2.2 Learning Outcome

By end of this unit, you should be able to:

- High light the need for an economic analysis by governments;
- discuss the role of Cost Benefit Analysis in project development, evaluation and implementation; bring out the differences between financial and economic analysis etc.



2.3 Main Content

2.3.1 Role of Cost Benefit Analysis in Project Development

The techniques of financial and cost benefit analysis are employed in identifiable stages of project formulation and evaluation given below:

Project Identification

At this stage, the initiating agency, such as a government department or utility, defines the initial concept of project and outlines the objectives that the government wishes it to achieve. These may include the provision of health, transport or education services, for example. The first major issue that must be investigated is the existence of market opportunities. In the case of social services, the analyst must determine the anticipated demand for the project's output and the benefits that the public is expected to derive from these services. An initial assessment of the best technology to employ, given local factor prices, as well as the appropriate scale and timing of the project is also necessary. Engineers, health specialists, educationalists, environmental scientists, agricultural specialists, market analyst and many other professionals will contribute to this stage of the project's development. Economists may also be involved in a preliminary assessment of the viability of alternative technology given the relative prices of capital and labour in the country concerned.

This process yields the basis concept of the project and background information, which enables the government to progress to the pre-feasibility study stage.

Pre-feasibility Study

At this stage, the analyst obtains approximate valuations of the major components of the project's costs and benefits: input and output quantities and prices. More precise estimates must be made of the demand for the project's output, the technical capacity and cost of the plant or technology envisaged, and the project's manpower requirements. In many cases this data will be provided by the technical professionals involved in the original project identification stage.

Using this preliminary data, financial and economic analyses of the project will then be undertaken by the economic analyst, to determine whether the project appears to be financially and economically viable. A preliminary financing schedule may also be drawn up to identify the source and costs of funds. If the project appears viable from this preliminary investigation, it will be worthwhile proceeding to the full feasibility study stage.

Feasibility Study

At this stage, more accurate data must be obtained on all project costs and benefits, but particularly those that risk analysis indicates are crucial to the project's viability. The financial and economic viability of the project is then assessed again. If the project is still found to be viable, approval should be sought to proceed to the project design phase.

Project Design

This involves undertaking the detailed engineering design work of the project, based on the technology envisaged at the feasibility stage. Manpower requirements, administration and marketing procedure are all finalised at this point.

2.3.2 Financial Analysis and Economic Analysis: Distinction

The economic analysis technique outlined above have much in common with financial analysis. However there are significant points of distinction.

Firstly, a traditional financial analysis examines a project from the narrow perspective of the entity undertaking the project. It does not take account of effects on other enterprises or individuals. Thus, a proposal put forward by one government agency may inflict costs (or confer benefits) on other government agencies, on private sector enterprises or on individuals. These external costs and benefits must be taken into account. Similarly, a strictly financial analysis does not consider the opportunity cost of using resources in the case where the actual price paid by or to the entity is not a good indicator of the real value in terms of alternative uses.

Secondly, economic evaluation does not consider directly the payment of interest. Rather real resource flows are shown and time preference is taken into account by the use of a discount rate.

Thirdly, in economic analysis capital expenditure is recognised as a resource cost at the time it is incurred whereas in financial analysis it may be shown amortised over the life of the project for taxation and other purposes.

In the public sector the fundamental requirement is for an economic appraisal. However, it should be noted that the undertaking of an economic appraisal does not remove the need for a financial analysis. The financial analysis will show the demands on cash flow which will result from the project- an important factor when managing the State's finances. It will also show the rate of return from the project which is important for commercial agencies.

There is an important distinction between the costs and benefits involved in a financial analysis and those included in an economic analysis.

Financial analysis whether used in the public or the private sector, implies the notion of the agency maximising its net financial surplus over time. This will generally differ from the maximisation of the economic surplus generated for the community as a whole whenever prices do not reflect the benefits or costs associated with an activity (in some case there may not even be any prices because benefits and costs are not traded).

In the case of the more commercial agencies the differences between financial appraisal and economic evaluation will commonly be comparatively small. However, for agencies with significant community service obligations, financial appraisal can be suitably applied only in a narrow range of decision choices. Thus, in the economic evaluation of a public road not subject to a toll, financial appraisal will not be of much assistance. Similarly, in choosing between two sites for a hospital, not only should the costs of building on the two sites be considered, but also the level of transport costs and length of travel time incurred by patients and visitors to the hospital.

Thus, in estimating the economic costs and benefits of a project, the analyst will have to estimate values where no direct price is charged and will generally have to consider a wider range of costs and benefits than occurs in a financial appraisal.

SELF-ASSESSMENT EXERCISE

- | |
|--|
| <ol style="list-style-type: none">1. Highlight the role of cost benefit analysis in the project development, evaluation and implementation.2. Discuss the differences between financial analysis and economic analysis? |
|--|

2.4 Steps in Preparing a Full Economic Evaluation

The steps in preparing a standard economic evaluation are outlined below:

Definition Objectives

The starting point and in many ways the most crucial aspect for the evaluation of an investment proposal is the specification of the objectives of the proposal and their relation to the overall objectives of the agency. No appraisal of the project can be meaningful unless the objectives are clearly defined.

Identification Options

It is necessary to identify the widest possible range of options at the earliest stage of the planning process. One alternative that should be considered is the possibility of the objective being met by the private sector. In developing various options the first option to be considered is the base case of "do nothing" i.e. retain the status quo. This is not to say the base case will not involve costs; in many cases doing nothing (for example continuing with a low maintenance programme) will result in cost penalties. One benefit of doing something may be the avoidance of these costs. In the case of asset replacement decisions, it may involve deferral of replacement and continued maintenance and or eventual replacement with a new asset of comparable standard to that being replaced. In the case of an expansion of activities the base case would represent a continuation of the existing system or policies.

Identification of Costs and Benefits-The With-Without Principle

This is the basic principle of any type of project evaluation. In practice, it means that an attempt should be made to estimate the "the state of the world" as it will exist with the project in existence. This should be contrasted with the "state of the world" that would have existed in the absence of the project (the "do nothing" option).

This principle has two important implications:

First, economic evaluation must not simply be a comparison of before project conditions with by project conditions because such comparison would attribute the contribution of all pre-existing trends and external factors to the project itself for example, reductions in on-going costs due to changed work practices should not be attributed to savings from an investment in new plant if the changes in work practices would have been introduced regardless of the investment decision.

Second, the analysis should include all impacts, both beneficial and otherwise, of the proposal being evaluated. In particular, not only should the intended effects or benefits which are the objectives of the project be included, but also the subsidiary or indirect effects.

There are a range of types of benefits and costs which must be considered, and they accrue to different people: some accrue directly to the user or provider of the service; while others accrue to outsiders (these are known as externalities).

The case of the evaluation of a dam whose primary purpose is the provision of irrigation for commercial crops can be used as an example. The impacts to be included in the analysis would be:

1. the provision of irrigation water for cropping (the primary objective and a traded benefit); the provision of urban water (a traded benefit)
2. flood mitigation benefits (a quantifiable non-traded benefit which is external to the users and providers of water);
3. recreational benefits offered by the dam (a quantifiable non-traded benefit external to the consumers of water); and
4. environmental effects on native flora and fauna (an external effect which may be difficult to quantify even in physical terms).
5. The importance of the with-without principle cannot be overstated. Failure to adopt it may lead to meaningless results.

Valuation of Costs and Benefits: When considering how impacts should be valued in practice, it may be convenient to classify impacts into three categories.

- a. Costs and benefits which can be readily identified and valued in money terms (e.g. Value of additional electricity supplies to users, travel time savings).
- b. Effects which can be identified and measured in physical terms but which cannot be easily valued in money terms because of the absence of market signals and consequential disagreement as to the rate of valuation (e.g. museums, reduction in pollution).
- c. Impacts which are known to exist but cannot be precisely identified and accurately quantified, let alone valued (e.g. Crime prevention effects of police programs, comfort improvements in new trains, aesthetic effects of beautification programs).

When considering benefits and costs which either cannot be valued or cannot be quantified there can be a tendency to concentrate on the benefits and ignore the costs. This should be resisted.

Where valuation is possible, two key concepts need to be kept in mind.

- a. **The Opportunity Cost Principle:** The use of resources (manpower, finance or land) in one particular area will preclude their use in any other. Hence the basis for valuing the resources used is the "opportunity cost" of committing resources; i.e. the value these resources would have in the most attractive alternative use.

The adoption of this principle reflects the fact that the economic evaluation of public sector projects should be conducted from the perspective of society as a whole and not from the point of view of a single agency.

Commonly, the price paid for new capital, labour or inputs will reflect the opportunity cost of the resources. The position may be less clear in the case of the existing land owned by the agency.

However, in general it is considered that a cost equivalent to its maximum market value or likely land use zoning should be placed on such land.

The general principle applies even where the public sector may have access to an input at a cost different from its market value. For example, coal supplied from an electricity generator's own collieries should be priced at the market price for comparable coal rather than the costs of supply, reflecting the fact that the coal has an alternative use.

- b. **Willingness-to-pay Principle:** In valuing the benefits of a project the aim is to place a monetary value on the various outputs of the project. Typically, such outputs will include:
1. benefits for which a price is paid; and
 2. Benefits for which no price is paid.

Where the services are bought and sold it is generally presumed that the price paid is a reasonable proxy for the values of the service to the consumer. This principle will hold most closely where the changes in output and price levels associated with the investment are relatively small. Where output changes are significant then it may be desirable to take account of changes in consumer surplus (an excess over the market price which the consumer would have been willing to pay). This will require knowledge of the price elasticity of demand (i.e. sensitivity of demand to changes in price). However, where the service is not freely traded or there is no price charged, or where the benefits fall broadly on the community rather than individual users, more indirect measures of the willingness to pay for the benefits need to be derived. A variety of techniques are available including:

1. the use of data on expenditure by consumers in seeking to participate in benefits (e.g. costs incurred in visiting a national park);
2. price data from related goods and services (e.g. variations in house prices due to the impact of noise levels to assess the cost of airport noise); and
3. Choice experiments (e.g. experimental choice between a 'variety of existing and new amusement/recreation amenities to infer a value for a new amenity).

Where no established framework exists, valuation of non-traded outputs will have to be approached on a case-by-case basis.

Some government services have been provided at subsidised prices and this introduces distortions in the market. Therefore, the imposition of customer charges to value benefits is likely to understate benefits. As

with services for which no price is charged, additional effort is needed in the appraisal to estimate the additional benefits, either from externalities or consumer surplus.

Specific Issues

a. Avoidance of Double Counting or Overstating of Benefits

In enumerating the costs and benefits of a proposal, care should be taken to avoid double counting. For example, the construction of a dam may increase the value of the land which is to be irrigated as a result of the increased ability of the land to grow crops. The increased value of the land merely reflects the market's capitalisation of the increased output stream. Inclusion of the net value of the increased output and the increased land value would count the same benefit twice.

Another danger is the overstatement of benefits by attributing the total output of a process to a single input. In the above example, the total value of the crops made available by the water irrigation project should not be attributed to the project. Rather the net value of the additional production should be derived by deducting all additional input costs from the value of the additional output, i.e. the costs of labour, capital and other inputs such as fertiliser and fuel should be deducted from the value of the output. Measured in this way the value of net output, subject to provision for a normal profit provides a measure of the willingness to pay for water. Hence, the inclusion of this benefit would also require adjustment for actual payments made for water provided.

b. Treatment of Inflation

Due to inflation, costs and benefits which occur later will be higher in cash terms than similar costs or benefits which occur earlier.

There are two different ways to tackle this issue. Either nominal values can be used for each time period and then discounted with a nominal discount rate, or real cash flows can be used discounted by a real discount rate. In practice it is considered that the use of real cash flows and discount rates may simplify the forecasting and calculation processes.

c. Use of Shadow Prices

A shadow or accounting price is the price that economists attribute to a good or factor on the argument that it is more appropriate for the purpose of economic calculation than its existing price, if any. In evaluating any project, the economist may effectively correct a number of market prices and also

attribute prices to unpriced gains and losses that it is expected to generate. He will, for example, add to the cost of a factor or subtract from the cost of a good, in making allowance for some external diseconomy. Wherever the amounts of a good, to be added to or subtracted from the existing consumption are large enough, the economist will substitute for price the more discriminating measure of benefit, consumer surplus. Certain gains or losses to an enterprise he will value as zero, since for the economy at large they are only transfer payments. The cost of labour that would otherwise remain idle, he must value at its opportunity cost; not at its wage; and so on.

Valuation of Specific Cost Items

1. Land and Pre-existing Buildings/Plant

While a project may use land, buildings or plant already owned by an agency for which no payment will be made, the opportunity costs of these assets should be included.

2. Labour

In assessing labour costs, the value of existing labour resources transferred to the project, as well as additional labour required, should be included.

3. Overheads

Labour related overheads such as supervision, transport costs, administrative costs, printing and stationery etc., are also included.

4. Residual Values

At the end of the planning horizon or project life, some assets may still have some value. Such assets may not have reached the end of their economic life and may still be of use to the agency or may be resale able. In this case the value of an asset may be assessed at a level pro rata to its remaining economic life. Alternatively the asset may have reached the end of its economic life but have a scrap value. This value is a benefit to the project and should, be included in the evaluation. Certain assets are no depreciable, such as land and can be valued at opportunity cost.

Costs to be Excluded from Analysis

A number of items which are included as costs in accounting reports or financial appraisals should not be included in an economic evaluation of an investment proposal.

a. Sunk Costs

In an evaluation, all costs must relate to future expenditures only. The price paid 20 years ago for a piece of land or a plant item is of no relevance; it is the opportunity cost in terms of today's value (or price) which must be included. All past or sunk costs are irrelevant and should be excluded.

b. Depreciation

Depreciation is an accounting means of allocating the cost of a capital asset over the years of its estimated useful life. It does not directly reflect any opportunity cost of capital. The economic capital cost of a project is incurred at the time that labour, machinery and other inputs are used for construction, or in the case of an existing asset, when it diverted from its current use to use in the project being evaluated. These project inputs are valued at their opportunity cost.

Hence, depreciation should not be included in the economic evaluation.

c. Interest

As future cash flows are discounted to present value terms in economic evaluations, the choice of the discount rate is based on various factors which include the rate of interest. The discounting process removes the need to include interest rate in the cash flows.

Discounting of Future Costs and Benefits**a. The Concept of Discounting**

The costs and benefits flowing from an investment decision are spread over time. Initial investment costs are borne up front while benefits or operating costs may extend far into the future. Even in the absence of inflation, a rupee received now is worth more than a rupee received at some time in the future. Conversely, a rupee's cost incurred now is more onerous than a rupee's cost accruing at some future time. This reflects the concept of time preference which can be seen in the fact that people normally prefer to receive cash sooner rather than later and pay bills later rather than sooner. The existence of real interest rates reflects this time preference.

In order to compare the costs and benefits flowing from a project it is necessary to bring them back to a common time dimension. This is done by discounting the value of future costs and benefits in order to determine their present value. The process of discounting is simply compound interest worked backwards.

b. The Recommended Discount Rate

Private sector entities sometimes require that the rate of return on a particular project exceeds the return expected on an alternative project which might otherwise be undertaken. Or they might stipulate a return somewhat in excess of the cost of borrowed funds.

Public sector decision-makers will be encouraged to invest in projects which generate returns greater than the government's test discount rates. Three alternative bases for the setting of the discount rate have been proposed:

1. social time preference;
2. opportunity cost of capital; and
3. Cost of funds.

The first two concepts of the discount rate relate to the opportunity cost of the resources used in the public sector investment projects. Resources could be used elsewhere and the discount rate attempts to measure such opportunities foregone. In principle the social time preference rate and the opportunity cost of capital should be the same. However, for various reasons such as private sector profit and capital constraints in the public sector, the two will differ. Typically the opportunity cost of capital will be greater than the social time preference rate.

Resources devoted to public investment will be at the expense of current consumption or private sector investment. In a growing economy with rising living standards, a rupee's consumption today will be more valued than a rupee's consumption at some future time for, in the latter case, the rupee will be subtracted from a higher income level. This so-called marginal social rate of time preference is, of course, not easy to measure.

If alternatively, public investment takes place at the expense of private investment then, from an economic efficiency viewpoint, public investments of an economic nature should not be sanctioned if they are expected to earn significantly lower rates of return than those same resources might earn (before tax) in the private sector (the so-called marginal social opportunity cost).

This concept is also difficult to measure accurately. The concern is not with the average rate of return in the private sector, but with the marginal rate - that is with the rate which would be earned by the private sector if additional capital allowed further private investment to occur. In theory a perfectly competitive capital market will see equality of the consumer's marginal rate of time preference, the investor's rate of return on the marginal project and the market rate of interest. In practice interest rates provide limited guidance to the estimation of discount rates on these bases.

In the face of the difficulty of measuring discount rates on these bases, it has sometimes been argued that the appropriate rate of

return or discount rate should be derived from the interest rate at which government borrows funds in the market. But given the dominant position of government in the capital market, the variability of interest rates and the wide range of factors which impact on interest rates this is quite an inadequate way of deriving the appropriate discount rate.

c. Impact of Discount Rates on Project Ranking

It should be noted that the choice of the discount rate is an important issue as it can have a significant impact on the ranking of options/projects and hence their choice. In general, as the discount rate rises projects with larger initial outlays and lower ongoing outlays become relatively less attractive compared with projects with lower initial outlays and higher ongoing outlays. Thus, a higher discount rate would favour maintenance options as against asset replacement.

Similarly in the case when net benefits are spread far into the future, the higher the discount rate, the more net benefits far in the future are downgraded in present value terms relative to net benefits closer to hand.

Thus, short lived options are favoured by higher discount rates relative to long-lived options.

Decision Criteria

Once all the costs and benefits over the life of the programme have been identified and quantified, they are expressed in present value terms.

Using the discounted stream of costs and benefits, the following decision measures should be calculated. Investment decision making is primarily concerned with three types of processes:

1. The screening process, whereby the decision maker, faced with a range of independent projects and adequate resources, must accept or reject the individual projects.
2. The choice process between mutually exclusive projects, whereby the decision makers must choose from a range of mutually exclusive projects (commonly directed at similar objectives):
3. The ranking process, whereby the decision maker is faced with resource constraints which prevent all acceptable projects from being preceded with- hence the projects must be ranked in an objective manner.

Various investment criteria are available in reaching decisions in these circumstances. Commonly used criteria are the Net Present value (NPV); Internal Rate of Return (IRR), Benefit Cost Ratio (BCR) and Net Present Value per constrained unit of input (NPVII).

Net Present Value

Net Present Value is the sum of the discounted project benefits less discounted project costs.

Under this decision rule, a project is potentially worthwhile (or viable) if the NPV is greater than zero; ie the total discounted value of benefits is greater than the total discounted costs. If projects are mutually exclusive, the project which yields the highest NPV would be chosen.

Benefit-Cost Ratio

The Benefit-Cost Ratio (BCR) is the ratio of the present value of benefits to the present value of costs.

A project is potentially worthwhile if the BCR is greater than 1; ie, the present value of benefits exceeds the present value of costs. If projects are mutually exclusive, this rule would indicate that the project with the highest BCR should be chosen.

It has become conventional to split costs into two types when calculating BCRs: initial capital costs and ongoing costs. Ongoing costs are normally deducted from benefits in the year incurred to make a net benefit stream, while initial capital costs are used as the denominator.

The Internal Rate of Return (IRR) is the discount rate at which the net present value of a project is equal to zero, ie discounted benefits equal discounted costs.

A project is potentially worthwhile if the IRR is greater than the test discount rate. If projects are mutually exclusive, this rule would suggest that the project with the highest IRR should be chosen.

Evaluation of Decision Rules

The NPV and BCR provide equally acceptable criteria for showing whether an individual project is worthwhile, when taken in isolation. Both clearly show when, for a given discount rate, the project benefits exceed costs and the results of the rules will not conflict with each other. While in many cases the IRR will also yield simple and unambiguous results, care needs to be exercised in the use of IRR. In cases of non-conventional cost-benefit streams (i.e. where there are substantial discontinuities or breaks in the net benefits stream over time) more than one quite different IRR may be calculated. An example of a non-

conventional cost-benefit stream is where a project incurs net costs initially followed by net benefits over a number of years and then net costs again.

Choice between Mutually Exclusive Projects

A simple use of NPV, BCR and IRR will not yield the same results for the more complex choice between mutually exclusive projects. The project with the highest NPV may not have the highest IRR or the highest BCR. In the latter case this is because the ratio can be affected by the inclusion of costs as negative benefits, or different balances between initial costs and ongoing costs. This makes it difficult to compare across projects.

Where there are no constraints on inputs, such as capital resources, the choice between projects should be made on the basis of maximization of NPV; i.e. the project with the highest NPV should be preferred. This will ensure that the project which provides the largest potential contribution to welfare is adopted.

Ranking under Constraints

In practice decision-makers operate in environments where constraints are commonplace. Indeed constraints on capital funds are almost universal. In order to ensure the Government's budgetary objectives are met, such constraints will clearly heavily influence decision making on projects. The problem facing decision-makers is to rank projects in terms of return to the constrained input and then choose projects so as to maximise the NPV of the total program.

None of the three decision criteria discussed above take capital constraints explicitly into account, although the BCR calculation as indicated above implicitly does so. However, use of the NPV per rupee of total capital would result in the choice of that combination of projects which maximizes the total NPV obtained from a limited capital works budget.

Note that the capital investment is discounted to its present value in the same way as are the net benefits.

Using this measure, projects with the highest NPV per dollar of total capital are selected until the budget is exhausted.

This means that the expenditure constraint may be a factor in the choice of an investment option which does not have the highest NPV, if the option with the highest NPV requires very high expenditure. In such circumstances the return on the incremental expenditure may be

relatively low. This procedure seeks to maximize aggregate NPV from the available funds.

Sensitivity Analysis

Sensitivity Analysis is used to assess the possible impact of uncertainty. It illustrates what would happen if the assumptions made about some or all of the key variables proved to be wrong and shows how changes in the values of various factors affect the overall cost or benefit of a given investment project.

A key practical role of sensitivity analysis is to incorporate different views about one or more key assumptions which can reasonably be held by the different people involved in the assessment process.

It is a useful means of indicating the critical elements on which the outcome of the project depends. This allows management to focus on these areas during project implementation or to divert further resources to the improvement of cost and benefit estimates and the reduction of uncertainty. (It is a necessary part of any investment appraisal.



2.5 Summary

Financial, economic and social analyses are flexible tools for assessing alternative uses of resources in order to achieve welfare objectives determined by the government.

A financial analysis indicates whether a project will be profitable to its implementer, by 'using market prices for inputs and outputs. An economic analysis, using shadow prices, reveals which projects will make a positive contribution to economic welfare. Finally, a social analysis extends an economic analysis, and includes an examination of the distributional impact of the project.



2.6 References/Further Readings

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2.7 Possible Answers to Self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 2

Highlight the role of cost benefit analysis in the project development, evaluation and implementation.

Answer

- i. The initiating agency, such as government department or utility, defines the initial concept of project and outlines the objectives that government wishes it to achieve.
- ii. Through pre-feasibility study financial and economic analysis of the project will be undertaken by the economic analyst, to determine whether the project appears to be financially and economically viable.
- iii. The next stage of the study is the feasibility study. Here the financial and economic viability of the project is assessed again. If the project is still found to be viable, approval should be sought to proceed to the project design phase.
- iv. The final stage of the project is ex-post evaluation. The primary purpose of this evaluation is to help to identify the major sources of project success and failure, so that future project development, analysis P and operations procedures can benefit from the past experience.

SELF-ASSESSMENT EXERCISE 2

Discuss the differences between financial analysis and economic analysis?

Answer

- i. The traditional financial analysis examines a project from the narrow prospective of the entity undertaking the project.
- ii. In public sector the fundamental requirement is for an economic - appraisal.
- iii. The financial analysis will show the demand on cash flow which will result from the project an important factor when managing the states finances. The financial analysis will also show the rate of return from the project which is important for commercial agencies.
- iv. Financial analysis whether used in public or private sector implies the notion of the agency maximising its net financial surplus over time.

- v. This will generally differ from the maximisation of the economic surplus generated for the community as a whole.
- vi. In case of -commercial agencies the difference between financial appraisal and economic evaluation will commonly be comparatively small.
- vii. Agencies with significant community service obligations, financial appraisal can be suitably applied only in a narrow range of decision choices. For example the economic evaluation of a public road not subject to a toll, financial appraisal will not be of much assistance

The steps involved in preparing a full economic evaluation are as follows:

- i. The specification of the objectives of the proposal and their relation to the overall objectives of the agencies.
- ii. To identify the widest possible range of action at the earliest stage of the planning process.
- iii. An attempt should be made to estimate the 'state of the world' as it will exist with the project in existence.
- iv. The next step will be valuation of cost and benefits.
- v. There are certain things to be taken into consideration such as while enumerating the cost and benefits of a proposal, care should be taken to avoid double counting.
- vi. Items which are included as costs in accounting reports or financial appraisals should not be included in an economic evaluation of an investment proposal.
- vii. The next step is the discounting of future cost and benefits. This is done by discounting the value of future cost and benefits in order to determine their present value.
- viii. Sensitive analysis is used to assess the possible impact of uncertainty.
- ix. A selection of major project undertaken by an agency should be subjected to ex-post evaluation.

UNIT 3 SOCIAL ANALYSES OF PROJECT

Unit Structure

- 3.1 Introduction
- 3.2 Learning Outcome
- 3.3 Main Content
 - 3.3.1 Role of Cost Benefit Analysis in Project Evaluation & Implementation
- 3.4 Social Cost Benefit Analysis
- 3.5 Summary
- 3.6 References/Further Readings
- 3.7 Possible Answers to Self-assessment exercise (s) within the content



3.1 Introduction

While a financial analysis is concerned only with the interests of the implementing agency or firm, cost benefit analysis is concerned with welfare of all the firms, consumers and government in a particular country. An economic analysis is not, however, concerned about the welfare of foreigners. The methodology of cost benefit analysis, or CBA, was first developed in the 1930s in the United States when the Federal government had to decide whether to undertake many large, publicly funded irrigation, hydroelectricity and water supply projects in the dry central and western states of the United States. However, modern cost benefit analysis theory and practice have evolved largely from path-breaking work by Little and Mirrlees, Dasgupta, Marglin and Sen in their UNIDO Guidelines, Harberger, Corden, Squire and Van Der Tak and other work collected in Layard. Many other useful contributions have been made by various authors.



3.2 Learning Outcome

By end of this unit, you should be able to:

- explain the steps in preparing a full economic evaluation; and
- Discuss the purpose of social cost benefit analysis



3.3 Main Content

3.3.1 Role of Cost Benefit Analysis in Project Evaluation & Implementation

The techniques of financial and cost benefit analysis are employed in project Evaluation & Implementation are:

Implementation

At this stage, tenders are let and contracts signed to facilitate the appointment of the project manager, who will oversee the construction and possibly the operation of the project.

At this stage, tenders are let and contracts signed to facilitate the appointment of the project manager, who will oversee the construction and possibly the operation of the project.

Ex-post Evaluation

The final stage of a project is essential, yet frequently overlooked in project appraisal and implementation. This evaluation is designed to determine the actual contribution that the project has made to national welfare, by several years of project operation. Its primary purpose is to help to identify the major sources of project success and failure, so that future project development, analysis and operation procedures can benefit from past experience

3.4 Social Cost Benefit Analysis

The financial or traditional economic project appraisals implicitly assumed that income distribution issues are beyond the concern of the project analyst or that the distribution of income in the country is considered appropriate. However, in many, if not most, developing and developed countries governments are not only interested in increasing efficiency but also in promoting greater equity. In most countries the existing distribution of income is clearly not considered to be ideal by the government or the population. Social cost benefit analysis or the social appraisal of project has evolved to respond to this need.

A social appraisal of a project goes beyond an economic appraisal to determine which projects will increase welfare once their distribution impact is considered. The project analyst is not only concerned to determine the level of a project's benefits and costs but also who receives the benefits and pays the costs. Social appraisal therefore tackles the moral and theoretical dilemma-that a project is worth undertaking if it has the potential to produce a Pareto improvement in welfare.

In an economic analysis of a project it is implicitly assumed that a dollar received by any individual will increase the community's welfare by the same amount as a dollar received by any other individual. However, an extra dollar given to a very poor person, with an annual income of say only USD300, will usually increase that person's welfare by much more than would a dollar given to the same person if he or she became very rich, with an annual income of USD 300000. As a society we may be prepared to undertake a project, A, which increases the consumption of poor people by USD100 per annum even if it reduces the consumption of rich people by USDSO. On the other hand, the community may not be prepared to undertake another project, B, which increases the consumption of the rich by USD100 and reduces that of the poor by USDSO. The theoretical rationale in welfare economics for the social analysis of projects is therefore quite strong, as the marginal utility of income of a person who receives a low income is expected to be greater than the marginal utility of income of the same person if she or he receives a high income. An economic analysis of projects A and B would not capture these differences and would merely indicate that both had the same positive impact on community welfare.

Distributional Weights

One of the most commonly used methods of undertaking a social cost benefit analysis is to introduce distributional weights in to the cash flow. Distributional weights are attached to changes in income, costs and benefits, received by different income groups, ensuring that a project's impact on the income of low income groups receives a higher weight than the same dollar impact on the income of high income groups. The introduction of these distributional weights enables projects to be assessed on the basis of distributional as well as efficiency objectives.

The Introduction of Distributional Weights into the Cash Flow

In an economic analysis, project generated changes in consumption enjoyed by all income groups are weighted at unity. In a social analysis income accruing to (or being taken from) lower income groups would typically be given a distributional weight greater than one. On the other hand, income accruing to (or being taken from) a high income group would be given a weight less than one. A project that benefits a low income group would therefore have a higher social net present value than one that benefits a high income group, if all other, un-weighted costs and benefits remain the same.

Project A's costs are borne by the rich and its benefits are received by the poor, while project B is the opposite. Its costs are borne by the poor and its benefits are received by the wealthy. Since the two projects are mutually exclusive the project with the highest NPV should be selected.

If an economic analysis were undertaken and distributional weights of unity were applied to the costs and benefits of the two projects, project B would have an NPV of \$L80 and project A an NPV of \$L50. Hence, project B should be selected. However, if the government decides that it values income going to the poor more highly than income going to the rich and applies a distributional weight of, for example, $d=3$ to the low income group's income, project A would have a social NPV of \$L300 and project B would have a social NPV of \$LO. Project A would then be selected on the basis of a social cost benefit analysis.

SELEF-ASSESSMENT EXERCISE

- | | |
|----|--|
| 1. | Briefly explain the steps in preparing a full economic evaluation. |
| 2. | Highlight the purpose of social cost benefit analysis. |

Arguments for and Against the Use of Distributional Weights

There are several problems for analyst wishing to use this approach. The first is the difficulty of tracing the net income changes accruing to different income groups as a result of the project, even in the case of relatively straightforward project. It may be very time consuming and expensive to identify who will bear the costs of a project, who will reap its benefits; and what the income levels of these different groups are. It has therefore been argued that the introduction of distributional issues into project appraisal will so increase the complexity of undertaking a cost benefit analysis that serious inaccuracies could become more common. This argument is very persuasive and may be conclusive for large projects with a diverse group of beneficiaries and whose income levels may be difficult to determine. The counter argument put by those supporting social analysis of projects is that, as distributional issues will be implicitly introduced into project analysis in any case, it is much better that they are treated in a consistent and rigorous way.

The second problem with the use of distributional weights relates to how the government or project analyst can objectively determine the appropriate set of weights to employ. Even if the distributional impacts of a large project can be traced, the marginal utility of income of these different groups may be very hard to determine.

Economists such as Harberger and Amin have opposed the formal inclusion of distributional objectives into cost benefit analysis. They claim that, by necessitating comparisons of the welfare that individuals receive from increasing their income by a fixed amount, say \$3, social cost benefit analysis compromises the objectivity of project appraisal. Instead, Jenkins and Harberger recommend merely documenting which groups benefit and which lose from a project, leaving it to decision-makers to determine implicit, rather than explicit, distributional weights.

Supporters of social benefit analysis argue that failure to explicitly compare the utility received by different income groups within the framework of the project appraisal implies that the analyst gives equal weight to gains in consumption by all income groups, from the poorest and most destitute to the wealthiest groups in society. This would only be justified if it were assumed that the marginal utility of income, the change in utility experienced from a given increase in consumption, of all individuals was equal irrespective of their income levels.

Another argument advanced by those opposed to the introduction of distributional issues into cost benefit analysis is that project should be selected in order to maximise national income and that the taxation and welfare systems should then be used to redistribute this 'income'. This is very reasonable and correct view in the case of the developed, higher income countries, which have well developed fiscal and social welfare systems. In many developing countries, however, the fiscal system is weak and even recessive. Large proportions of the population, rich and poor, pay no tax at all and there are few social welfare payments. Corruption and the power of economic elites often ensure that the wealthy evade taxation and wield sufficient political resistance to making direct transfers to target groups through the fiscal system. The only acceptable method of making transfers may be via public sector projects to provide social infrastructure, such as schools and hospitals or economic infrastructure, such as roads and irrigation facilities. If economy-wide mechanisms for promoting income redistribution are not available there may well be a justification for employing social appraisal of such projects.

In relation to distributional weights, Harberger points out that even if quite moderate distributional weights are employed, it would be possible to sanction acceptance of scandalously inefficient projects. For example, in Australia it may appear reasonable that changes in consumption enjoyed by families on an income of less than \$A35000 should be given an income distributional weight of 3, and consumption changes by those on an income of more than \$A90000 should be given a distributional weight of 0.5. However, this would imply that a project would be acceptable if it extracted \$3 from the wealthy, which would then have a social value of \$0.50 and gave only \$0.35 to the poor, as the latter would then have a social value of \$0.50 also. The use of such distributional weights could therefore result in projects being accepted that entail efficiency losses of 75 percent of costs. Harberger argues that such inefficiency would be quite unacceptable to the electorate and he recommends that, if distributional weights are used, a caveat should be added limiting the extent of acceptable efficiency losses.



3.5 Summary

Social analyses are flexible tools for assessing alternative uses of resources in order to achieve welfare objectives determined by the government.



3.6 References/Further Reading

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3.7 Possible Answers to Self-assessment exercise (s) within the content

Answer to Self-Assessment Exercise 1

Briefly explain the steps in preparing a full economic evaluation.

Answer

The steps involved in preparing a full economic evaluation are as follows:

1. The specification of the objectives of the proposal and their relation to the overall objectives of the agencies.
2. To identify the widest possible range of action at the earliest stage of the planning process.
3. An attempt should be made to estimate the 'state of the world' as it will exist with the project in existence.
4. The next step will be valuation of cost and benefits.

5. There are certain things to be taken into consideration such as while enumerating the cost and benefits of a proposal, care should be taken to avoid double counting.
6. Items which are included as costs in accounting reports or financial appraisals should not be included in an economic evaluation of an investment proposal.
7. The next step is the discounting of future cost and benefits. This is done by discounting the value of future cost and benefits in order to determine their present value.
8. Sensitive analysis is used to assess the possible impact of uncertainty.
9. A selection of major project undertaken by an agency should be subjected to ex-post evaluation.

SELEF-ASSESSMENT EXERCISE 2

Highlight the purpose of social cost benefit analysis.

Answer

1. Developing and developed countries are not only interested in increasing efficiency but also in promoting greater equity.
2. Social cost benefits analysis or the social appraisal of the project as evolved to respond to this need.
3. Social appraisal of a project goes beyond an economic appraisal to determine which project will increase welfare once their distribution impact is considered.
4. The social appraisal tackles the moral and theoretical dilemma - that a project is worth undertaking if it has the potential to produce a *pareto* improvement in welfare.

UNIT 4 PROJECT PLANNING

Unit Structure

- 4.4 Introduction
- 4.4 Learning Outcome
- 4.3 Main Content
 - 4.3.1 Project Management Definition
 - 4.3.2 Project Management concept
- 4.4 Project Identification & Definition
- 4.5 Project Management Success Factors
- 4.6 Summary
- 4.7 References/Further Reading
- 4.8 Possible Answer to self-assessment exercise (s) within the content



4.4 Introduction

Think of projects like Delhi metro railway, Golden quadrangle projects. Setting up super thermal power station of 3000MW etc. for their enormousness in terms of resource requirements, time involvement and associated costs. Usually all these projects are designed in such a manner so as to earn an adequate return in foreseeable future during its life span. If the project is completed within the prescribed timeframe, then, it is called that the project is succeeded. But, it has been observed in most of the cases that projects taken longer time than estimated and naturally the returns are less than expected or projected. This may be due to inadequate planning and improper implementation. The proper management of project will definitely increase the return by adhering to its projected time and-cost. Hence, it becomes imperative to have scientific and systematic management in project planning, development and implementation.

Project management plays an important role in an increasingly competitive social and economic environment. It has already been recognized globally as a formal discipline with a growing knowledge base of best practices. Project management is the application of skills and knowledge and the use of tools and techniques applied to activities in a project to complete the project as defined in the scope. Project management requires a high level of skill both the people and technical side of the discipline for successful project to result. Project management assumes an added significance for a developing country like ours. The Government of India felt it necessary to set up a separate ministry of programme implementation to ensure successful management of all government projects.



4.4 Learning Outcome

By studying this unit, the student will be able to:

- Explain the basic concept of Project Management;
- Outline the various phases of Project Life Cycle (PLC); and
- Demonstrate the different stages for project identification and its success factors.



4.3 Main Content

4.3.1 Project Management Definition

According to Oxford dictionary PROJECT means a plan, an undertaking, a task involving research, whereas MANAGEMENT means people who control - a business. Many definitions are available by combining these two words 'Project' and 'Management'. But, the Project management Institute (PMI) TM of USA defines the project management as a temporary endeavour undertaken to create a unique product or service. It requires the commitment of varied skills and resources. It is a combination of human and non-human resources pooled together in a temporary organization to achieve a specific purpose. A project is a one-time event that creates or manages change. Most of the projects are one time job as opposed to repetitive jobs undertaken in a normal manufacturing organization. Either you are implementing something new system or you are enhancing existing programmes or systems.

The World Bank, one of the largest financial institutions of the world, has considered the project as an approval for a capital investment to develop facilities for providing goods and services. A project can be anything and has the following basic components.

1. Objectives and advantages
2. Tasks associated
3. Time period
4. Costs incurred

4.3.2 Project Management concept

Project Management Institute (PMI), a recognized international body, has developed the Project management Body of Knowledge (PMBOK) documenting the essential knowledge areas and processes required to

effectively manage the projects. PMI has identified nine body of knowledge areas for any project.

1. Integration Management
2. Scope Management
3. Time Management
4. Cost Management
5. Quality Management
6. Risk Management
7. Human Resource Management
8. Communications Management
9. Procurement Management

Project Management Process

Project management processes include all the phases and activities through which any project has to undergo from its conception to completion.

There are following five such process areas apply to most projects.

- a. Initiating process
- b. Planning process
- c. Executing process
- d. Controlling process
- e. Closing process

Project Life Cycle (PLC)

Figure 8.4 gives a general idea of the nature of activities and its intensity during the entire life cycle of a project. Project Management can also be viewed from the angle of different functional specializations in management. Viewed from this angle, every project would have the following dimensions:

1. Technical
2. Commercial
3. Socio-economic
4. Environmental, and
5. Managerial

During each phase of the project, the Project Manager, in charge of the project must take care of all these dimensions to manage the project successfully.

1. Feasibility

This phase is an essential component of the project which begins with identification of some unfulfilled need in the economy or market. This need motivates an entrepreneur or enterprise to generate ideas to design and establish a project for the fulfillment of the need. Several ideas are conceived based on the initial information and knowledge base about the available opportunities in the environment.

These ideas are then screened preliminary to ensure prima facie their feasibility. By this preliminary screening, the project is subjected to a detailed investigation. Finally, a decision has to be taken either to drop the idea on to go ahead with the concept. At this point, investment decision has to be taken with all minute details within the prescribed time span for any project consists of the following important activities

- a. Identification of the need
- b. Identification of alternatives
- c. Establishment of the primary feasibility of project idea
- d. Evaluation/appraisal of the alternatives
- e. Investment decision

Design

The original project idea is amplified as much as possible so that a complete 'blue print' of the project with engineering specification is available. Costs of the project are estimated in greater details. A time schedule can now be prepared for project execution. There is significant increase in the intensity of activities in terms of money as well as number of peoples. The outcome of design phase is usually known as Detailed Project Report (DPR). This DPR may be reexamined by the participating financial institution.

Production

In this phase, the emphasis is on giving a physical shape to the ideas that were elaborated in DPR. The activities involved at this stage are civil and structural work, procurement of plant and equipment, their erection and testing. A bar chart or Gantt chart can be prepared for execution. I The intensity of activities reaches at its peak during the execution phase. This is the most crucial phase of a project. There is a great need for continuous monitoring and control of all activities. Proper execution demands prompt corrective action and resolution of all conflicts during implementation.

Termination

Finally, the construction of the project reaches its end and the last phase of " i termination starts. During this phase, the newly constructed facilities are tried out one by one and then in an integrated fashion and finally teething problems that might come up are resolved. In this phase, a set of persons are identified who would ultimately take over operations, maintenance and services personnel are brought in for the trail runs and commissioning. In other words, these trial runs and commissioning activities are jointly carried out by the project and operational personnel. Finally it leads to handing 'over of the newly created facilities to the operating personnel and winding up of the project team or its transfer to a new project. This might also include training of operating personnel, transfer of left-over materials, the

releasing of specialized resources reserved for use in project and reassignment of the project team to a new project.

Project Management Stages Project

Each project constitutes a series of well distinguished and clearly definable stages of;

- a. Project identification and definition
- b. Project planning
- c. Implementation through analyzing and scheduling
- d. Controlling and monitoring.

Each of these stages has inter-relationship with each other stage. There also exists feedback loop which provides sufficient input information that can be utilized by the decision maker or Project manager for further modification and re-planning.

4.4 Project Identification & Definition

This first stage is a very crucial step for any new project as it forms the basis for subsequent stages. This stage is concerned with collecting, compiling and analyzing various project related data eventually identifying the possible investment opportunities. The project idea leads to generation of number of project alternatives. The whole process of project identification and final selection usually undergoes through the following steps.

Step I: Feasibility and Technical Analysis

1. Opportunity studies
2. Pre-feasibility studies
3. Technical Analysis

Step 4: Market and Analysis

- Forecasting the demand through qualitative and quantitative methods

Step 3: Economic and Financial Analysis

Use of various Tools:

1. Pay back periods (PB)
2. Discounted cash flow (DCF)
3. Net Present Value (NPV)
4. Internal Rate of Return (IRR)
5. Return of investment (ROV)
6. Social Cost benefits Analysis (SCBA)
7. Profitability Projection

Step IV Formulation of Detailed Project Report (DPR)

1. Market planning
2. Equipment & Process Technology
3. Location of the project
4. Environmental Impact Assessment
5. Operational Aspects
6. Financial Aspects
7. Socio-Economic Aspects
8. Evaluation of DPR

A proper identification of a project at this stage has major impact on the entire life cycle of the project as it

1. acts as a catalysts for economic development
2. initiates the process of development
3. beneficial considering the strategic aspect
4. involve high financial investments
5. cannot be reversed
6. accelerates the pace of socio-cultural development

A sound Detailed Project Report (DPR) clearly defines the objectives and constraints associated with the specific project even before its execution.

Project Definition

The scope of the project must be defined clearly. Stakeholders must have clear understanding about what the project will accomplish. The issues related to right stakeholders can be brought into project as early as possible to ensure the future success of the project. This will establish support for the project and will be able to leverage that support going forward to achieve success. The project definition should include:

1. Defined mission and objectives of the project
2. Stakeholder identification and assessment - Risk identification, assessment and response
3. Quality plan
4. Defined and agreed to statement of work.

Any project is obviously to be managed with few constraints. These constraints can be identified as;

1. Time Schedule
2. Cost and
3. Quality.

Increased time will affect cost and scope, increased or changed scope affects cost and time. If the project manager fails to operate within the triple constraints, the project will not complete within the defined scope.

Any project is a sub system of an organization. It is obvious that the project should also ensure enough tangible benefit to the Organization. Hence, it is expected that each Project should contribute towards achieving the strategic goal of that organization through adding value. The best project manager knows the importance of that project to the organization. This will help to master the support and to mobilize the organizational resources for the project to the success.

4.5 Project Management Success Factors

The general perception of successful projects includes fulfillment of the time and cost schedule and also technical specification. But, some research findings have identified the important project performance factors as achievement of the project's mission and perception of different stakeholders of a project. It can be said that in the long run, what really matters is whether the parties associated with and affected by a project are satisfied. The following nine factors have been identified as crucial factors for the success of the project.

1. A thorough feasibility study which does not overlook any significant element affecting the project
2. A well planned DPR which is accepted by all concerned agencies, and frozen before execution.
3. A capable project manager and a good team around him, with involvement right through all four phases of project.
4. An adequate organization with proper systems of communication, feedback and control mechanisms,
5. Adequate understanding of mutual roles and responsibilities of all interacting agencies with clear understanding of demarcations, dependencies and complementarities.
6. Quick identification and resolution of conflicts that are nonetheless inevitable.
7. Adequate and timely funding.
8. Certain degree of insulation to front line project managers from undue impacts from the environment.
9. Regular updating and appropriate actions to continuously correct the deviations, till the end of the project.



4.6 Summary

The concept and definition of project management have been discussed in this unit. The project management has already been recognized as an important discipline world over. The management of the project, irrespective of its size, plays an important role in changing socio-economic condition in our country where shortages of capital is reality

of life. PMI has identified nine body of knowledge areas for any project. Project Life Cycle (PLC) has four distinct Phases: feasibility, design, production and termination. Project management constitutes of few interrelated stages like project identification and definition, project planning and project scheduling and controlling. A project manager should also be aware of few prerequisites which may be essential for the success of the project.



4.7 References/Further Reading

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4.8 Possible Answer to self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 1

Define Project Management.

Answer

Many definitions are available by combining these two words 'Project' and 'Management'. But, the Project management Institute (PMI) TM of USA defines the project management as a temporary endeavour undertaken to create a unique product or service. It requires the commitment of varied skills and resources. It is a combination of human and non-human resources pooled together in a temporary organization to achieve a specific purpose. A project is a one-time event that creates or manages change. Most of the projects are one time job as opposed to repetitive jobs undertaken in a normal manufacturing organization. Either you are implementing something new system or you are enhancing existing programmes or systems.

a. What is the project management body of knowledge?

Answer 2

Project Management Institute (PMI), a recognized international body, has developed the Project management Body 64 Knowledge (PMBOK) documenting the essential knowledge areas and processes required to

effectively manage the projects. PMI has identified nine body of knowledge areas for any project.

1. Integration Management
2. Scope Management
3. Time Management
4. Cost Management
5. Quality Management
6. Risk Management
7. Human Resource Management
8. Communications Management
9. Procurement Management

SELF-ASSESSMENT EXERCISE 2

Describe the important phases of project life cycle.

Answer

The general perception of successful projects includes fulfillment of the time and cost schedule and also technical specification. But, some research findings have identified the important project performance factors as achievement of the project's mission and perception of different stakeholders of a project. It can be said that in the long run, what really matters is whether the parties associated with and affected by a project are satisfied. The following nine factors have been identified as crucial factors for the success of the project.

1. A thorough feasibility study which does not overlook any significant element affecting the project
2. A well planned DPR which is accepted by a concerned agencies, and frozen before execution.
3. A capable project manager and a good team around him, with involvement right through all four phases of project.
4. An adequate organization with proper systems of communication, feedback and control mechanisms,
5. Adequate understanding of mutual roles and responsibilities of all interacting agencies with clear understanding of demarcations, dependencies and complementary.
6. Quick identification and resolution of conflicts those are nonetheless inevitable.
7. Adequate and timely funding.
8. Certain degree of insulation to front line project managers from undue impacts from the environment.
9. Regular updating and appropriate actions to continuously correct the deviations, till the end of the project.
10. What are the various Project Management stages?

Answer

Project Management can also be viewed from the angle of different functional specializations in management. Viewed from this angle, every project would have the following dimensions:

1. Technical
2. Commercial
3. Socio-economic, Environmental, and Managerial

UNIT 5 PLANNING

Unit Structure

- 5.5 Introduction
- 5.5 Learning Outcome
- 5.3 Main Content
 - 5.3.1 Features of good planning
 - 5.3.2 How planning gets influenced?
 - 5.3.3 Principal Methods of Planning
- 5.4 Plan of Activities
 - 5.4.1 Resource Planning
 - 5.4.2 Indicators / Measurements of Objectives
 - 5.4.3 Risk Analysis and Risk Management
- 5.5 Analysis of the Assumptions
 - 5.5.1 Project Planning Matrix (PPM)
 - 5.5.2 Engendering Logical Framework
 - 5.5.3 Roles and responsibilities when making an LFA Analysis
- 5.6 Rationale of planning with gender perspective
 - 5.6.5 How to incorporate Gender Analysis in planning process?
- 5.7 Summary
- 5.8 References/Further Readings
- 5.9 Possible answers to self-assessment exercise (s) within the content



5.1 Introduction

Planning is a managerial function of any organization, business entities, government agencies carried out at the initial stages of project inception. It is the first step towards developing a concept / project for the purpose of achieving the project goal. Planning is the first step in the project cycle which comprises of Project design and planning, implementation, monitoring and evaluation. Planning is carried out at different levels within an organization, institution, department depending on different functions, geographical area and stages of implementation of the project. General planning is classified as macro level planning, micro level planning, institutional level planning and project / programme level planning.



5.2 Learning Outcome

By going through this unit, you would be able to:

- Describe the features of good planning
- Define the different approaches of planning
- Analyse the Logical Framework analysis.



5.3 Main Content

5.3.1 Features of good planning

Be realistic and assume nothing is the basic feature of a good planning. While planning we should not assume what people would think and need. We should get the real needs of the people and incorporate it in the planning.

1. **Participatory planning:** The planning should involve the representatives of stakeholder in the planning process. For example, there must be a representation of management, staff team, community members who are considered as the target and beneficiaries, other institutions who are to be involved in the project implementation.
2. Gender sensitive: The planning should include the practical and strategic gender needs of the women. It should aim at ensuring equal participation, just distribution of resources, decision making power to women.
3. The planning should get integrated with people, group of people, within the organisation, within the target area, between organisations, between CBOs functioning in the locality.
4. The planning should focus on certain principles such as;
 - a. Change is constant
 - b. It is impossible to plan for everything.
 - c. Complexity is not user friendly
 - d. Gender equality and equity
5. While considering the impact, the focus should be on socio-culture factors such as believes systems, knowledge on risk perception.
6. The planning should be more flexible and should consider all the risks and assumptions in project execution.

5.3.2 How planning gets influenced?

The development planning of any organization is influenced by two factors prevailing in an organization.

1. Structure of the organization
2. Culture of the organization

The structure refers to the composition of the management, men and women, hierarchy of management, position of women in managerial role and distribution of powers among women at all levels. The culture of the organization means the values, principles and relationship of an organization. If the values of the organization include gender equality and gender justice, the planning of the organization would also reflect gender sensitized planning. If the culture reflects patriarchy and gender discrimination, then the planning of the organization may include the practical gender needs in the objectives and results but it may not include the strategic gender needs. In the previous lesson we have learnt about the need for developing a gender sensitive policy and organization profile for an organization. The policy developed and adopted by the organization as its culture has a say on influencing the project planning of an organization.

5.3.3 Approaches to development planning and gender analysis

The Women in Development (WID) approach in development planning sought to „add on“ women-specific projects to existing activities. Failing to address the systemic causes of gender inequalities, this approach tended to view women as passive recipients of development assistance, rather than as active agents in transforming their own economic, social, political and cultural realities. It was therefore usually gender-blind and ultimately biased against women. The Gender and Development (GAD) framework emerged in response to these flaws. It recognises that improving the status of women is not a separate, isolated issue but needs to be addressed by taking into account the status of both men and women, their differing life courses and the fact that equal treatment will not necessarily produce equal outcomes. Because men and women tend to have different roles and responsibilities, they also have different needs, identified as practical and strategic gender needs. Practical gender needs emanate from the actual conditions people experience due to the gender roles ascribed to them by society. Strategic gender needs point to what is required to overcome the generally subordinate position of women to men in society and relate to empowerment. Planners generally respond only to the practical needs of women without relating these to their strategic needs. A twin approach is required which identifies the links between practical and strategic

gender needs, and proposes policy and planning frameworks to address both within institutions.

SELF-ASSESSMENT EXERCISE

1.	What is the significance of planning in development organisation?
2.	What are the factors influencing planning

5.3.1 Principal Methods of Planning

With the recognition that good planning is the basis of good implementation and effective management, various methodologies have been developed to assist with, and improve planning process. In the development sector, non-government organizations and development projects of government departments are made with a systematic approaches and designs which provide a comprehensive planning and enable during project implementation and monitoring also. There are three different methods of project planning adopted in the development organisation. They are as follows:

The key points of these methods:

- a. Require the participation of all key stakeholders and those who will be involved in implementing the plan;
- b. Are objective and/or results oriented, i.e. they focus on what it is to be achieved as well as on the immediate things that need to be done.
- c. All the methods involve objective-oriented planning,

Steps involved in the planning process:

- a. Analysing the existing situation;
- b. Describing the desired situation, which requires identifying the solutions – often called project objectives;
- c. Choosing the strategy for meeting the objectives;
- d. Identifying the actions to be taken and the desired results;
- e. Analysing the risks or potential hindrances to success and the assumptions..

5.4 Plan of Activities

Activities constitute the means to achieve the goals. Hence, they are not the goals themselves of the project! One common mistake made in project documents is to focus attention on the activities of the project and to confuse them with the goals. It is not possible to draw up a relevant activity plan until a problem analysis and an objective analysis have been made. If the activities are planned and implemented in a suitable way, the results will be achieved. This, in turn, will lead to the

achievement of the project purpose and, in the long term, will also influence the overall objectives. The activities shall tackle the causes/reasons of the focal or core problem(s), the roots of the tree. The activities are the work that is done by those involved in the project.

5.4.1 Resource Planning

Before the project starts, the project group needs to make a detailed plan of the resources which are needed to implement the project. The project plan, including the plan of resources, is formulated in the Scope of Work, an appendix to a contract. Resources provided for implementing activities within the framework of the project can consist of:

1. Technical expertise (local and/or foreign expertise: what kind of know-how is needed to support the development of capacity)
2. equipment /spare parts /training in the use of the equipment
3. premises
4. funds
5. time

5.4.2 Indicators / Measurements of Objectives

Is the project achieving its goals?

To answer this question, the project group needs to identify indicators, which make it possible to measure the progress of the project at different levels. Establishing a suitable indicator for an objective is a way of ensuring that an objective becomes specific, realistic and tangible. There should be at least as many indicators as there are results. An indicator may be, for example, a statistical source – if it is possible to see from the statistics that a change has occurred as a result of the project. It is important to think about the following, while establishing indicators of the fulfilment of objectives and results:

1. What shall the project achieve in the terms of quality?
2. What shall the project achieve in terms of quantity?
3. During which period of time?
4. When shall the fulfilment of objectives have taken place?
5. Which group is the target group?
6. Which geographical region or sector is affected by the project?

The process of setting up indicators reveals whether the objectives are non-specific and unrealistic. The project owner, the cooperation partner, is the stakeholder that can best establish indicators. Try to find several indicators to measure each result and the project purpose and try to find easy understandable indicators.

Once indicators have been specified, ensure that:

1. They are specific in terms of quantity, quality, time, location and target group
2. The means of verification is available (statistics, observation, records)
3. If not, check that the information that can be generated at reasonable cost
4. It is relevant as a measurement of the achievement of objectives
5. The means of verification is reliable and up-to-date
6. The collection, preparation and storage of information is an activity within the project and the necessary inputs for it are specified in the Project Management.

5.4.3 Risk Analysis and Risk Management

The persons/the project group that are responsible for the project must identify, analyse and assess different factors, which, in different ways, affect the possibilities available to the project to achieve its objectives. An analysis of possible critical external and internal factors /risks gives us an opportunity to assess the conditions that the project is working under. In the risk analysis, it can be the case that so-called “killing factors” arise, i.e. factors that make goal fulfilment in a project impossible, for example political developments in the country. By having made a risk analysis, project management has to make a risk management plan, i.e. a plan of how to avoid the potential risks. Include risk management in the project plan, as activities to overcome risks.

External factors/risks: These are risks that exist outside the framework of the project (for example political developments, natural disasters, corruption etc.) It is most often the case that the project group cannot exert an influence on these risks. If they are triggered off, these external risks can lead to difficulties in fulfilling the objectives of the project, some of them might even be “killing factors”, “Risk Analysis Step by Step”. Internal factors/risks: These are risks of the type that are possible for the project to exercise control over. They can be practical matters such as delays in deliveries, personnel turnover etc. In most cases project management can minimize the effects of these internal risks. The project group should preferably take the opportunity to let the stakeholders make the first risk analysis during an initial workshop. However, the project group must make a revised risk analysis when the detailed project plan has been finalised, looking at each result set and determining the risks of not achieving the result. This usually has the effect that new activities (in order to avoid risks) need to be included in the project plan. Hence, a risk management plan is made, a plan of how to deal with the risks.

5.5 Analysis of the Assumptions

A project does not exist in a social, economic and political vacuum. For its success, it is dependent on norms, laws, ordinances, policies, political will and commitment, allocation of funds etc. This is what is normally referred to as the institutional situation in a country. It is not always possible for the project group to exert an influence on this situation and it creates assumptions for the project, which can be favourable or not so favourable. These assumptions should be analysed through the problem analysis before the project is started. A project's priorities should be set with reference to resources, mandate, limits and with reference to what the project group needs to rely on/assume that other parties/projects are handling. Example of assumptions: Provided that a new traffic law is approved by the Parliament, the number of road accidents may decrease by x%. The project group assumes that the law will be approved.

However, it has no power to ensure that the law is approved or not. Assumptions are set at the different levels in the objective hierarchy. An assumption for achieving a project purpose may be, for example, a long-lasting stable political situation. Project management is aware that the political situation is important for the project's objective fulfilment. However, it is unable to exert an influence on the political situation. It may only assume that a stable political situation prevails, if it is a reasonable assumption. If it is not a reasonable assumption, it might be a risk, and the project group has to analyse whether a change in the political situation is a killing or risk/factor. If the project group considers the political situation to be a killing factor, that it is most possible that a change will occur on the political scene, it might be necessary to postpone the implementation of the project. If an assumption is found to be a risk, i.e. that nobody else will deal with this factor, but the project group knows that it is a very important factor in order to achieve the results, then the project group needs to consider if it should include activities dealing with this risk (in order to avoid the risk occurring) in the plan of activities

5.6 Project Planning Matrix (PPM)

The Project Planning Matrix provides a one-page summary of: • Why a project is carried out (= who/what will benefit?)

1. What the project is expected to achieve (= utilisation of services)
2. How the project is going to achieve its outputs/results (=measures executed)
3. Which external factors are crucial for the success of the Project (= risks and frame conditions)
4. How we can assess the success (= indicators) Where we will find the data required to assess the success (= means of verification). It is developed through the process of nine steps mentioned above.

5.6.1 Engendering Logical Framework

The gender perspective should be reflected in the logical framework. The outcomes and outputs statements do not always need to „talk“ about gender, but the gender dimension should be reflected in the performance indicators and means of verifications. It can also be part of the assumptions and risks. The activities chosen and the type of resources required should give indications about the programme’s strategy to mainstream gender.

Budget is the financial outlay for the implementation of the project. It is the most vital input for the execution of the project. During the planning stage, the proposed budget for the execution of the listed activities will be made. The budget includes recurring expenses, non-recurring expenses (in other words programme cost)programme support cost and administration cost for the implementation of the project activities. The budget is included in the input section of the logical frame work analysis. Gender focus in the budget determination process is vital for enforcing gender equality in all stages of the project.

5.6.2 Roles and responsibilities when making an LFA Analysis

It is very important to observe that the right stakeholders perform the right steps in the planning process/analysis of the project. For example, it is the project owner, the beneficiaries, the implementers and the decision- makers etc, the local stakeholders in the partner country that primarily shall make:

- a. the stakeholder analysis,
- b. the problem analysis,
- c. the objectives analysis
- d. The risk analysis.
- e. the analysis of the assumptions

It is neither the consultant nor the financier who “owns the problem” which shall be solved. These parties are not sufficiently well informed, and hence cannot and should not perform these steps. However, financing agencies and/or consultants may assist in the project planning process by, for instance, providing expertise in the LFA method and suggesting solutions to the problem (plan of activities and plan of resources). Involving the wrong parties, or not involving different stakeholders in the different steps in the project planning process, is a common mistake made in project planning. This has the consequence that cause-and-effect relationships are incorrectly analysed, which leads to a situation in which incorrect activities are implemented to solve the “wrong” problems. The effect will be that the results/objectives are never achieved.

5.6.3 Rationale of planning with gender perspective

Planning with a gender perspective enhances the identification of gender based differences in access and distribution of resource and to predict how different members of a households, groups, organizations and societies will participate and benefit from planned interventions. The following are the rationale for planning with a gender perspective:

1. It helps planners to achieve the goals of effectiveness, efficiency, equity, and empowerment through designing policy reform and supportive programme strategies.
2. Assists in understanding social cultural and political factors that affect development activities and devise appropriate strategies to tackle them.
3. Planning with a gender perspective enables planners to understand a different role (who does what, when and where using which devices) in the society. This will enable one to understand for example, who has time constraint and labour bottlenecks in the implementation of a given development intervention. It shows how differences in roles and rights of both gender affect economic activities.
4. Planning is about resource mobilization and resource use, planning with a gender perspective helps to understand who has constraints in access and control over resources as well as who benefits. It can also assist in deciding to whom resources should be channelled.
5. Gender analysis gives a gender-desegregated data for identification and implementation of development programs, projects and other community, sectoral and national plans.



5.8 Summary

A simple rationale for planning with a gender perspective therefore is that, in any society, there are people of different characteristics and needs.



5.9 References/Further Readings

Gender Mainstreaming in Development Planning - A Reference Manual for Governments and Other Stakeholders- Common Wealth Secretariat

Logical Framework approach: A tool kit Managing Marine and coastal protected areas, South Asia,.



5.50 Possible answers to self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 5

What is the significance of planning in development organisation?

Answer

The Women in Development (WID) approach in development planning sought to „add on“ women-specific projects to existing activities. Failing to address the systemic causes of gender inequalities, this approach tended to view women as passive recipients of development assistance, rather than as active agents in transforming their own economic, social, political and cultural realities. It was therefore usually gender-blind and ultimately biased against women. The Gender and Development (GAD) framework emerged in response to these flaws. It recognises that improving the status of women is not a separate, isolated issue but needs to be addressed by taking into account the status of both men and women, their differing life courses and the fact that equal treatment will not necessarily produce equal outcomes. Because men and women tend to have different roles and responsibilities, they also have different needs, identified as practical and strategic gender needs. Practical gender needs emanate from the actual conditions people experience due to the gender roles ascribed to them by society. Strategic gender needs point to what is required to overcome the generally subordinate position of women to men in society and relate to empowerment. Planners generally respond only to the practical needs of women without relating these to their strategic needs. A twin approach is required which identifies the links between practical and strategic gender needs, and proposes policy and planning frameworks to address both within institutions.

SELF-ASSESSMENT EXERCISE 5

What are the factors influencing planning?

Answer

The development planning of any organization is influenced by two factors prevailing in an organization.

1. Structure of the organization
2. Culture of the organization

The structure refers to the composition of the management, men and women, hierarchy of management, position of women in managerial role

and distribution of powers among women at all levels. The culture of the organization means the values, principles and relationship of an organization. If the values of the organization include gender equality and gender justice, the planning of the organization would also reflect gender sensitized planning. If the culture reflects patriarchy and gender discrimination, then the planning of the organization may include the practical gender needs in the objectives and results but it may not include the strategic gender needs. In the previous lesson we have learnt about the need for developing a gender sensitive policy and organization profile for an organisation. The policy developed and adopted by the organisation as its culture has a say on influencing the project planning of an organization.

MODULE 3

Unit 1	Approaches to Development Planning
Unit 2	Monitoring and Evaluation
Unit 3	Introduction to Capital Budgeting or Capital Investment
Unit 4	Project Planning, Analysis and Management
Unit 5	Multiple Projects and Constraints

UNIT 1 APPROACHES TO DEVELOPMENT PLANNING

Unit Structure

- 1.2 Introduction
- 1.2 Learning Outcome
- 1.3 Main Content
 - 1.3.2 Logical Framework Approach in Planning (LFA)
 - 1.3.2 Steps in Developing LFA
- 1.4 Stakeholder Analysis
 - 1.4.2 When to use Logical Framework Approach?
 - 1.4.2 Analysis of the projects Context
 - 1.4.3 Problem Analysis/Situation analysis
- 1.5 Objectives Analysis
- 1.6 Summary
- 1.7 References/Further Readings
- 1.8 Possible Answers to self-assessment exercise (s) within the content



1.1 Introduction

In this lesson, we are concerned with project level planning in organizations involved in development. We are going to learn the planning process being adopted in the evolving a development project, with gender perspective.



1.2 Learning Outcome

By going through this unit you would be able to:

- Define the different approaches of development
- Analyse the Logical Framework analysis.



1.3 Main Content

1.3.1 Logical Framework Approach in Planning (LFA)

The logical framework (or log frame) approach provides a set of designing tools that can be used for planning, designing, implementing and evaluating projects. The purpose of LFA is to undertake participatory, objectives-oriented planning that spans the life of project or policy work to build stakeholder team commitment and capacity with a series of workshops.

- a. Logical Framework Approach (LFA) – originally developed in the 1970s, this planning process is required by many donors, including the Global Environment Facility (GEF).
- b. Objective Oriented Project Planning (OOPP, originally called ZOPP - the German acronym) very similar to the LFA. c)
- c. Results Based Management (RBM) or Results Oriented Assistance (ROA) now being used by donors such as USAID and Canadian CIDA; it places as much emphasis on management, monitoring and evaluation of a project as it does on design.

1.3.2 Steps in Developing LFA

The LFA method contains nine different steps as follows:

1. Analysis of the projects Context
2. Stakeholder Analysis
3. Problem Analysis/Situation analysis
4. Objectives Analysis
5. Plan of Activities
6. Resource Planning
7. Indicators/Measurements of Objectives
8. Risk Analysis and Risk Management
9. Analysis of the Assumptions

An objective-oriented project planning process, such as LFA, is made in the nine different steps presented above. Different stakeholders/parties have different roles and are needed for different parts of the planning procedure. There is an interrelationship between the different steps. They may not be gone through one by one and then finalised. The project group may need to go back and revise one of the earlier steps, such as the objective analysis, by having received more information through the later steps in the procedure.

1.4 Stakeholder Analysis

Stakeholders are those who are influenced by and exert an influence on those things that take place in the project – directly or indirectly. They can be individuals or organisations and they can be both for and against a change. Different stakeholders have different opportunities to exert an influence on a project. A survey of the projects stakeholders and their relationship to the project is an important part of the project planning process. Stakeholders can be divided up into four main groups:

1. Beneficiaries/Target group
2. Implementers
3. Decision-makers
4. Financiers

Some stakeholders may belong to several of the above-mentioned groups. During the project planning process, information should be obtained from all the different stakeholder groups. All of them have important information to give to the future project group. For the project group it is crucial to structure all the reasons/causes of problems in order to find sustainable solutions. This can only be done with the aid of the information gathered from local stakeholders. When making a stakeholder analysis, think broadly of those who are influenced by or exert an influence on the activities that take place in the sector! Do not forget to include the information from important stakeholders, such as the target group, when planning a project. The different stakeholders' combined knowledge about the situation is a key to the identification of appropriate solutions. The stakeholder analysis should be made by local personnel. A time-saving and efficient method of collecting information from different stakeholders can be made through a planning workshop, a so-called "GOPP" (Goal Oriented Project Planning) or "LFA workshop", during which a summary is made by the different stakeholders of WHY a project is necessary and WHAT shall be achieved by the project.

1.4.1 When to use Logical Framework Approach?

The logical framework plays a role in each phase of the project cycle, from planning to implementation to evaluation. It can be a master tool for creating other tools, such as the project monitoring plan, the breakdown of responsibilities, the implementation timetable, and the detailed budget. It can become an instrument for managing each stage of the project, and as such, it should be updated regularly. LFA is used during the Define phase to help analyze the existing situation, investigate the relevance of the project, and identify potential strategies. During the Design stage it provides a framework for an appropriate project plan with clear objectives, measurable results, and a strategy for

risk management. Then during implementation, the log frame provides a key management tool to support work planning and budgeting. In the Analyze/Adapt phase it provides the basis for monitoring, and the basis for performance and impact assessment.

1.4.2 Analysis of the projects Context

The project is influenced continuously by different economic, social and political processes taking place in society. It is essential that the project group has a clear picture of the context when planning the project. What environment will the project be implemented in? What external factors are important for the fulfillment of the projects objectives? It is therefore necessary to make an initial overall “scanning” of the projects context. This step is often performed by making a study, for example of a sector or a region etc, and/or by making a SWOT analysis (SWOT stands for an analysis of strengths, weaknesses, opportunities and threats). Making a SWOT analysis of an organisation would preferably be done in an initial stage of a participatory project planning workshop. The result would give a broad idea of where the organisation stands. In the project document, the context analysis is presented under the chapter “Background” or “Information on the sector”.

1.4.3 Problem Analysis/Situation analysis

A number of projects are started in which the solution is given, without an analysis being made of the focal problem and its causes and effects. The causes are analysed in order to find the reasons for the focal problem and, thereby, the solutions/the relevant activities. The effects demonstrate the arguments (the needs) for implementing the change/the project. A complex problem is easier to deal with if its causes and effects are thoroughly analysed. The causes could be divided into several groups of problems or clusters. Sometimes, this has the effect that, in the end, the project is divided into different projects. If the project is to be manageable, limitations must be imposed and priorities set, see assumptions (step 9). The priorities are based on relevance, needs, mandate and resources. Focus is important. However, before setting the priorities, it is necessary to get a total picture of the situation by making a complete problem analysis. The basic questions that a problem analysis should answer are the following:

- What is the main/focal problem that shall be solved with the aid of the project? (Why is a change/a project needed?)
- What are the causes of this problem? (Why does it exist?)
- What effects does the problem have? (Why is it important to solve the problem?)
- Who is affected by the problem and Who “owns” the problem?

A problem analysis is sometimes made by drawing a so-called problem tree during a participatory workshop. The problem analysis is made by having the stakeholders writing down the problems (causes and effects), which are related to the subject, on yellow notes and placing these paper notes on a wall in an organised, structured way. This procedure makes it possible to clearly visualise the causes of the focal problem and its effects and to find out how different problems are related to each other. As mentioned above, the causes of the problem shall be treated by the activities, which are implemented within the framework of the project. The effects are handled automatically by treating the causes of the focal problem. Hence, no separate activities are needed for handling the effects. In the problem tree, the causes are the roots of the focal problem, which, in turn, is symbolised by the trunk of the tree. The effects of the problem form the top of the tree. As with weeds, their roots must be tackled if they are to disappear. A problem tree is always “read” from the bottom up. The problems below lead to the problems above. When the project group later starts to plan the activities, they should try to eliminate as many causes as possible by activities. It is important to find the relevant activities in order to eliminate the causes of the problem. Often several activities are needed in order to eliminate one problem, one cause. The possibilities of solving the focal problems are higher the further down in the tree the causes are tackled by activities. In other words, the further down towards the bottom of the tree, in the roots, we tackle the problems, the better the possibilities are of solving the focal problem in a sustainable way and hence, the more relevant the project plan becomes. A model of problem tree has been explained in the Problem definition Unit 2 of block 3 – Gender analysis in development process. The following is the flow chart of problem analysis in which the focal problem is kept at the centre and all the effects of the problems are above the focal problem and the causes of the problem are going deeper under the focal point. While discussing with the stakeholders the issues can be separated as the problems, focal problems and causes of the problem and its effects.

1.5 Objectives Analysis

When the stakeholders have identified the problems that the project shall contribute to eliminating, it is time to develop the objectives, to make an objective tree/analysis. If care has been taken on the problem analysis, the formulation of objectives shall not result in any difficulties. The objective analysis is the positive reverse image of the problem analysis. During the objective analysis, the project group should set three levels of objectives:

1. Overall objectives
2. Project purpose
3. Results

The objectives should answer the following questions:

1. What shall the project contribute to achieving in the long run? Why is the project important? What are the long-term policy objectives to which the project will contribute? (Overall Objectives)
2. What is the project-owner's picture of the ideal situation? It is expected that the purpose will be achieved as a direct effect of the projects results. It clarifies why the target group needs the project. What is the focus of this project? (Project Purpose)
3. Which different components/sub-goals is needed in order to achieve the purpose and the overall objectives? (Results)

Hence, the objectives are explanations of what the project is going to achieve in the short, medium and in the long run. A more comprehensive explanation of the three levels of objectives is given below:

1. **Goal/Overall Objectives/Development Objectives:** The highest level of objectives is the overall objective, which states the direction the project shall take, i.e. the changes which will take place in the long term partly as a result of the project. It cannot be expected that this goal will be achieved until possibly some 5–20 years by the project has ended. The goals constitute the long-term vision for the project owner. Moreover, external factors outside the scope of the project are important for the fulfilment of the overall objectives. Hence, this objective level is often difficult to measure. It is difficult to assess how much one particular project has had an influence on.
2. **The Project Purpose/Immediate Objective:** The project purpose is the very reason why the project is needed. The purpose describes the situation which is expected to prevail if the project delivers the expected results, and the assumptions made of the external factors, which must act together with the project. The project purpose and the results shall be:
 - a. Specific,
 - b. Measurable,
 - c. Approved by the project owner and the project group
 - d. Realistic
 - e. Time-bound

The abbreviation "SMART" objectives are often used. The project purpose is the objective that should have been achieved directly or one to three years by the end of the project. If it is achieved, the causes of the problem will have been eliminated and, hence, the focal problem itself will disappear. **Results/Outputs:** The outputs are the direct results of the activities that are implemented within the framework of the project. The outputs/results are a description of the value of the

services/products produced by the project within the framework of what the project stakeholders can guarantee. Outputs are actual, tangible results that are a direct consequence of the projects activities. Several activities are often necessary in order to reach one result/output. Results, as well as the project purpose, should be “SMART” (Specific, Measurable, Approved; Realistic and Time-Bound).



1.6 Summary

Any planned intervention focuses on these people, in order to benefit the people, such interventions should have gender perspective hence the need for gender analysis in planning is envisaged.



1.7 References/Further Readings

Hambly-Odame, H (2000). “Engendering the Logframe.” ISNAR Gender Mainstreaming in Development Planning: A Reference Manual for Government and other stakeholders, AICDD, Khanya



1.8 Possible Answers to self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 2

Critically examine the different approaches to planning?

Answer

The Women in Development (WID) approach in development planning sought to „add on“ women-specific projects to existing activities. Failing to address the systemic causes of gender inequalities, this approach tended to view women as passive recipients of development assistance, rather than as active agents in transforming their own economic, social, political and cultural realities. It was therefore usually gender-blind and ultimately biased against women. The Gender and Development (GAD) framework emerged in response to these flaws. It recognises that improving the status of women is not a separate, isolated issue but needs to be addressed by taking into account the status of both men and women, their differing life courses and the fact that equal treatment will not necessarily produce equal outcomes. Because men and women tend to have different roles and responsibilities, they also have different needs, identified as practical and strategic gender needs.

Practical gender needs emanate from the actual conditions people experience due to the gender roles ascribed to them by society. Strategic gender needs point to what is required to overcome the generally subordinate position of women to men in society and relate to empowerment. Planners generally respond only to the practical needs of women without relating these to their strategic needs. A twin approach is required which identifies the links between practical and strategic gender needs, and proposes policy and planning frameworks to address both within institutions.

SELF-ASSESSMENT EXERCISE 2

Write an essay on Logical Framework Analysis.

Answer

The logical framework plays a role in each phase of the project cycle, from planning to implementation to evaluation. It can be a master tool for creating other tools, such as the project monitoring plan, the breakdown of responsibilities, the implementation timetable, and the detailed budget. It can become an instrument for managing each stage of the project, and as such, it should be updated regularly. LFA is used during the Define phase to help analyze the existing situation, investigate the relevance of the project, and identify potential strategies. During the Design stage it provides a framework for an appropriate project plan with clear objectives, measurable results, and a strategy for risk management. Then during implementation, the log frame provides a key management tool to support work planning and budgeting. In the Analyze/Adapt phase it provides the basis for monitoring, and the basis for performance and impact assessment.

UNIT 2 MONITORING AND EVALUATION

Unit Structure

- 2.2 Introduction
- 2.2 Learning Outcome
- 2.3 Main Content
 - 2.3.2 Monitoring and Evaluation: Definition
 - 2.3.2 How are Monitoring and Evaluation linked?
 - 2.3.3 M &E in Project cycle / project design
 - 2.3.4 How M&E is influenced by project design?
- 2.4 Gendered Project Design and M&E
 - 2.4.2 The logical Frame work outlines
 - 2.4.2 The main contents of the Logical Framework Matrix
 - 2.4.3 An M &E Plan
 - 2.4.4 Reporting flows and Formats
- 2.5 Feedback and review plan
 - 2.5.2 Capacity building Design
 - 2.5.2 An Annual implementation plan & budget
 - 2.5.3 Developing M&E System – M & E Matrix
 - 2.5.4 Identifying performance questions
- 2.6 Identifying Information needs and indicators
- 2.7 Summary
- 2.8 References/Further Readings



2.2 Introduction

The success of the development initiatives of the organisations and government is mainly depending on the effective Monitoring and Evaluation system followed in the project. Generally, Monitoring and evaluation should be thought of even at the stage of project design and M&E should be incorporated into each and every stages of project design. Gender concerns should also be built into the project design and it should be monitored and evaluated to assess the project delivery towards promoting gender equality and gender justice. A common observation is that, project design incorporates gender concerns and the M&E strategy and M&E systems weekly address gender or not at all address gender. If gender issues are not considered in monitoring and evaluation, the project holder is deprived of an essential feedback mechanism of whether the project is actually achieving its goals and contribution to gender equality. In consequence, the project holder will not learn how approaches have impacted on gender relations and will not be able to take corrective action, if required. The project explains the Monitoring and Evaluation, its strategies, M&E systems, incorporation of gender in M&E system and evaluation. In this unit we can learn the

definition for monitoring and evaluation, how monitoring and evaluation linked to the implementation of project and how M&E can be an important component in project cycle.



2.2 Learning Outcome

By going through this you would be able to:

- Define monitoring and evaluation
- Describe the linkages between monitoring and evaluation
- Analyze the Monitoring and Evaluation in the project cycle/Project design



2.3 Main Content

2.3.1 Monitoring and Evaluation: Definition

Monitoring is an on-going activity during the life of the project. It is through monitoring that the project is able to determine what progress has been made in relation to the work plan. Monitoring helps in ascertaining whether the project is on track, and also in determining whether the project needs to make any changes in its strategies or activities so that it can be as successful as possible. Evaluation determines how successful the project has been in meeting its objectives, as well as in assessing the impact of project activities on desired outcomes, like knowledge or behaviour. Project evaluation begins with a baseline survey which is carried out before project activity begins; project evaluation concludes when data are collected again through an end-of-project survey, and then compared to baseline information. When funds allow, some projects also have a mid-term evaluation which occurs half-way through the project's implementation.

2.3.2 How are Monitoring and Evaluation linked?

The primary function of monitoring and evaluation is to test, empirically, whether or not the assumptions articulated in the operation design (logical framework) holds true during the course of implementation and following completion of that operation. A good M&E strategy not only measures whether or not the assumptions outlined in a logical framework held true, but uncovers why the assumptions did not hold true allowing for adjustment and fine-tuning of the operation design. Monitoring focuses more on the lower elements in a logical framework matrix and evaluation more on the longer term,

upper elements. The 2 functions clearly overlap and complement one another. The difference between monitoring and evaluation lies in the perspective that each takes in assessing performance in relation to a logical framework for an operation, programme, or policy. Monitoring is the day-to-day management task of collecting and reviewing information that reveals how an operation is proceeding and what aspects of it, if any, need adjustment. Result-oriented monitoring focuses on delivering outputs and tracks outcomes as far as possible changes in beneficiary behaviour or status that emerges as a consequence of outputs. Evaluation is characterised by events (e.g. surveys, studies, missions) rather than day-to-day data collection. Result-oriented evaluation focuses on outcomes and impacts and adds to and builds on monitoring information. It assesses overall performance, focusing on positive or negative changes in beneficiary behaviour or status occurring as a result of an operation. Evaluation provides information that is credible and useful, enabling the incorporation of lessons into management decision-making. A mid-term or final evaluation should be scheduled: a) to measure mid-course progress toward results achievement and to help guide planning for subsequent phases of an operations or b) to assess the operation's final impact and sustainability of results.

2.3.3 M &E in Project cycle / project design

Monitoring and Evaluation is kept as the final step in the evolution of project cycle. The project cycle is also known as project design, starts with problem analysis, situation analysis and moves on to planning of the project with logical framework approach, implementation of the project with the help of resources which result in output and outcome. The achievement of the objectives of the projects is measured through a sequence of process in each and every stage of project design and ends with evaluation. The above project cycle explains the sequence of process being adopted in formulation and execution of a project; it explains how a project is being evolved, planned, implemented, outcome and impact of the project. The above project cycle assumes that monitoring and evaluation would take place at the end of the project. But in reality, monitoring and evaluation should be incorporated in each stage of project design so that any deviations from the objectives can be easily analysed and rectified a deviations according to the socio, economic and cultural aspect of the community. Monitoring and Evaluation of the project should be thought of, when the project design is being developed. Often monitoring and evaluation is not designed as part of the project cycle due to budget constraint and absence of technical experts in M & E. Insufficient time and expertise have been allocated to M & E, during the startup phase or there is insufficient

flexibility in the project design to enable the M&E system to influence the project strategy during implementation.

2.3.4 How M&E is influenced by project design?

1. The relationships and commitment established with partners and local people, particularly the intended primary stakeholders;
2. The logic and feasibility of the project strategy
3. The resources allocated to M&E (funding, time, expertise)
4. The degree of inbuilt flexibility
5. The operational guidelines for M&E.

Let's consider each point.

1. During the project implementation, the effectiveness of M&E will be greatly influenced by the attitudes and commitments of local people and partners involved in the project and how they relate and communicate with each other. Individuals or organisations that have been active in the design phase are more likely to know if the project is genuinely in their interests and to understand the objectives. They are more likely to take an interest in monitoring the progress and achievements of the project. Alternatively, if people have been disillusioned, frustrated by or left out of the design process, then they are less likely to be interested in and committed to M&E activities.
2. The second design fault is when a project lacks logic in its strategy or has unrealistic objectives, making good M&E almost impossible. This is because the evaluation questions and indicators often become quite meaningless and will not produce useful information. Furthermore, if one do not know clearly where you are heading then you will not know how best use any information that might be produced. A good M&E system can help put a poorly designed project back on track, but this creates considerable extra work during start-up and implementation.
3. The third is when a design team does not allocate enough resources to the M&E system. The critical resources include
 - a. Funding for information management, participatory monitoring activities, field visits, etc.
 - b. Time for a start up phase that is long enough to establish the M&E system, do a participatory baseline, train staff and partners, include primary stakeholders in M&E, monitor and reflect
 - c. Expertise such as a consultant to support M&E development
4. The fourth factor is critical if M&E systems are to generate the learning that helps a group of project partners continually improve implementation and strategy. The more rigid a project

design is, the more difficulty the project team will have in adjusting it as a result of changes in the context and understating of interim impacts. As the design team, identify how flexible the planner feels the project design needs to be and what the boundaries of and process for design adaptation should be. A project with inbuilt flexibility provides an important rationale for the M&E system.

5. Fifth, it is important that during design, the broad framework of the M&E system is established. Then everyone's expectation about his or her responsibilities and information rights can be clear. The next sub-section indicates what could be included in the documentation that describes the M&E system in the project appraisal report. Hence, it is essential to incorporate M &E at each and every stages of the project cycle as explained in the following diagram. It should be part of project design, planning of indicators, planning for monitoring and implementation, monitoring of the project during implementation through regular review and reporting of the project, interim evaluation followed by participatory evaluation.

2.4 Gendered Project Design and M&E

Monitoring and Evaluation, as instruments for quality assurance and management feedback, can help identify weaknesses and recommend actions for addressing the same. Gender concerns should be built into every step of the project cycle. This requires that gender also becomes an internal part of any monitoring plan, review exercise and evaluation. Generally, it is found that a well gendered project design and project cycle developed by reputed organisation, weekly address gender issues during monitoring and evaluation. If gender issues are not considered in Monitoring and Evaluation, project managers are deprived of an essential feedback mechanism of whether the project is actually achieving its goals and contributing to gender equality. In consequence, managers will not learn how approaches have impacted on gender relations and will not be able to take corrective action, if required. Having a gender-sensitive monitoring and evaluation system is just as important as having a 'gendered' project design. Indeed, if a project design is gender blind, this can be discovered and corrected when setting up the monitoring and evaluation plan for the project (for example by reformulating indicators that are more gender sensitive and collecting sex disaggregated data). Monitoring and evaluation thereby keeps track of the project's performance related to gender equality.

A gender sensitive project design with the link to monitoring and evaluation is explained through the above diagram. Outline of the project design and the gender focus in each stages of the design are

explained in the following diagram and its connectivity to Monitoring and Evaluation is also explained.

M & E strategy is the detailed description of the measurements, analysis, and reporting needed to monitor and evaluate an operation's implementation and achievement of results described in the logical framework. The following are the components of M & E strategy:

- a. A logical framework.
- b. An M&E plan for data collection and analysis, covering baseline, ongoing monitoring and evaluation.
- c. Reporting flows and formats.
- d. A feedback and review plan.
- e. A capacity building design.
- f. An implementation schedule and Budget
- g. A budget.

The logical framework matrix is the foundation document for both operation design and M&E. additional elements of the M&E strategy are extensions of the logical framework that describe how indicators will be used in practice to measure implementation performance and results achievement.

2.4.1 The logical Frame work outlines

The primary purpose of M&E is to measure the degree to which an operation design is implemented as planned and how successfully it achieves its intended results. The operation design describes how inputs and activities will result in outputs delivered by WFP and its partners, and how the operation designers believe these outputs will, in turn, result in desired outcomes and impacts. The relationship between each of these levels is described in a logical framework hierarchy for the operation and represents a hypothesis concerning how the operation, starting with the initial resources or inputs that are available, will bring about the desired results. When a result-based approach to design is used, the desired outcomes or impacts are identified first, then the outputs needed to achieve those outcomes, and then the inputs and activities needed to deliver those outputs.

2.4.2 The main contents of the Logical Framework Matrix

Each of the 4 columns in the Logical Framework is described in the following paragraphs. The first and fourth columns articulate operation design and assumptions, while the second and third columns outline the M&E performance measurement indicators and means in order to test whether or not the hypothesis articulated in the operation design holds true.

Column 2: This column outlines the design or internal logic of the operation. It incorporates a hierarchy of what the operation will do (inputs, activities and outputs) and what it will seek to achieve (purpose and goal). Column 2: This column outlines how the design will be monitored and evaluated by providing the indicators used to measure whether or not various elements of the operation design have occurred as planned. Column 3: This column specifies the source(s) of information or the means of verification for assessing the indicators. Column 4: This column outlines the external assumptions and risks related to each level of the internal design logic that is necessary for the next level up to occur.

2.4.3 An M &E Plan

- a. Sets out arrangements for routine collection of monitoring data, based on indicators identified in the logical framework including how, when, and by whom data will be collected, analysed and reported. This includes descriptions of different tools of data collection to gauge progress toward achieving results and monitoring achievement of output targets, milestones to measure completion of activities and compliance with contract agreements, resource expenditures versus budget, and risks and assumptions. This also includes arrangements for verifying the quality and accuracy of M&E data and analysis.
- b. Describes the use of baseline and subsequent evaluation events to gauge change over time in indicators identified in the logical framework. While a baseline and final evaluation are recommended, a mid-term evaluation is also employed to measure mid-course progress toward results achievement and to help guide planning for subsequent phases of an operation.
- c. Sets out arrangements for collection of periodic evaluation data, based on indicators identified in the logical framework and including how, when, and by whom data will be collected, analysed and reported.

2.4.4 Reporting flows and Formats

The reporting flow and formats for both monitoring and evaluation are linked to each level of management, as well as to the agreed system for feedback and management review. The following example is a Reporting flows and formats used in Tamil Nadu Empowerment and Poverty Reduction Project (TNEPRP) supported by World Bank. The project is managed by State Project Management Unit (SPMU), District Project Management Unit (DPMU), Project Facilitation Team (PFT) at the block level and Village Poverty Reduction Committees (VPRC) at the panchayat level. The project has developed a set of Management Information System (MIS) to be used at each and every stage of project management units and transferred to different layers of administration as given in the diagram below.

2.5 Feedback and review plan

The M&E Plan identifies the report in which the M&E information is included and sets out at which forums or meetings the information or the reports themselves will be presented and discussed. The M&E Plan, therefore, sets out the major formal feedback opportunities and ensures that M&E reports are disseminated to all stakeholders and appropriate formal and informal discussions are held concerning key findings. This aims to permit timely and informed decision-making by the various stakeholder groups. This is especially crucial for information relating to results. Those units and individuals receiving M&E reports need to provide both formal and informal feedback to the authors of reports. To the extent possible, they should acknowledge receipt of progress reports and provide comments regarding report conclusions, recommendations and timeliness. Informal feedback to authors of M&E reports provides valuable lessons for them and ensures them that the information is being used and reviewed. This in turn provides motivation to maintain high data collection and reporting standards. Individualised feedback is especially important when the author and the receiver are not working in the same organisation or are in different locations.

2.5.1 Capacity building Design

Sets out capacity building needed for the project team on monitoring and evaluation, reporting system, Participatory methods of evaluation etc. This part is not a mandatory component in M&E strategy and depending on the budget allocation for M&E and the present capacity of the stakeholders the capacity building plan is developed.

2.5.2 An Annual implementation plan & budget

Links planned M&E activities to an implementation schedule and budget. Data collection, processing, analysis and reporting, as well as capacity building and field support must be budgeted for in terms of time and resources. The M&E budget is part of the overall operation budget. Ongoing monitoring expenses may already be built into staff time and expenditure budgets in the overall operation budget. In the case of Direct Support Costs / staff cost, there should be a special cost provision that allocates a portion or all of certain items to M&E as a Budget Plan Priority Area. Some items for special M&E events or activities, such as baseline surveys, may require resources and time allocation outside of day-to-day staff activities.

These may include, but are not limited to, the use of consultants, the hiring of data collection or data entry staff, training, transportation for field visits, and supplies for fieldwork.

2.5.3 Developing M&E System – M & E Matrix

Monitoring and evaluation focuses on inputs and outputs (budget spent and activities accomplished). Apart from this a project should also need systems that monitor progress towards planned outcomes (immediate objectives). i.e. how the local partners used the outputs and what were the effects of the outputs. Crucial assumptions for the achievements of outcomes may also need to be monitored.

2.5.4 Identifying performance questions

Rather than starting with indicators, first identify performance questions. This helps to focus the information gathering on what we will really use for understanding and improving project performance. Identifying performance questions (indicators and selection methods) will be interactive: make an initial choice, assess its feasibility, accept and use it or reject it and find the next option.

2.6 Identifying Information needs and indicators

By using performance questions, one can more easily identify useful indicators and other information needs for which we need to collect data. Only data that help answer our performance questions are necessary. This helps avoid collecting information that is difficult to use to guide the project strategy and operations.



2.7 Summary

This unit starts with defining Monitoring evaluation and the importance of making M&E as a in build component in project cycle and project design. It also elaborates how to develop M&E in Project cycle and project design.



2.8 References/Further Readings

David R.Thomas and Ian D. Hodges (2000). Designing and managing your research project core knowledge for social and health researchers, London: Sage Publications

Narayanasamy, N. (2009). Participatory Rural Appraisal, New Delhi: Sage Publications



2.9 Possible answers to self-assessment exercise (s) within the content

SELF-ASSESSMENT EXERCISE 2

What is the role of M&E in development process?

Answer

Monitoring is an on-going activity during the life of the project. It is through monitoring that the project is able to determine what progress has been made in relation to the work plan. Monitoring helps in ascertaining whether the project is on track, and also in determining whether the project is on track, and also in determining is it required to engender M&E system? Whether the project needs to make any changes in its strategies or activities so that it can be as successful as possible. Evaluation determines how successful the project has been in meeting its objectives, as well as in assessing the impact of project activities on desired outcomes, like knowledge or behaviour. Project evaluation begins with a baseline survey which is carried out before project activity begins; project evaluation concludes when data are collected again through an end-of-project survey, and then compared to baseline information. When funds allow, some projects also have a mid-term evaluation which occurs half-way through the project's implementation.

SELF-ASSESSMENT EXERCISE 2

How can we incorporate gender in Project design and M&E system?

Answer

Monitoring and Evaluation, as instruments for quality assurance and management feedback, can help identify weaknesses and recommend actions for addressing the same. Gender concerns should be built into every step of the project cycle. This requires that gender also becomes an internal part of any monitoring plan, review exercise and evaluation. Generally, it is found that a well gendered project design and project cycle developed by reputed organisation, weekly address gender issues during monitoring and evaluation. If gender issues are not considered in Monitoring and Evaluation, project managers are deprived of an essential feedback mechanism of whether the project is actually achieving its goals and contributing to gender equality. In consequence, managers will not learn how approaches have impacted on gender relations and will not be able to take corrective action, if required. Having a gender-sensitive monitoring and evaluation system is just as important as having a 'gendered' project design. Indeed, if a project

design is gender blind, this can be discovered and corrected when setting up the monitoring and evaluation plan for the project (for example by reformulating indicators that are more gender sensitive and collecting sex disaggregated data). Monitoring and evaluation thereby keeps track of the project's performance related to gender equality.

A gender sensitive project design with the link to monitoring and evaluation is explained through the above diagram. Outline of the project design and the gender focus in each stages of the design are explained in the following diagram and its connectivity to Monitoring and Evaluation is also explained.

UNIT 3 INTRODUCTION TO CAPITAL BUDGETING OR CAPITAL INVESTMENT

Unit Structure

- 3.3 Introduction
- 3.3 Learning Outcomes
- 3.3 Introduction to Capital Budgeting
 - 3.3.1 Meaning of Capital Budgeting according to scholars
 - 3.3.2 Features of Capital Budgeting Decisions
 - 3.3.3 Types of Capital Investments
 - 3.3.4 Importance of Capital Budgeting Decisions
 - 3.3.5 Phases of Capital Budgeting
- 3.4 Key Issues in Project Analysis
 - 3.4.1 Market Analysis
 - 3.4.2 Technical Analysis
 - 3.4.3 Financial Analysis
 - 3.4.4 Economic Analysis
- 3.5 Criteria of capital Budgeting Decision
 - 3.5.1 Non- Discounting Methods
 - 3.5.2 Discounting Methods
 - 3.5.3 Accept-Reject Criteria
- 3.6 Considerations/guidelines in the Generation and Screening of Project Ideas
 - 3.6.1 Steps in Generation and Screening of Project Ideas
- 3.7 Market, Demand and Situational Analysis
 - 3.7.1 Key steps in Market and Demand Analysis and their Inter-relationships
- 3.8 Meaning/Concepts of Technical Analysis
- 3.9 Meaning /Concept of Financial Analysis
- 3.10 Summary
- 3.11 References/Further Readings/Web Resources
- 3.12 Possible Answers to Self-Assessment Exercise(s) within the content



3.3 Introduction

In this unit, student will be introduced to the concept of Capital Budgeting Decisions OR Capital Investments, understand the importance and difficulties of capital budgeting decision. The students will understand the features and types of capital budgeting, including the criteria for selecting projects based on their viabilities as well as the various sources of finance options available for projects. This is important, especially as it relates to project management and the attendant appraisal and evaluation to ensure standardization.



3.2 Learning Outcomes

By the end of this unit, you will be able to:

- Explain what is Capital Budgeting Decisions OR Capital Investments are? What are the importance and difficulties of capital budgeting decisions
- Discuss the phases of Capital Budgeting;
- Examine the considerations and guidelines helpful in the Generation and Screening of Project Ideas
- Explain Market, Demand and Situational Analysis
- Explain Technical Analysis
- Define the concepts/definition of Financial Analysis



3.3 Introduction to Capital Budgeting Decisions or Capital Investments

An efficient allocation of capital is the most important finance function in modern times. It involves decisions to commit firm's funds to long-term assets. Such decisions tend to determine the value of company/firm by influencing its growth profitability & risk. Investment decisions are generally known as capital budgeting or capital expenditure decisions. It is clever decisions to invest current in long term assets expecting long-term benefits. Firm's investment decisions would generally include expansion, acquisition, modernization and replacement of long-term assets. Such decisions can be investment decisions, financing decisions or operating decisions. Investment decisions deal with investment of organization's resources in Long- term (fixed) Assets & / or Short-term (Current) Assets. Decisions pertaining to investment in Short-term

Assets fall under "Working Capital Management". Decisions pertaining to investment in Long term Assets are classified as "Capital Budgeting" decisions. Capital budgeting decisions are related to allocation of investible funds to different long-term assets. They have long-term implications and affect the future growth and profitability of the firm. In evaluating such investment proposals, it is important to carefully consider the expected benefits of investment against the expenses associated with it. Organizations are frequently faced with Capital Budgeting decisions. Any decision that requires the use of resources is a capital budgeting decision. Capital budgeting is more or less a continuous process in any growing concern.

SELF-ASSESSMENT EXERCISES 3

What are Capital Budgeting Decisions OR Capital Investments? What are the importance and difficulties of capital budgeting decision?

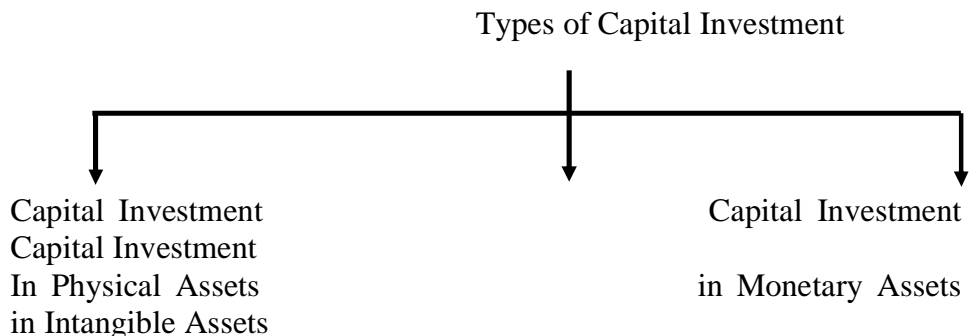
3.3.1 What are Capital Budgeting Decision?

Capital Budgeting is the technique of making decisions for investment in long-term proposals. It is a process of deciding whether or not to invest the funds in a particular proposal, the benefit of which will be available over a period of time longer than one year. According to Spencer (3959), "Capital Budgeting involves the planning of expenditures for assets, the returns from which will be realized in future time periods."

3.3.2 Features of Capital Budgeting Decisions

- a. Funds are invested in long-term assets.
- b. Funds are invested in present times in anticipation of future profits.
- c. The future profits will occur to the firm over a series of years.
- d. Capital Budgeting decisions involve a high degree of risk because future benefits are not certain

3.3.3 Types of Capital Investments:



Physical Assets: Physical assets are tangible investments like:

Land
Building
Plant
Machinery
Vehicles and Computers

Monetary Assets: Monetary assets are financial claims against some parties. Examples of Monetary Assets are:

Deposits

Bonds and Equity Shares

Intangible Assets: Intangible assets are not in the form of physical assets or financial claims. They represent outlays on research and development, training, market development, franchises and so on that is expected to generate benefits over a period of time

3.3.4 Importance of Capital Budgeting Decision:

1. Such Decision affect the profitability of the Firm: Capital Budgeting decision affect the long-term profitability of a firm. They enable a firm to produce finished goods which is ultimately sold for profit. Hence, a correct investment decision can yield large profits, whereas an incorrect decision can endanger the very survival of the firm.
2. Long-Term Effects: The consequence of capital expenditure decisions extend far into the future. To illustrate, if a company purchases a new plant to manufacture a new product, the company will have to incur a sizable amount of fixed costs, in terms of labour, supervisor's salary, insurance, rent of building etc. If, in future, the product turns out to be unsuccessful, the company will have to bear the burden of heavy fixed costs.
3. Irreversible Decision: Capital Budgeting decisions, once taken, are not easily reversible without heavy financial loss to the firm.
4. Involvement of Large Amount of Funds: Capital Budgeting decisions require large amount of funds and most of the firm have limited financial resources. Hence, it is absolutely necessary to take thoughtful and correct investment decisions.
5. Risk- Capital investment proposals have different degrees of risk.
6. Most difficult to make: These decisions are among the most difficult decisions to be taken by a firm. This is, because they require an assessment of future events which are uncertain and difficult to predict.

Difficulties:

1. **Measurement Problems:** Identifying and measuring the costs and benefits of a capital expenditure proposals tend to be difficult. This is more so when capital expenditure has a bearing on some other activities of the firm.
2. **Uncertainty:** A capital expenditure decision involves costs and benefits that extend far into the future. It is impossible to predict exactly what will happen in the future. Hence, there is usually a great deal of uncertainty characterizing the cost and benefits of a capital expenditure decision.
3. **Temporal Spread:** The costs and benefits associated with a capital expenditure decision are spread out over a long period of time,

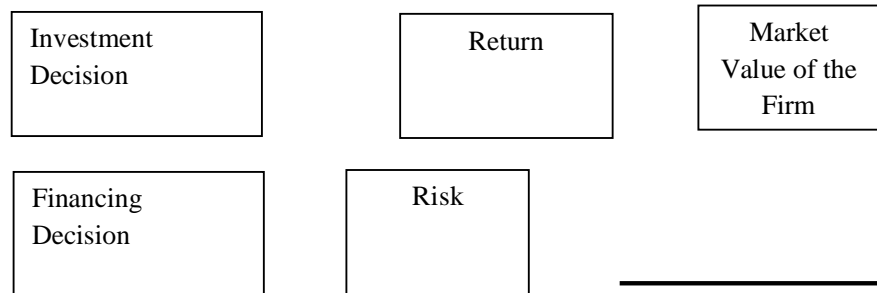
usually 30-30 years for industrial projects and 30-5- years for infrastructural projects

3.3.5 Phases of Capital Budgeting

Capital Budgeting is the technique of making decisions for investment in long-term proposals. It is a process of deciding whether or not to invest the funds in a particular proposal, the benefit of which will be available over a period of time longer than one year.

Basic Consideration: Risk and Return: Suppose a firm is evaluating an investment proposal. What aspects are relevant from the financial angle? From the financial point of view the relevant dimensions are return and risk

Decision, Return, Risk and Market Value:

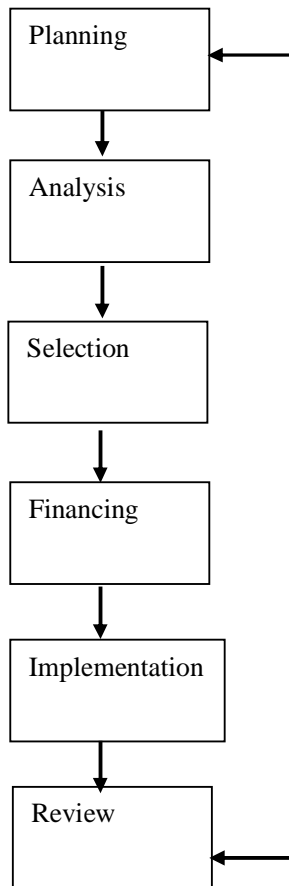


This shows that in a decision situation, an alternative which has a higher return tends to have a higher risk too. Likewise, an alternative which has a lower return tends to have a lower risk.

Phases Or Process of Capital Budgeting:- Capital Budgeting is a complex process which may be divided into six broad phases:-

- (i) Planning
- (ii) Analysis
- (iii) Selection
- (iv) Financing
- (v) Implementation
- (vi) Review

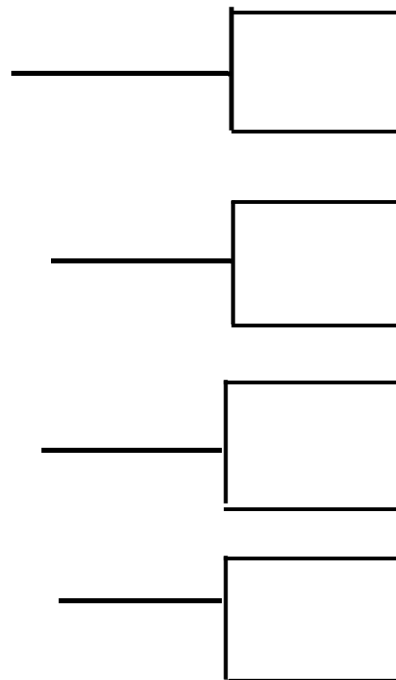
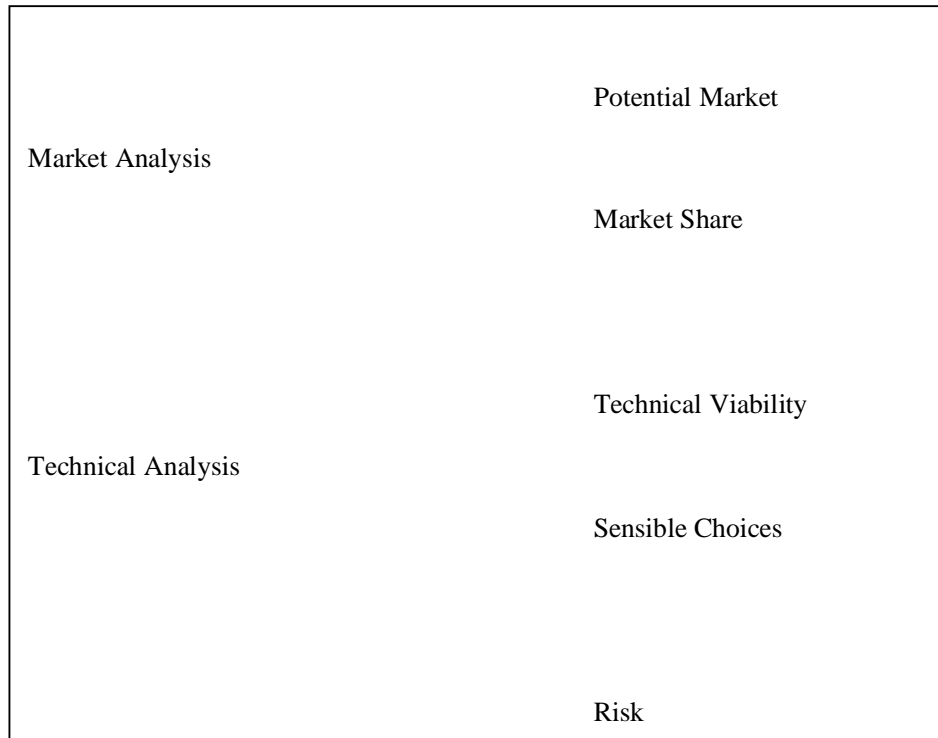
Phases of Capital Budgeting Process:



1. **Project Planning:** The planning process of a firm's capital budgeting process is concerned with the generation of project proposals. This provides the framework which shapes, guides, and circumscribes the identification of individual project opportunities. Once a project is identified, it needs to be examined. For this purpose, a preliminary project analysis is done.
2. **Project Analysis:** If the preliminary screening suggests that the project is suitable, a detailed analysis of the project is done. In this we include:
 - (i) Marketing Analysis
 - (ii) Technical Analysis
 - (iii) Financial Analysis
 - (iv) Economic Analysis

The focus of this phase of capital budgeting is on gathering, preparing and summarising relevant information about various project proposals. Based on the information developed in this analysis, the stream of costs and benefits associated with the project can be defined.

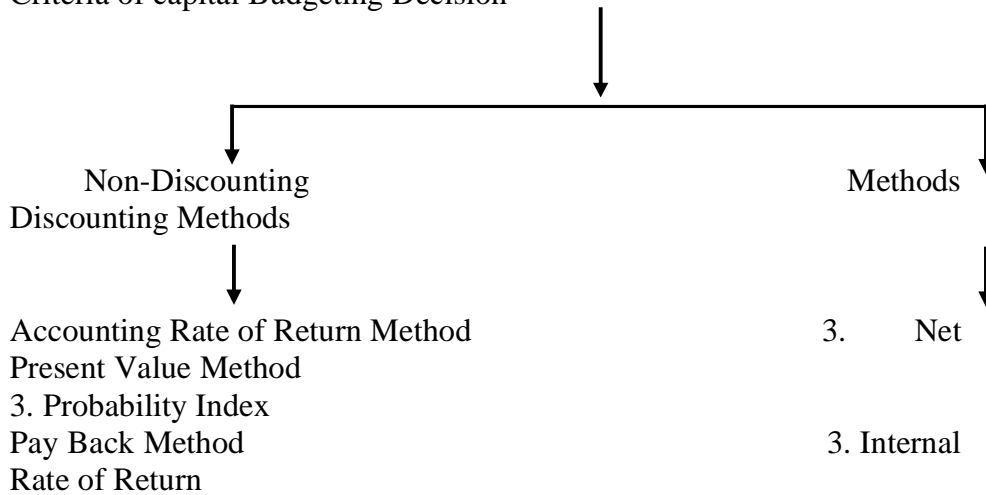
3.4 Key Issues in Project Analysis



3. Selection: This phase addresses the question-Is the project worthwhile? A wide range of appraisal criteria have been suggested to judge the worthwhileness of a project. They are divided into two broad categories:

3.5 Criteria of Capital Budgeting Decision

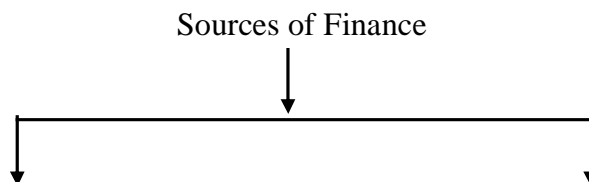
Criteria of capital Budgeting Decision

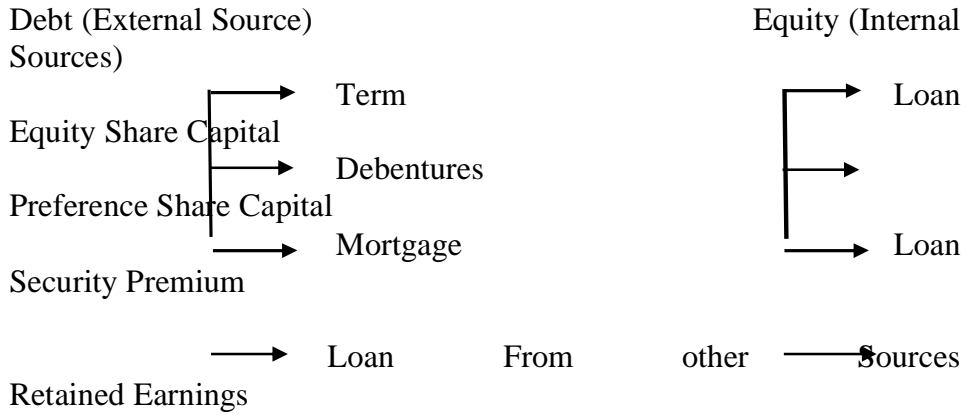


Accept-Reject Criteria:

Criterion	Accept	Reject
Pay Back Method (PBP)	PBP < Target period	PBP > Target Period
Accounting Rate of Return (ARR)	ARR > Target Rate	ARR < Target Rate
Net Present Value (NPV)	NPV > 0	NPV < 0
Profitability Index Method (PI)	PI > 3	PI < 3
Internal Rate of Return (IRR)	IRR > Cost of capital	IRR < Cost of capital

4. Financing: Once a project is selected, suitable financing arrangements have to be made. The two broad sources of finance are:





Criteria for Financing Decisions: FRICT are the key business considerations that influence the capital structure (debt-equity ratio) decision and choice of specific instruments of financing.

FRICT:

- F- Flexibility
- R- Risk
- I-Income
- C-Control
- T-Taxes

5. Implementation: The implementation phase for an industrial project, which involves setting up of manufacturing facilities, consists of several stages:

- Project and Engineering design
- Contracting
- Construction
- Training of Engineers, Technicians and Workers.
- Plant Commissioning: Start up of the plant.

Stages Concerned With	
Project and Engineering design designs (ii) Plant Engineering (iii) Selection of specific Machinery and Equipment	(i) Preparation of blueprints and plant
Contracting respect to (a) Project Financing	(i) Drawing up of legal contracts with

- (b) Acquisition of Technology
 - (c) Construction of Building and civil works
 - (d) Supply of machinery and equipment
 - (e) Marketing Management etc
-

- Construction (i) Site Preparation
 - (ii) Construction of Buildings and civil works
 - (iii) Erection and installation of machinery and equipment
-

- Training (i) Training of engineers, technicians and workers
-

- Plant Commissioning: Start up (i) Start up of the Plant
-

Translating an investment proposal into a concrete project is a complex, time-consuming and risk fraught task. Delay in implementation, which are common, can lead to substantial cost overruns. For expeditious implementation at a reasonable cost, the following are helpful:

- (i) Adequate Formulation of Projects
 - (ii) Use of Principle of Responsibility Accounting
 - (iii) Use of Network Techniques: Two basic techniques are:
PERT (Programme Evaluation Review Technique)
CPM (Critical Path Method)
6. Review: Once the project is commissioned, the review phase has to be set in motion. Performance review should be done periodically to compare actual performance with projected performance. A feedback device, it is useful in several ways:
- (i) It throws light on how realistic were the assumptions underlying the project.
 - (ii) It provides a documented log of experience that is highly valuable in future decision making
 - (iii) It suggests corrective action to be taken in the light of actual performance

3.6 Considerations and Guidelines Helpful in the Generation and Screening of Project Ideas

There are various considerations and guidelines which are helpful in the generation and screening of project ideas. The objective is to identify the investment opportunities which are prima facie feasible. There are following steps:

1. Generation of Ideas
2. Monitoring the Environment
3. Corporate Appraisal
4. Profit Potential of Industries: Porter Model

5. Scouting for Project ideas
6. Preliminary Screening
7. Project Rating Index
8. Sources of Positive Net Present Value
9. On being an entrepreneur

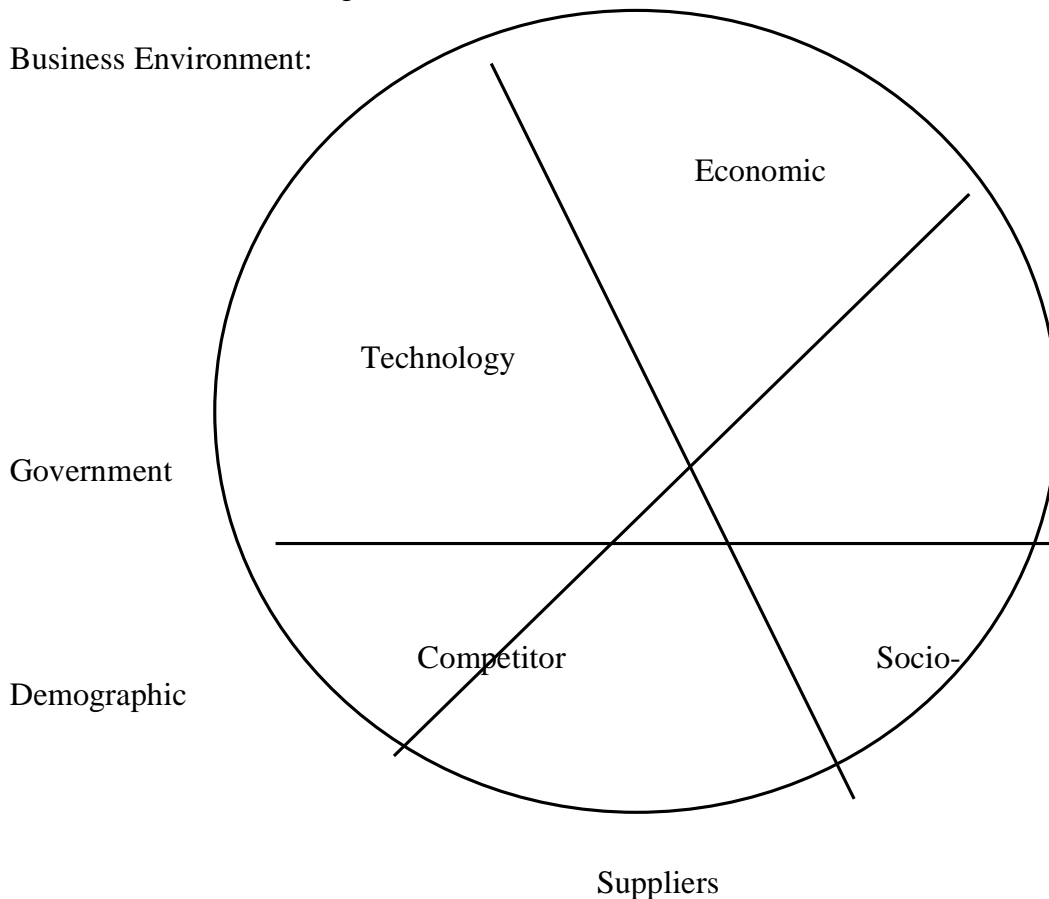
3.6.3 Steps in Generation and Screening of Project Ideas



1. **Generation of Ideas:** The search for ideas is the first step toward establishing a successful venture. Identification of such opportunities requires imagination, sensitivity to environmental changes, and realistic assessment of what the firm can do. The following steps are included in generation of ideas:
 - (i) **SWOT Analysis:** SWOT Is an acronym for Strengths, Weaknesses, opportunities and threats. SWOT Analysis represents a conscious and systematic effort by an organization to identify opportunities that can be profitable. Periodic SWOT Analysis facilitates the generation of ideas.
 - (ii) **Clear Articulation of Objectives:** The operational objectives of a firm may be one or more of the following:
 - (a) Cost Reduction
 - (b) Productivity Improvement
 - (c) Increase in Capacity Utilization
 - (d) Improvement in contribution margin

2. **Monitoring the Environment:** The firm must systematically monitor the environment and assess its competitive abilities. For purposes of monitoring, the business environment may be divided into six broad categories:

Business Environment:



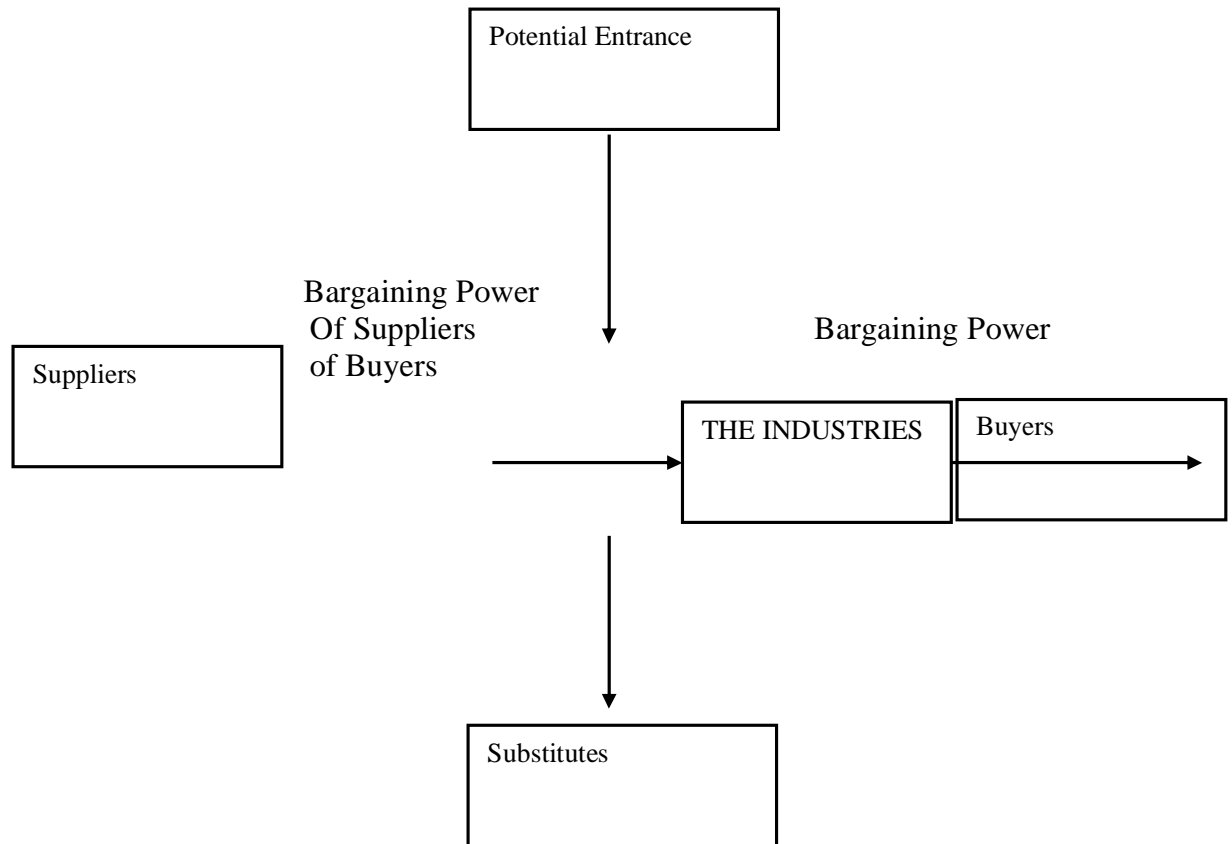
- i. Economic Sector:
 - (a) State of the Economy
 - (b) Overall rate of growth
 - (c) Growth of primary, secondary and tertiary sectors.
 - (d) Balance of Payment Situation
 - (e) Cyclical Fluctuations.
 - (f) Linkage with the World Economy
 - (g) Trade Surplus/Deficits
 - ii. Governmental Sector:
 - (a) Industrial Policy
 - (b) Tax Framework
 - (c) Subsidies, incentives and concessions
 - (d) Import and Export Policies
 - (e) Financing Norms
 - (f) Government programmes and projects
 - (g) Lending conditions of financial institutions and commercial banks
 - iii. Technological Sector:
 - (a) Emergence of new technologies
 - (b) Access to technical know-how
 - iv. Socio-demographic Sector:
 - (a) Population trends
 - (b) Income distribution
 - (c) Educational profile
 - (d) Employment of Women
 - (e) Attitudes towards consumption and investment
 - v. Competitive Sector:
 - (a) Number of firms in the industry
 - (b) Degree of homogeneity and differentiation among products
 - (c) Comparison with substitutes in terms of quality, price and functional performance
 - (d) Marketing policies and practices
 - vi. Supplier Sector:
 - (a) Availability and cost of raw materials
 - (b) Availability and cost of energy
 - (c) Availability and cost of money
3. Corporate Appraisal: A realistic appraisal of corporate strengths and weaknesses is essential for identifying investment opportunities which can be profitable. The broad areas of corporate appraisal and the important aspects to be considered are as follows:

- i. Marketing and Distribution
 - Market Image
 - Product Line
 - Market Share
 - Distribution network
 - Customer loyalty
 - Marketing and distribution cost
 - ii. Production and Operations
 - Condition and capacity of plant and machinery
 - Availability of raw materials, sub-assemblies and power
 - Cost structure
 - iii. Research and Development
 - Research capabilities of the firm T
 - track record of new product developments
 - Laboratories and testing facilities
 - iv. Corporate Resources and Personnel
 - Corporate image
 - Clout with government and regulatory agencies
 - Dynamism of top management
 - Competence and commitment of employees State of industrial relations
 - v. Finance and Accounting
 - Financial leverage and borrowing capacity
 - Cost of capital
 - Tax situation
 - Relations with shareholders and creditors
 - Accounting and control system Cash flows and Liquidity
4. Tools for Identifying Investment Opportunities: There are several useful tools or frameworks that are helpful in identifying promising investment opportunities. The most popular one are:

Profit Potential of Industries: Porter Model: profit potential of an industry depends on the combined strength of the following five basic competitive forces:

- (i) Threat of New Entrants
- (ii) Rivalry among existing firms
- (iii) Threats of Substitute Products.
- (iv) Bargaining power of Suppliers.
- (v) Bargaining power of Suppliers.

The following exhibit shows the forces that drive competition and determine industry profit potential



5. Scouting for Project Ideas:

The following steps are included:

- (i) Analyse the Performance of Existing Industries
- (ii) Examine the inputs and outputs of Various Industries
- (iii) Review Imports and Exports
- (iv) Study Government Guidelines
- (v) Look at the suggestions of Financial Institutions
- (vi) Analyse economic and social trends

6. Preliminary Screening:

By using the suggestions made in the preceding section, it is possible to develop a long list of project ideas. Some kind of preliminary screening is required to eliminate some unprofitable ideas. The following aspects may be looked into:

- (i) Compatibility with the Promoter: The idea must be compatible with the interest, personality and resources of the entrepreneur. A real opportunity has three features:

- (a) It fits the personality of the entrepreneur
 - (b) It is accessible to him
 - (c) It offers him the prospect of rapid growth and high return on the invested capital
- (ii) Consistency with Governmental Priorities: The project ideas must be feasible given the national goals and governmental regulatory framework. The questions to be raised in this context area:
- a. Is the project consistent with national goals and priorities?
 - b. Are there any environmental effects contrary to governmental regulations?
 - c. Can the foreign exchange requirements of the project be easily accommodated?
 - d. Will there be any difficulty in obtaining the license for the project?
- (iii) Availability of Inputs: The resources and inputs required for the project must be assured. To assess this, the following questions need to be answered:
- (a) Are the capital requirements of the project within manageable limits?
 - (b) Are the raw materials required for the project available domestically at a reasonable cost?
 - (c) Can the technical know-how required for the project be obtained?
- (iv) Adequacy of the Market: To judge the adequacy of the market the following factors have to be examined:
- (a) Total present domestic market.
 - (b) Competitors and their market shares
 - (c) Barriers to the entry of new units
 - (d) Export Market
 - (e) Sales and Distribution system
 - (f) Patent protection
- (v) Reasonableness of cost: The following should be examined:
- (a) Cost of material inputs
 - (b) Labour costs
 - (c) Factory Overheads
 - (d) General and administration expenses
 - (e) Selling and Distribution expenses
- (vi) Acceptability of Risk Level: The following should be considered:
- (a) Technological Changes
 - (b) Competition from Substitutes
 - (c) Competition from imports
 - (d) Governmental control over price and distribution

7. Project Rating Index:

The steps involved in determining the project rating index are:

- (i) Identify factors relevant for project rating.
- (ii) Assign weights to these factors
- (iii) Rate the project proposal on various factors, using a suitable rating scale.
- (iv) For each factor, multiply the factor rating with the factor weight to get the factor score
- (v) Add all the factor scores to get the overall project rating index.

8. Sources of Positive Net Present Value:

There are six main entry barriers that result in positive NPV projects. They are as follows:

- (i) Economies of Scale
- (ii) Product Differentiation
- (iii) Cost Advantage
- (iv) Marketing reach
- (v) Technological edge
- (vi) Government Policy

9. On being an Entrepreneur: There are following questions that every entrepreneur must answer:

- (i) Are my goals well defined?
Personal aspirations
Business size
Tolerance of risk
- (ii) Do I have the right strategy?
Clear definition
Profitability and potential for growth
Durability Rate of growth
- (iii) Can I execute the strategy?
Resources
Organisational Infrastructure

Qualities and Traits of a Successful Entrepreneur:

A successful entrepreneur must possess the following traits:
Entrepreneurial Traits can be explained with the help of following:

- Technical Knowledge
- Human Relations Ability
- Self Confidence
- Clear Objective
- Business Secrecy

Effective Communication
Decision Making
Risk Bearing
Mental Abilit

SELF-ASSESSMENT EXERCISES

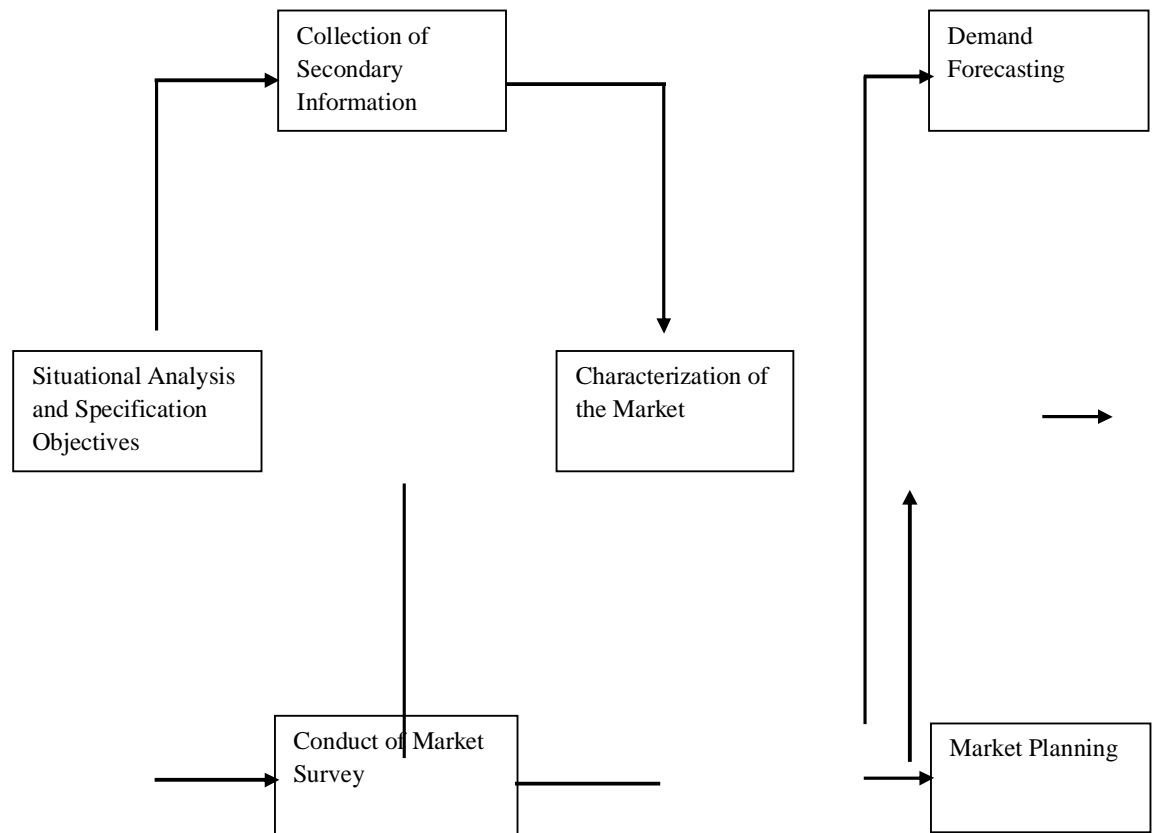
What are the considerations and guidelines helpful in the Generation and Screening of Project Ideas?

3.7 Market, Demand and Situational Analysis

In most cases, the first step in project analysis is to estimate the potential size of the market for the product proposed to be manufactured and get an idea about the market share that is likely to be captured. Put differently, market and demand analysis are concerned with two broad issues:

- (i) What is the likely aggregate demand for the product/service?
- (ii) What share of the market will the proposed project enjoy? Given the importance of market and demand analysis, it should be carried out in an orderly and systematic manner. The key steps involved in market and demand analysis are given below:
 1. Situational Analysis and Specification of Objectives
 3. Collection of Secondary Information
 3. Conduct of Market Survey
 4. Characterization of the market.
 5. Demand Forecasting
 6. Market Planning.

3.7.1 Key steps in Market and Demand Analysis and their Inter-relationships



1. Situational Analysis and specification of objectives:

In order to get a feel of the relationship between the product and its market, the project analyst may informally talk to customers, competitors, middlemen, and others in the industry. Wherever possible, he may look at the experience of the company to learn about the preferences and purchasing power of customers, actions and strategies of competitors, and practices of the middlemen. If such a situational analysis generates enough data to measure the market and get a reliable handle over projected demand and revenues, a formal study need not be carried out, particularly when cost and time considerations so suggest. Example: Suppose that a small but technologically competent firm has developed an improved air cooler based on a new principle that appears to offer several advantages over the conventional air cooler. The chief executive of the firm needs information about where and how to market the new air cooler. The objectives of the market and demand analysis in this case may be to answer the following questions:

- i. Who are the buyers of air coolers?
- ii. What is the total current demand for air cooler?
- iii. How is the demand distributed temporally (patter of sales over the year) and geographically?
- iv. What price will the customers be willing to pay for the improved air cooler? How can potential customers be convinced about the superiority of the new cooler?
- v. What are the prospects of immediate sales?

2. **Collection of Secondary Information:**

Secondary information is information that has been gathered in some other context and is already available. Primary information, on the other hand, represents information that is collected for the first time to meet the specific purpose on hand. Secondary information provides the base and the starting point for the market and demand analysis. The following are the sources of secondary information:

- (i) National Sample Survey Reports
- (ii) Economic Survey
- (iii) Annual survey of Industries
- (iv) The Stock Exchange Directory.
- (v) Monthly Bulletin of Reserve Bank of India
- (vi) Industry Potential Surveys

3. **Conduct of Market Survey:**

Secondary information, though useful, often does not provide a comprehensive basis for market and demand analysis. It needs to be ZAD COMPUTERS supplemented with primary information gathered through market survey. The information sought in a market survey may relate to one or more of the following:

- (i) Total demand and rate of growth of demand
- (ii) Demand in different segments of the markets.
- (iii) Income and price elasticities of demand
- (iv) Satisfaction with existing products
- (v) Unsatisfied needs
- (vi) Attitudes toward various products
- (vii) Motive for buying.

Steps in a Sample Survey: Typically, a sample survey consists of the following steps:

- (i) Define the Target Population
- (ii) Select the Sampling Scheme and Sample Size
- (iii) Develop the Questionnaire
- (iv) Recruit and Train the Field Investigators
- (v) Obtain information as per the questionnaire
- (vi) Scrutinize the Information gathered
- (vii) Analyse and Interpret the Information.

4. **Characterization of the Market:**

Based on the information gathered from secondary sources and through the market survey, the market for the product/service may be described in terms of the following:

- (i) Effective demand in the past and present.
- (ii) Breakdown of demand
- (iii) Price
- (iv) Method of distribution and sales promotion
- (v) Consumers
- (vi) Supply and competition
- (vii) Government policy

5. **Demand Forecasting:**

By gathering the information about various aspects of the market and demand from primary and secondary sources, an attempt may be made to estimate future demand. A wide range of forecasting methods is available to the market analyst. These may be classified in three categories:

- (i) **Qualitative Methods:** The important qualitative methods are:
 - a. Jury of execution method
 - b. Delphi Method
- (ii) **Time Series projection Methods:**
 - a. Trend Projection Methods
 - b. Moving Average Method
- (iii) **Causal Methods:**
 - a. Consumption level method
 - b. End use method

Uncertainties in Demand Forecasting: Demand forecasts are subject to error and uncertainty which arise from three principal sources:

- (i) Data about past and present market
- (ii) Methods of forecasting.
- (iii) Environmental Changes

6. **Market Planning:**

A marketing plan usually the following components:

- (i) **Current Marketing Situation:** This part of the marketing plan deals with the different dimensions of the current situation. It examines:
 - i. Market Situation
 - ii. Competitive Situation
 - iii. Distribution Situation
 - iv. Macro-Environment

- (ii) Opportunity and issue analysis: In this section a SWOT is conducted.
- (iii) Objectives: Objectives have to be clear-cut, specific and achievable.
- (iv) Marketing Strategy: The marketing strategy covers the following:
 - i. Target Market
 - ii. Positioning Product Line
 - iii. Price
 - iv. Distribution
 - v. Sales Promotion
 - vi. Advertising.
- (v) Action Programme: Action plan operationalize the strategy

SELF-ASSESSMENT EXERCISES 3

Explain Market, Demand and Situational Analysis.

3.8 Meaning/Concepts of Technical Analysis

Technical Analysis: Analysis of technical and engineering aspects is done continually when a project is examined and formulated. Other types of analyses are closely intertwined with technical analysis. The various steps included in technical analysis are:

1. Manufacturing Process/Technology
 2. Technical Arrangements
 3. Materials and inputs
 3. Product Mix
 4. Plant Capacity
 5. Location and site
 6. Machineries and equipment
 7. Structures and civil works
 8. Environmental aspects
 9. Project Charts and layouts
 10. Project implementation schedule
 11. Need for considering alternatives
1. Manufacturing Process/Technology (MPT): For manufacturing a product/service often two or more alternative technologies are available. For example:
Steel can be made either by the Bessemer process or the open-hearth process.
Cement can be made either by the dry process or the wet process
Soda can be made by the electrolysis method or the chemical method
Soap can be manufactured by the semi-boiled process or the fully boiled process.

MPT is classified under Choice of technology and Appropriateness of Technology.

Choice of Technology: The choice of technology is influenced by variety of considerations:

- (i) Plant capacity
- (ii) Principal Inputs
- (iii) Investment outlay and production cost
- (iv) Use by other Units
- (v) Product mix
- (vi) Latest Developments

Appropriateness of Technology: The technology should be evaluated in terms of the following questions

Whether the technology utilizes local raw materials?

Whether the technology utilizes local man power?

Whether the goods and services produced cater to the basic needs?

2. Technical Arrangements: Satisfactory arrangements must be made to obtain the technical know-hoe needed for the proposed manufacturing process. The following aspects of the agreements must be worked out:

Process and performance guarantees in terms of plant capacity. Product quality and consumption of raw materials and utilities.

The price of technology in terms of one-time licensing fee and periodic royalty fee.

Assignment of the agreement by either side in case of change of ownership

Termination of the agreement when either party fails to meet its obligation

3. Materials And Inputs: An important analysis of technical analysis is concerned with defining the materials and utilities required, specifying their properties in some details, and setting up their supply programme. Materials inputs and utilities may be classified into four broad categories:

- (i) Raw Materials: Raw materials may be classified into four types:

Agricultural Products

Mineral Products

Livestock and Forest Products

Marine Products

- (ii) Processed Industrial Materials and Components: It represents:
 - Semi-process materials
 - Manufactured parts, components and sub-assemblies
 - (iii) Auxiliary Materials and Factory Supplies: In addition to the basic raw materials and processed industrial materials and components, a manufacturing project requires various auxiliary materials and factory supplies like:
 - Chemicals
 - Packaging materials
 - Paint
 - Oils
 - Grease
 - Clearing materials etc.
 - (iv) Utilities: Utilities includes:
 - Power
 - Water
 - Steam
 - Fuel etc.
4. Product Mix: The choice of product mix is guided by market requirements. In the production of most of the items, variations in size and quality are aimed at satisfying a broad range of customers. For example, a garment manufacturer may have a wide range in terms of size and quality to cater to different customers. It may be noted that variation in quality can enable a company to expand its market and enjoy higher profitability.
5. Plant Capacity: Plant capacity refers to the volume or number of units that can be manufactured during a given period. Several factors have a bearing on the capacity decision. These are:
- (i) Technological Requirements
 - (ii) Input Constraints
 - (iii) Investment Cost
 - (iv) Market Conditions
 - (v) Resources of the firm
 - (vi) Governmental Policy
6. Location and Site: The choice of location and site follows an assessment of demand, size, and input requirement. Location refers to a fairly broad area like a city, an industrial zone' site refers to a specific piece of land where the project would be set up.

- (a) Choice of Location: The choice of location is influenced by a variety of considerations:
 - (i) Proximity to Raw Materials and Markets
 - (ii) Availability of Infrastructure
 - (iii) Labour Situation
 - (iv) Governmental Policies
 - (v) Other factors
 - (b) Site Selection: Once the broad location is chosen, attention needs to be focused on the selection of a specific site. Two to three alternative sites must be considered and evaluated with respect to cost of land and cost of site preparation and development. The cost of land tends to differ from one site to another in the same broad location. Sites close to a city cost more whereas sites away from the city cost less
7. **Machineries and Equipment:** The requirement of machineries and equipment is dependent on production technology and plant capacity. It is also influenced by the type of project. To determine the kinds of machinery and equipment required for a manufacturing industry, the following procedure may be followed:
- i. Estimate the likely levels of production over time.
 - ii. Define the various machining and other operations
 - iii. Calculate the machine hours required for each type of operations
 - iv. Select machineries and equipment required for each function
8. **Structures and Civil Works:** Structures and civil works may be divided into three categories:
- (i) Site Preparation and Development
 - (ii) Buildings and Structures
 - (iii) Outdoor Works
9. **Environmental aspects:** A project may cause environmental pollution in various ways:
- (i) It may cause noise
 - (ii) It may produce liquid and solid discharges

The key issues that need to be considered in this respect are:

What are the types of effluents and emissions generated?

What needs to be done for proper disposal of effluents and treatment of emissions?

Will the project be able to secure all environmental clearances and comply with all statutory requirements

Project Charts and Layout: Once data is available on the principal dimensions of the project, then project charts and layouts may be prepared. These define the scope of the project and provide the basis for detailed project engineering and estimation of the investment and production costs.

Types of Project Charts and Layouts:

- (i) General Functional Layout
- (ii) Material Flow Diagram
- (iii) Production Line Diagram
- (iv) Utility Consumption Layout
- (v) Communication Layout
- (vi) Organisational Layout
- (vii) Plant Layout

Schedule of Project Implementation: As part of the technical analysis, a project implementation schedule is also usually prepared. For preparing the project implementation schedule the following information is required:

- (i) List of all possible activities from project planning to commencement of production
- (ii) The sequence in which various activities have to be performed
- (iii) The time required for performing the various activities
- (iv) The resources normally required for performing the various activities
- (v) The implication of putting more resources or less resources than are normally required.

Need for considering Alternatives: The need for considering alternatives has been touched upon earlier. This point, however, needs to be emphasized. There are alternative ways of transforming an idea into a concrete project. These alternatives may differ in one or more of the following aspects:

- (i) Nature of Project
- (ii) Production process
- (iii) Product Quality
- (iv) Scale of operation and time phasing
- (v) Location

3.9 Meaning /Concept of Financial Analysis

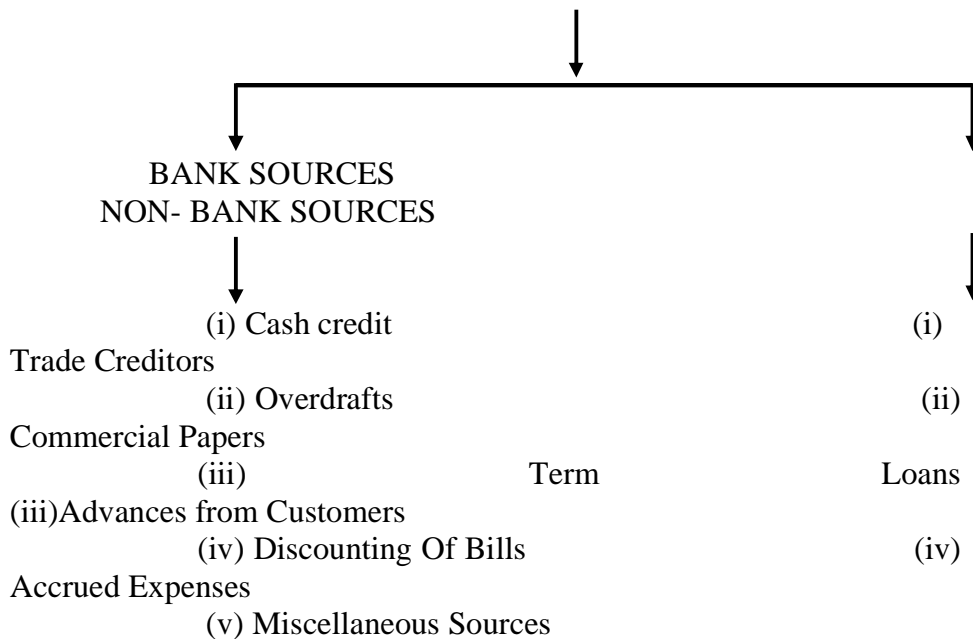
Financial Analysis discuss the estimates and projections required for financial appraisal. Financial Analysis includes eight factors as follows:

1. Cost of Project
2. Means of Financing
3. Estimates of Sales and Production

4. Cost of Production
 5. Working Capital Requirements and its financing
 6. Projected Profitability Statements
 7. Projected Cash Flow Statements
 8. Projected Balance Sheets
1. Cost of Project: - Conceptually, the cost of project represents the total of all items of outlay associated with a project which are supported by long-term funds. It is the sum of the outlays on the following:
 - (i) Land and Site Development
 - (ii) Buildings and Civil Works
 - (iii) Plant & Machinery
 - (iv) Technical know-how and engineering fees
 - (v) Expenses on foreign technicians and training of Indian technicians
 - (vi) Pre-operative expenses
 - (vii) Miscellaneous Fixed Assets
 - (viii) Preliminary Expenses
 - (ix) Margin money for working capital
 2. Means of Finance: To meet the cost of project the following means of finance are available:
 - (i) Debt: Debt means long term loans and includes:
 - Debentures
 - Loan from Bank
 - Loan from Financial Institutions
 - Mortgage Loans
 - (ii) Equity: Equity refers to shareholder's funds and includes:
 - Equity Share Capital
 - Preference Share Capital
 - Reserve
 - Accumulated Profits
 3. Estimates of Sales and Production: The starting point for profitability projections is the forecast of sales revenues. The following considerations should be borne in mind:
 - (i) It is not advisable to assume a high- capacity utilization level in the first year of operation.
 - (ii) It is not necessary to make adjustments for stocks of finished goods. For practical purposes, it may be assumed that production would be equal to sales.
 - (iii) The selling price considered should be the price realizable by the company net of excise duty.

- (iv) The selling price used may be the present selling price-it is generally assumed that changes in selling price will be matched by proportionate changes in cost of production.
- 4. Cost of Production: The major components of cost of production are:
 - (i) Material Cost
 - (ii) Utilities Cost
 - (iii) Labour Cost
 - (iv) Factory Overhead Cos
- 5. Working Capital Requirements and its Financing: In estimating the working capital requirements and planning for its financing, the following points have to be born in mind:
 - (i) The working capital requirement consists of the following:
 - a. Raw Materials
 - b. Stock of work-in-process
 - c. Stock of finished goods
 - d. Debtors
 - (ii) The sources of working capital finance are:

SHORT-TERM SOURCE OF FINANCE



- 6. Projected Profitability Statements: Given the estimates of sales revenues and cost of production, the next step is to prepare the profitability projections or estimates of working results. The estimates of working results may be prepared along the following lines:

- (i) Cost of Production
- (ii) Total Administration Expenses
- (iii) Total Sales expenses
- (iv) Depreciation
- (v) Total Cost of production ((i) + (ii) + (iii) + (iv))
- (vi) Expected Sales
- (vii) Operating Profit((vi)-(v))
- (viii) Other Income
- (ix) Preliminary Expenses write off
- (x) Profit/loss before taxation((vii) + (viii) -(ix))
- (xi) Provision for Taxation
- (xii) Profit By Tax ((x)-(xi)) Less: Dividend on
 - Equity Capital
 - Preference Capita

7. Projected Cash Flow Statements: The cash flow statement shows the movement of cash into and out of the firm and its net impact on the cash balance within the firm. In this statement sources of funds and applications of funds are calculated and then surplus or deficits are found out.

SELF-ASSESSMENT EXERCISES 3

Explain Technical Analysis and its Concepts

<p>Sources of Funds:</p> <ol style="list-style-type: none"> 1. Share Issue 2. Profit before taxation with interest added back 3. Depreciation provision for the year 4. Increase in secured medium and long-term borrowing for the project 5. Increase in unsecured loans and deposits 6. Increase in bank borrowings for working capital 7. Sale of Fixed Assets 8. Sale of Investments 9. Other Income <p>Total (A)</p> <p>Disposition of Funds:</p> <ol style="list-style-type: none"> 1. Capital expenditure for the project 2. Increase in working capital 3. Decrease in secured medium and long-term borrowing for the project 4. Decrease in unsecured loans and deposits 5. Decrease in bank borrowings for working capital 6. Interest on term loans 7. Taxation 8. Dividends- <ul style="list-style-type: none"> -Equity -Preference 9. Other expenditure <p>Total (B)</p> <p>Opening balance of cash in hand and at bank</p> <p>Net Surplus/Deficit (A-B)</p> <p>Closing balance of cash in hand and at bank</p>

CASH FLOW STATEMENT

8. **Projected Balance Sheet:** The balance sheet, showing the balance in various asset and liability accounts, reflects the financial condition of the firm at a given point of time. The format of a balance sheet is given below

Liabilities	Assets
Share Capital	Fixed Assets
Reserve & Surplus	Investments
Secured Loans	Current Assets, loans and
advance Unsecured Loans	Miscellaneous
expenditures	
Current Liabilities and Provision	

SELF-ASSESSMENT EXERCISES

Define Financial Analysis.



3.10 Summary

This unit discussed how e-governance are defined. As we can see, e-governance is more than just a government on the website. The strategies of e-governance can enable government and citizens to engage and partner with each other and other stakeholders. We also discussed the objectives of e-governance as well as the types of service delivery in e-governance. Subsequent units will discuss some other aspects of e-governance.



3.11 References/Further Readings/Web Resources

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3.12 Possible Answers to SAEs

These are the answers to the SAEs within the content. Arrange the answers in accordance with the way the SAEs appear in the content. For example

Answers to SAEs 3

The e-Governance has become an accepted methodology involving the use of Information Technology in improving transparency, providing information speedily to all citizens, improving administration efficiency, improving public services such as transportation, power, health, water,

security and municipal services. Governance has always been dependent upon technology, in the broadest sense of knowledge, skills, techniques and epistemological strategies, as well as devices, hardware, software and power circuits

Answers to SAEs 3

E-governance is the public sector's use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective.

The principles of e-governance are to:

- To ensure greater efficiency, objectivity, accountability and speed in providing services and information to the public;
- To provide qualitative and cost-effective services;
- To provide a single window for all government services;
- To evolve responsive administration;
- To provide a friendly, speedier and efficient interface;

Answers to SAEs 3

Service Delivery in e-governance

G3C (Government-to-Citizens):

G3B (Government-to-Business):

G3G (Government-to-Government):

Domains of e-governance

There are three main domains of e-governance:

E-administration: improving government processes

E-services: connecting individual citizens with their government

E-society: building interactions with and within civil society.

UNIT 4 PROJECT PLANNING, ANALYSIS AND MANAGEMENT

Unit Structure

- 4.1 Introduction
- 4.2 Learning Outcomes
- 4.3 Project Management and its various aspects
 - 4.3.1 What is Project Management?
 - 4.3.2 Components of Project Management
- 4.3 Forms of Project Organisation
- 4.4 Forms of Project Organization
- 4.5 Human Aspect of Project Management
- 4.6 Pre-requisite for Successful Project Implementation
- 4.7 Concept of Project Review and Administrative Aspects
- 4.8 Summary
- 4.7 References/Further Readings/Web Resources
- 4.8 Possible Answers to SAEs



4.1 Introduction

When investment projects are considered individually, any of the discounted cash flow technique may be applied for obtaining a correct accept or reject criteria. In an existing organisation, however, capital investment projects often cannot be considered individually or in isolation. This is because the pre-conditions for viewing projects individually- project independence, lack of capital rationing, and project divisibility are rarely, if ever, fulfilled. Under the constraints obtained in the real world, the so-called rational criteria per se may not necessarily signal the correct decision.



4.2 Learning Outcomes

By end of this lesson, you should be able to:

- Project Management and its various aspects
- What is Project Management?
- Components of Project Management
- Forms of Project Organisation
- Forms of Project Organization
- Human Aspect of Project Management
- Pre-requisite for Successful Project Implementation
- Concept of Project Review and Administrative Aspects



4.3 Project Management and its various aspects

4.3.1 What is Project Management?

Project management is the process of leading the work of a team to achieve all project goals within the given constraints. This information is usually described in project documentation, created at the beginning of the development process (Zakari, 2019). The primary constraints are scope, time, and budget. The secondary challenge is to optimize the allocation of necessary inputs and apply them to meet pre-defined objectives.

The objective of project management is to produce a complete project which complies with the client's objectives. In many cases, the objective of project management is also to shape or reform the client's brief to feasibly address the client's objectives. Once the client's objectives are clearly established, they should influence all decisions made by other people involved in the project – for example, project managers, designers, contractors, and sub-contractors (Zakari, Ibeme, & Lugurd, 2023). Ill-defined or too tightly prescribed project management objectives are detrimental to decision making

Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. It involves the planning, initiation, execution, monitoring, controlling, and closing of a project to achieve specific objectives within defined constraints, such as time, cost, and resources (PMI, 2021). It enables organizations to meet goals, enhance productivity, and achieve results in an organized and structured manner.

4.3.2 Components of Project Management

1. Project Initiation

Project initiation involves the identification of a project and its objectives, establishing feasibility, and defining the scope. During this phase, a project charter is created to formally authorize the project and outline its goals and deliverables (Larson & Gray, 2020).

2. Project Planning

Planning is a critical phase where the project's roadmap is established. This phase includes defining project goals, creating schedules, identifying resources, budgeting, risk assessment, and developing a communication plan. Effective planning ensures alignment with stakeholder expectations (Kerzner, 2019).

3. **Project Execution**

Execution involves coordinating people and resources, managing stakeholder expectations, and ensuring that project tasks are carried out according to the project plan. This phase focuses on task completion and ensuring that project objectives are met efficiently (Lewis, 2018).

4. **Project Monitoring and Controlling**

This component involves tracking project progress and performance to ensure that it remains within scope, time, and budget constraints. Techniques such as performance reviews, variance analysis, and earned value management are used to measure progress and make necessary adjustments (Turner, 2020).

5. **Project Closing**

The closing phase signifies the formal completion of the project. It involves finalizing all activities, obtaining stakeholder approval, and releasing resources. A post-project review is also conducted to evaluate the project's success and document lessons learned for future projects (PMI, 2021).

SELF-ASSESSMENT EXERCISE 1

Highlight the Components of Project Management
--

4.4 Forms of Project Organisation

Project organisation refers to the structural setup used to manage projects within an organisation. The choice of project organisation structure depends on the complexity, duration, and resource needs of the project. The most common forms of project organisation are:

Functional Organisation: This structure groups people based on their specialisations. Each department (e.g., marketing, finance) focuses on its area of expertise. Project managers have limited authority, and decisions flow through department heads.

Matrix Organisation: Combines features of both functional and project-based structures. Employees report to both a functional manager and a project manager. There are two types:

Weak Matrix: The project manager has limited control, and functional managers hold more authority.

Strong Matrix: The project manager has greater authority over resources and decision-making.

Projectised Organisation: In this structure, teams are formed exclusively for the project, with a project manager who has full control over resources and decision-making. Once the project is completed, the team disbands.

Composite Organisation: This is a hybrid structure that incorporates features from functional, matrix, and projectised organisations, depending on the needs of the project and organisational objectives.

Project Management Sections

According to Zakari, Ibeme, and Lugurd (2023), project management can be divided into the following five sections:

1. Project Planning

Project planning involves defining the project's scope, goals, and deliverables. It includes scheduling activities, allocating resources, and identifying risks. A detailed project plan guides the team through execution and ensures that timelines, budgets, and objectives are met. Effective planning also requires forecasting challenges and developing strategies to address them.

2. Project Control

Project control focuses on monitoring project progress against the baseline plan. It involves tracking key performance indicators (KPIs), managing risks, and implementing corrective actions when deviations occur. Tools such as Gantt charts and Earned Value Management (EVM) are used to assess whether the project is on schedule, within budget, and meeting its quality standards. This section ensures project accountability and transparency.

3. Human Aspects of Project Management

This section highlights the importance of interpersonal skills in managing teams. It includes leadership, communication, conflict resolution, motivation, and team building. Managing the human aspects effectively is crucial to ensuring team collaboration, maintaining morale, and addressing any personnel challenges that may arise. It also involves stakeholder management and ensuring effective communication across all levels.

4. Pre-requisites for Successful Project Implementation

Several factors are essential for successful project implementation. These include clear objectives, adequate resources, stakeholder involvement, effective leadership, and risk management. Zakari et al. (2023) emphasized that projects are

more likely to succeed when these pre-requisites are met, and there is a proper alignment between organisational goals and project outcomes.

The forms of project organisation (functional, matrix, projectised, and composite) offer flexibility for managing various types of projects based on their complexity and resource requirements. Zakari, Ibeme, and Lugurd (2023) divided project management into five critical sections, highlighting that project success relies heavily on proper planning, control, human resource management, and fulfilling essential prerequisites for project execution. Each of these components plays a vital role in ensuring that a project is delivered on time, within budget, and meets stakeholder expectations.

Project management structures and processes are vital to the success of any project. The choice of project organisation and careful attention to planning, control, and human resources significantly impact outcomes. As Zakari, Ibeme, and Lugurd (2023) note, aligning project goals with organisational objectives and ensuring adequate resources are fundamental for successful project implementation.

4.5 Forms of Project Organization

The traditional form of organization is not suitable for project work. Hence there is a need for entrusting an individual with the responsibility for integrating the activities and functions of the various departments and external organizations involved in the project work. Such an individual may be called the project manager or project coordinator.

Depending on the authority that is given to the person responsible for the project, the project organization may take one of the following three forms:

- i. Line and Staff Organization
- ii. Divisional Organization
- iii. Matrix Organization.

1. Project Planning:

Projects involving few activities, resources, constraints and inter-relationships can be visualized easily by the human mind and planned informally.

a. Functions of Planning:

- i. It provides a basis for organizing the work on the project and allocating responsibilities to individuals.

- ii. It is a means of communication and coordination between all those involved in the project.
- iii. It induces people to look ahead.
- iv. It establishes the basis for monitoring and control.

b. Areas of Planning:

Comprehensive project planning covers the following:

- i. Planning the project work
- ii. Planning the manpower and organization
- iii. Planning the money
- iv. Planning the information system

2. Project Control:

No sooner is the project launched; control becomes the dominant concern of the project manager. Project control involves a regular comparison of performance against targets, a search for the causes of deviation, and a commitment of check adverse variances. It serves two major functions:

- (i) It ensures regular monitoring of performance
- (ii) It motivates project personnel to strive for achieving project objectives.

3. Human Aspects of Project Management:

A satisfactory human relations system is essential for the successful execution of a project. Without such a system, the other systems of project management, however sound they may be by themselves, are not likely to work well. To achieve satisfactory human relations in the project setting, the project manager must successfully handle problems and challenges relating to:

- i. Authority Orientation
- ii. Motivation
- iii. Group Functioning.

4. Pre-requisite for successful project implementation:

The pre-requisite are:

- i. Adequate Formulation
- ii. Sound Project Organisation
- iii. Proper Implementation planning
- iv. Advance action
- v. Time availability of funds
- vi. Better contract management
- vii. Effective monitoring (Zakari, Ibeme, & Lugurd, 2023).

SELF-ASSESSMENT EXERCISES 2

Q1 What do you mean by Project Management? Explain its various aspects

4.6 Human Aspect of Project Management

A satisfactory human relations system is essential for the successful execution of a project. Without such a system, the other systems of project management, however sound they may be by themselves, are not likely to work well. To achieve satisfactory human relations in the project setting, the project manager must successfully handle problems and challenges relating to:

1. Authority
2. Orientation
3. Motivation
4. Group Functioning.

1. Authority:

Since the project manager works largely with professionals and supervisory personnel, the basis of the authority would be different from that found in simple superior-subordinate relationships.

2. Orientation:

Most of the managers working for a project are usually engineers. Typically, an engineer:

- i. Works with physical laws
- ii. Adopts a structured, mechanical approach to his problems.
- iii. Seeks an enduring solution to his problem.
- iv. When an engineer assumes managerial responsibilities, he faces a very different world in which he is supposed to:
- v. Perform the task of planning, organizing, directing and controlling the resources of the firm in a world of uncertainty.
- vi. Attach greater importance to efficient utilization of resources.
- vii. Thus, the project manager has to strengthen the managerial orientation of project personnel so that the project goals and objectives can be efficiently achieved within the constraints of time and budget.

3. Motivation:

The principal behavioural factor which he can influence is the motivation of the project personnel. In this context, he should bear in mind the following:

Human beings are motivated by a variety of needs:

- (i) Physiological needs
- (ii) Social needs
- (iii) Self-actualization needs

4. **Group Functioning:**

In a large complex project, many persons drawn different functions, departments and organizations are involved. This leads to formulation of groups, formal and informal. The group formed in a project setting may be of three types:

- i. **Vertical Group:** A vertical group consists of people drawn from different levels in the same department, or function, or company.
- ii. **Horizontal Group:** A horizontal group consists of people drawn from different functions, departments, and companies but occupying similar hierarchical positions.
- iii. **Mixed Group:** A mixed group consists of people drawn from different levels from various functions, departments, and companies

SELF-ASSESSMENT EXERCISES 3

What are the Human Aspects of Project Management?

4.7 Pre-requisite for Successful Project Implementation

The pre-requisite for successful implementation of the project are:

1. **Adequate Formulation:** Often project formulation is deficient because of one or more of the following shortcomings:
 - i. Superficial field investigation
 - ii. Slipshod methods used for estimating costs and benefits
 - iii. Omission of project linkages.
 - iv. Undue hurry to get started
 - v. Deliberate over-estimation of benefits and under-estimation of costs.

2. **Sound Project Organization:** A sound project organization for implementing the project is critical to its success. The characteristics of such an organization are:
 - i. Adequate attention is paid to the Human side of the project.
 - ii. Systems and methods are clearly defined.
 - iii. Rewards and penalties to individual are related to performance.

3. **Proper Implementation Planning:** Once the investment decision is taken-and often even while the formulation and appraisal are being done- it is necessary to do detailed implementation planning before commencing the actual implementation.
4. **Advance Action:** When the project appears prima facie to be viable and desirable, advance action on the following activities may be initiated:
 - i. Acquisition of Land
 - ii. Securing essential clearances
 - iii. Identifying technical consultants
 - iv. Arranging for infrastructural facilities
 - v. Preliminary design and engineering
 - vi. Calling of tenders
5. **Timely Availability of Funds:** Once a project is approved, adequate funds must be made available to meet its requirements as per the plan of implementation-it would be highly desirable if funds are provided even before the final approval to initiate advance action.
6. **Better Contract Management:** The proper management of contracts is critical to the successful implementation of the project. In this context, the following should be done:
 - a. The capability of all the contractors must be ensured.
 - b. Penalties which may be graduated must be imposed for failure to meet contractual obligations. Likewise, incentives may be offered for good performance.
 - c. Help should be extended to contractors and suppliers when they have genuine problems.
7. **Effective Monitoring:** In order to keep a tab on the progress of the project, system of monitoring must be established. This help in:
 - i. Anticipating deviations from the implementation plan.
 - ii. Analysing emerging problems
 - iii. Taking corrective action

SELF-ASSESSMENT EXERCISES 4

What are the Pre-Requisites for successful project implementation?
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4.8 Concept of Project Review and Administrative Aspects

(A) **Project Review:** A project is monitored during the implementation phase so that time and cost over runs are minimized. Further, by a commissioned its performance is periodically reviewed to see whether its performance has been in line with expectations. It is divided into two sections:

- (1) Control of In-Progress Projects
- (2) Post-Completion Audits

(1) **Control of In-Progress Projects:** Though a lot of effort is expended in selecting capital projects, things often go wrong in the implementation phase. There are two aspects of controlling in-progress capital projects:

Establishment of Internal Control Procedure: For every in-progress capital project, proper control accounts are set-up. These are charged with all relevant expenditure, which are further classified into capital and revenue items.

Use of Regular progress Reports: Periodic progress reports compare actual expenditures against estimates. They offer several benefits:

They provide timely information so that corrective action can be initiated to tackle potential problems

They serve as the basis for calculating variances and explaining variances.

(2) **Post- Completion Audits:** as audit of a project by it has been commissioned is referred to as a post-audit or a post-completion audit. Regular post-completion audits of capital projects:

Enable the firm in identifying individuals with superior abilities in planning and forecasting.

Help in discovering systematic biases in judgment. It is a common practice to use ROI for evaluating existing businesses and projects on a continuing basis.

$$\text{ROI} = \frac{\text{Net Income}}{\text{Book Value of Assets}}$$

(B) **Administrative Aspects:** The discussion on administrative aspects has been organized as follows:

- (1) Identification of promising investment opportunities: For identifying promising investment opportunities the following points should be borne in mind:

Monitor changes in market demand, source of supply, profitability, competition, government policies, economic conditions, and technological developments.

Formulate long range plans on analysis of opportunities and threats in the environment and assessment of internal strength, weaknesses.

Communicate long range plans and corporate perspectives to all persons who are likely to be involved.

Encourage employees to make suggestions and reward them suitable for valuable suggestions

- (2) Classification of Investment: The classification of capital expenditure proposals refers to the grouping of similar proposals into separate categories. These are:
- (i) Replacement Investments: These represent capital expenditure for the replacement of existing fixed assets.
 - (ii) Modernization Investments: This comprises capital expenditure for improving productivity, increasing efficiency, reducing costs.
 - (iii) Expansion Investments: These represent capital expenditure for increasing capacity
 - (iv) New Product Investments: These represent capital expenditure to manufacture new products
- (3) Submission of Proposals: To ensure that all relevant information for proposals is gathered systematically, standardized proposal form may be used by all the sponsors of investment projects.
- (4) Decision-Making: It may be argued that the optimal capital budget for the firm as a whole can be drawn up only when capital investment decisions are completely centralized. This, however, is not desirable in most cases because some decentralization is required to facilitate quick decisions, develop executives.
- (5) Preparation of Capital Budget And Appropriation: The capital expenditure budget is based on a careful review of various factors. Changes in circumstances may warrant changes in the budget. This is perhaps the reason why a final sanction is required before actual expenditure in many companies. The

coordination of the capital expenditure budget should preferably be done by a financial officer of the firm.

- (6) Implementation: For implementing the project following points are helpful:
- (i) Adequate formulation of projects
 - (ii) Use of the principle of responsibility Accounting
 - (iii) Exercise of proper control.
- (7) Performance Review: Performance review is meant for evaluating actual performance with projected performance. It is concerned with the verification of assumptions regarding both revenues and costs.

SELF-ASSESSMENT EXERCISES 2

Write a short note on the following:

- (A) Project Review
- (B) Administrative Aspects



4.8 Summary

In conclusion, project management is a comprehensive process divided into five critical sections: forms of project organization, project planning, project control, human aspects of project management, and pre-requisites for successful project implementation (Zakari, Ibeme, & Lugurd, 2023). The forms of project organization provide structure for managing projects, while project planning involves outlining goals, schedules, and resources necessary for successful execution. The planning functions include establishing a framework for key areas such as time, cost, and quality management. Project control ensures that the project stays on track through monitoring and adjustment mechanisms. Additionally, the human aspects of project management emphasize the importance of leadership, communication, and team dynamics in driving project success. Finally, specific pre-requisites, such as clear objectives, resource allocation, and stakeholder alignment, are crucial for the successful implementation of any project.

Effective project management provides organizations with the ability to deliver projects on time, within budget, and to the satisfaction of stakeholders. By adhering to project management principles and focusing on its core components, organizations can achieve significant results, enhance productivity, and improve overall efficiency.

Project management ensures the successful delivery of projects by systematically coordinating resources and activities within the constraints of time, cost, and scope. Each component—from initiation to closing—plays a critical role in guiding the project through its lifecycle. While project initiation defines the project's feasibility and objectives, planning ensures a roadmap, execution carries out the planned tasks, monitoring controls deviations, and the closing finalizes the project outcomes.



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4.10 Possible Answers to SAEs

Answers to SAEs 1

Components of Project Management

Project initiation identifies objectives and scope, followed by project planning, which establishes schedules, budgets, and communication strategies. Execution ensures task completion and stakeholder alignment. Monitoring and controlling track progress and manage adjustments. Finally, project closing finalizes activities, secures approval, and reviews lessons learned for future improvements (Larson & Gray, 2020; PMI, 2021).

Answers to SAEs 2

What do you mean by Project Management? Explain its various aspects

The traditional organizational structure is often inadequate for managing project work, necessitating the assignment of a project manager or coordinator to oversee and integrate the activities across departments and external entities. Project organization can take one of three forms: Line and Staff Organization, Divisional Organization, or Matrix Organization. Effective project planning and control are critical components. Planning ensures coordination, establishes responsibilities, and sets the foundation for monitoring and control across areas like manpower, budgeting, and information systems. Once a project begins, control focuses on comparing performance against set targets and addressing deviations. The human aspect of project management is also crucial, as effective authority orientation, motivation, and group functioning are essential for success. Prerequisites for successful project implementation include clear formulation, sound organization, proper planning, timely availability of funds, and efficient contract management. These elements collectively ensure the successful execution of project objectives.

Answers to SAEs 3

What are the Human Aspects of Project Management?

The human aspect of project management emphasizes the importance of a well-functioning human relations system for successful project execution. Project managers must address challenges related to authority, orientation, motivation, and group functioning. Authority in project management often involves leading professionals, requiring a different approach from traditional superior-subordinate dynamics. Orientation is crucial since many project personnel are engineers, who must adapt from technical problem-solving to managerial tasks like planning and resource management in uncertain environments.

Motivation plays a key role, with managers needing to address physiological, social, and self-actualization needs of their teams. Group functioning is also significant in large projects, as various teams from different departments or organizations collaborate, forming vertical, horizontal, or mixed groups. Effective group dynamics enhance communication and coordination, contributing to the achievement of project goals.

Answers to SAEs 4

Pre-requisite for Successful Project Implementation

The successful implementation of a project requires several critical pre-requisites. Adequate formulation is essential, often undermined by superficial investigations, inaccurate cost-benefit estimates, and haste. A sound project organization is key, emphasizing clear systems, performance-based rewards and penalties, and attention to human factors. Proper implementation planning should occur before actual execution, focusing on detailed strategies. Advance action, including land acquisition, securing clearances, and engaging consultants, must be initiated early when the project shows viability. Timely availability of funds is crucial, ensuring financial resources align with the project's schedule. Effective contract management, including evaluating contractors' capabilities and establishing performance incentives or penalties, plays a critical role in meeting obligations. Lastly, effective monitoring systems are needed to track progress, identify deviations, and resolve issues early, ensuring the project stays on course.

UNIT 5 MULTIPLE PROJECTS AND CONSTRAINTS

Unit Structure

- 5.1 Introduction
- 5.2 Learning Outcomes
- 5.2 Constraints
- 5.3 Method of ranking
- 5.4 Mathematical programming approach
- 5.5 Linear programming model
- 5.6 Summary
- 5.7 References and Further Readings
- 5.8 Answer to Self- assessment questions



5.1 Introduction

When investment projects are considered individually, any of the discounted cash flow technique may be applied for obtaining a correct accept or reject criteria. In an existing organisation, however, capital investment projects often cannot be considered individually or in isolation. This is because the pre-conditions for viewing projects individually- project independence, lack of capital rationing, and project divisibility are rarely, if ever, fulfilled. Under the constraints obtained in the real world, the so-called rational criteria per se may not necessarily signal the correct decision.



5.2 Learning Outcomes

By end of this lesson, you should be able to a) Understand the constraints in the selection of new projects. b) Explain the techniques of mathematical programming that may be applied in project management



5.3 Constraints

Project Dependence:

Project A and B are economically dependent if the acceptance or rejection of one change the cash flow stream of the other or affects the acceptance or rejection of the other. The most conspicuous kind of economic dependency occurs when projects are mutually exclusive. If two or more projects are mutually exclusive, acceptance of any one project out of the set of mutually exclusive project automatically precludes the acceptance of all other projects in the set. From an

economic point of view, mutually exclusive projects are substitutes for each other. For example, the alternative possible uses of a building represent a set of mutually exclusive projects. Clearly if the building is put to one use, it cannot be put to any other use.

Economic dependency also exists when projects, even though not mutually exclusive, negatively influence each other's cash flows if they are accepted together. Bierman and Smidt have given an excellent illustration of this kind of economic dependency: a project for building a toll bridge and a project for operating a toll ferry. These two projects are such that when they are undertaken together, the revenues of one will be negatively influenced by the other.

Further, the projects are said to have positive when there is complementarity between projects. If undertaking a project influence favourably the cash flows of another project, the two projects are complementary projects. Complementarity may be of two types: asymmetric complementarity and symmetric complementarity. In asymmetric complementarity, the favourable effect extends only in one direction.

Capital Rationing: Capital rationing exists when funds available for investment are inadequate to undertake all projects which are otherwise acceptable. Capital rationing may arise because of an internal limitation or an external constraint. Internal capital rationing is caused by a decision taken by the management to set a limit to its capital 3 expenditure outlays; or, it may be caused by a choice of hurdle rate higher than the cost of capital of the firm. Internal capital rationing, in either case, results in rejection of some investment projects which otherwise are acceptable. External capital rationing arises out of the inability of the firm to raise sufficient amounts of funds at a given cost of capital. In a perfect market, a firm can obtain all its funds requirement at a given cost of capital. In the real world, however, the firm can raise only a limited amount of funds at a given cost of capital. Beyond a certain point, the cost of capital tends to increase.

Project Indivisibility: Capital projects are considered indivisible, i.e. a capital project has to be accepted or rejected in toto - a project cannot be accepted partially. Given the indivisibility of capital projects and the existence of capital rationing, the need arises for comparing projects. To illustrate this point, consider an example. A firm is evaluating three projects A, B, and C which involve an outlays of ₦0.5 million, ₦ 0.4 million, and ₦ 0.3 million respectively. The net present value of these projects are ₦. 0.2 million, ₦ 0.25 million, ₦ 0.2 million respectively. The funds available to the firm for investment are ₦ 0.7 million. In this situation, acceptance of project A (project with the highest net present

value) which yields a net present value of ₦ 0.2 million results in the rejection of projects B and C which together yield a combined net present value of ₦ 0.25 million. Hence, because of the indivisibility of projects, there is a need for the comparison of projects before the acceptance/rejection decisions are taken.



5.3 Method of Ranking

Two approaches are available for determining which project to accept and which projects to reject (i) the method of ranking, and (ii) the method of mathematical programming. This section discusses the method of ranking; the following section discusses the method of mathematical programming. The method of ranking consists of two steps:

- (i) Rank all projects in a decreasing order according to their individual NPV's, IRR's or BCR's.
- (ii) Accept project in that order until the capital budget is exhausted.

The method of ranking, originally proposed by Joel Dean is seriously impaired by two problems:

- (i) conflict in ranking as per discounted cash flow criteria, and
- (ii) project indivisibility

Conflict in Ranking:

In a given set of projects, preference ranking tends to differ from one criterion to another. For example, NPV and IRR criteria may yield different preference rankings. Likewise, there may be a discrepancy between the preference rankings of NPV and BCR (benefit cost ratio) criteria. When preference rankings differ, the set of projects selected as per one criterion tends to differ from the set of projects selected as per some other criterion. This may be illustrated by an example. Consider a set of five projects, A, B, C, D, and E, for which the investment outlay, expected annual cash flow, and project life are as shown below:

Project Project Life	Investment Outlay ₦	Expected Annual Cash Flow ₦
Years		
A 22	20,000	4,000
B 4	25,000	20,000
C 20	30,000	6,000
D 26	38,000	22,000
E 9	35,000	22,000

The NPV, IRR and BCR for the five projects and the ranking along these dimensions are shown in Exhibit 5.2

Exhibit 5.2 NPV, IRR and BCR for the Five Projects

Project BCR Ranking	NPV (₦)	NPV Ranking	IRR (%)	IRR Ranking	BCR Ranking
A 2	24,776	4	39	2	2.48
B 5	5,370	5	22	4	2.22
C 4	24,824	3	29	5	2.49
D 2	45,688	2	30	2	2.20
E 3	28,936	2	29	3	2.83

It is clear that in the above case the three criteria rank the projects differently. If there is no capital rationing, all the projects would be accepted under all the three criteria though internal ranking may differ across criteria. However, if the funds available are limited, the set of projects accepted would depend on the criterion adopted. What causes ranking conflicts? Ranking conflicts are traceable to differing assumptions made about the rate of return at which intermediate cash flows are re-invested.

Project Indivisibility

A problem in choosing the capital budget on the basis of individual ranking arises because of indivisibility of capital expenditure projects. To illustrate, consider the following set of projects (ranked according to their NPV) being evaluated by a firm which has a capital budget constraint of ₦2,500, 000.

Project	Outlay	NPV
	₦	₦
A	2,500,000	400,000
B	2,000,000	350,000
C	800,000	300,000
D	700,000	300,000
E	600,000	250,000

If the selection is based on individual NPV ranking, projects A and B would be included in the capital budget- these projects exhaust the capital budget. A cursory examination, however, would suggest that it is more desirable to select projects B, C, and D. These three projects can be accommodated within the capital budget of ₦2,500,000, and have a combined NPV of ₦850,000, which is greater than the combined NPV of projects A and B.

Feasible Combinations Approach:

The above example suggests that the following procedure may be used for selecting the set of investments under capital rationing.

2. Define all combinations of projects which are feasible, given the capital budget restriction and project interdependencies.

2. Choose the feasible combination that has the highest NPV. To illustrate this procedure, consider the following projects that are being evaluated by a firm which has a capital budget constraint of ₦3,000,000.

Project	Outlay	NPV
	₦	₦
A	2,800,000	750,000
B	2,500,000	600,000
C	2,200,000	500,000
D	750,000	360,000
E	600,000	300,000

Projects B and C are mutually exclusive. Other projects are independent
Given the above information the feasible combinations and their NPV
are shown below:

Feasible NPV Combination	Outlay
	₦
A	2,800,000
750,000	
B	2,500,000
600,000	
C	2,200,000
500,000	
D	750,000
360,000	
E	600,000
300,000	
A and C	3,000,000
2,250,000	
A and D	2,550,000
2,220,000	
A and E	2,400,000
2,050,000	
B and D	2,250,000
960,000	
B and E	2,200,000
900,000	
C and D	2,900,000
860,000	
C and E	2,800,000
800,000	
B, D and E	2,850,000
2,260,000	
C, D and E	2,550,000
260,000	2,

MODEULE 4

Unit 1	Introduction to Public Project Management
Unit 2	Public Project Management: Key aspects and Methodologies
Unit 3	Social Cost Benefit Analysis (SCBA)
Unit 4	Project Planning, Analysis and Management

UNIT 1 INTRODUCTION TO PUBLIC PROJECT MANAGEMENT

Unit Structure

- 1.1 Introduction
- 1.2 Learning Outcomes
- 1.3 Background to Public project Management
- 1.4 The Importance of Public Project Management
- 1.5 The role of Public Project Management in resources Allocation
- 1.6 Optimizing Resource Allocation for Government Initiatives
- 1.7 References/Further Readings/Web Resources Contents
- 1.8 Possible Answers to SAEs



1.1 Introduction

This unit will cover the background of Public Project Management, exploring its significance in managing public resources efficiently. It will also highlight the importance of Public Project Management in ensuring the successful implementation of government initiatives. The role of Public Project Management in resource allocation will be examined, focusing on how it optimizes the distribution of limited resources to achieve governmental objectives and drive the success of public sector projects.



1.2 Learning Outcomes

By the end of this unit, you should be able to:

- Background to Public project Management
- The Importance of Public Project Management
- The role of Public Project Management in resources Allocation
- Optimizing Resource Allocation for Government Initiatives



1.3 Background to Public project Management

Public project management plays a crucial role in ensuring the effective implementation and evaluation of government activities. As public needs evolve over time, the importance of project management in government activities becomes more apparent. One of its central functions is decision-making, which directs these activities toward improving the conditions of society as a whole. According to Ebrahim and Masud (2021), public project management helps establish a framework that ensures government resources are effectively allocated and utilized to meet societal needs. This framework facilitates planning, resource allocation, monitoring, and evaluation, which are fundamental to government success.

The ability of public project management to influence decision-making is significant in steering government activities toward societal improvement. Decisions relating to resource allocation, budgeting, funding, investments, and cost management are essential to the success of public projects. Each of these factors represents a critical point where decisions can either enhance or undermine the effectiveness of government activities. A study by Al-Turki (2020) emphasized the role of budgeting and resource allocation in enhancing public sector performance, noting that efficient budgetary practices allow governments to achieve set objectives while remaining within resource constraints. Similarly, Baird and Zelin (2019) demonstrated how misallocation of resources leads to delays, cost overruns, and, ultimately, project failure, which compromises public trust in government institutions.

Government projects often fail when these essential factors—resource allocation, budgeting, and cost management—are handled improperly. For instance, inefficient allocation of resources might result in inadequate project implementation, while poor budgeting practices can lead to financial shortfalls or overspending. Funding and investment decisions also play a vital role. A study by Uddin and Rahman (2022) highlighted that public sector projects in developing countries often face financial challenges due to improper funding strategies, which subsequently hinder project completion. Without effective funding models, even well-planned projects may stall, leading to wasted public resources and unmet societal needs.

In addition to financial challenges, the complexity of government projects presents further obstacles. Public projects often involve multiple stakeholders, intricate regulatory requirements, and long timeframes. To manage such complexity, public project management must be dynamic

and adaptable to evolving needs. According to Abdu and Ahmad (2023), a failure to account for this complexity can lead to poor project outcomes, as rigid or outdated project management approaches cannot address unforeseen challenges or shifts in public priorities. Thus, modern public project management necessitates a comprehensive approach that integrates flexibility, stakeholder engagement, and risk management into all phases of the project lifecycle.

Effective public project management also ensures that public funds are used appropriately and in line with societal goals. The management and analysis of these projects enable governments to track their progress, assess their impact, and make informed decisions about their future course. A study by Khalil and Mehmood (2021) emphasized the role of performance monitoring and evaluation in safeguarding the proper use of public resources. By continually assessing whether projects are meeting their objectives, governments can take corrective actions before significant resources are wasted. Monitoring and evaluation also provide a basis for accountability, which is crucial for maintaining public trust.

Public trust in government activities hinges not only on the outcomes of projects but also on the transparency and accountability of the processes involved in managing public funds. A study by Bennett and James (2022) highlighted the link between effective project management and public trust, noting that clear communication about budgeting, funding, and decision-making processes helps build confidence among citizens. When the public perceives that government resources are being managed responsibly, they are more likely to support government initiatives and view the administration as trustworthy.

In conclusion, the task of determining what to do and how to do it is complex and requires careful consideration by financial officers and project managers. Effective public project management ensures that government activities are implemented efficiently, resources are allocated properly, and public funds are used wisely. It is essential to maintain public trust in government by upholding transparency and accountability in areas such as investment, funding, management, decision-making, and budgeting. As society evolves, so too must public project management practices, ensuring that they remain adaptable to new challenges and continue to serve the greater good.

1.4 The Importance of Public Project Management

Public project management plays a crucial role in the successful execution of governmental projects by organizing the various processes, resources, and stakeholders involved. It provides a structured approach to managing the complexities inherent in public sector initiatives, where

political, social, and economic interests often intersect. According to Clarke and Higgs (2020), public project management frameworks are essential for maintaining project coherence in a multifaceted environment, especially when dealing with competing interests and limited resources. By organizing resources effectively, public project management helps ensure that projects are executed within budget, on time, and according to the defined scope.

The theoretical underpinnings of public project management are founded on the practical necessity for governance systems tailored to public sector challenges. These challenges include equitable resource distribution, the need for broad stakeholder participation, adherence to laws and regulations, and the implementation of robust accountability measures (Grimshaw & Donovan, 2019). Public projects often involve multiple layers of governance, each with its own set of priorities and constraints. Therefore, the application of public project management frameworks helps to systematize decision-making processes, allowing for more efficient allocation of resources while ensuring compliance with regulatory and legal standards (Smith et al., 2021).

An essential feature of public project management is its ability to promote transparency and accountability. As noted by Anderson and Jones (2022), public projects are often under intense scrutiny from both governmental oversight bodies and the general public. Public project managers must therefore implement rigorous monitoring and evaluation processes to ensure that public funds are used responsibly and that project outcomes meet societal expectations. This requires the integration of accountability structures, such as performance audits, to track progress and address any deviations from the project's objectives (Kumar & Patel, 2023).

In addition, public project management frameworks emphasize stakeholder engagement as a critical component. Effective communication with stakeholders, including local communities, non-governmental organizations, and political entities, ensures that diverse perspectives are considered in the decision-making process (Lindholm, 2021). This collaborative approach fosters trust and enhances the legitimacy of public projects.

In summary, public project management is a fundamental tool for organizing and rationalizing the complex processes involved in governmental projects. It enables the efficient use of resources, ensures compliance with regulations, and fosters accountability and stakeholder participation, all of which contribute to achieving public objectives effectively.

1.5 The role of Public Project Management in resources Allocation

Allocating resources in governmental structures is a complex endeavour that demands the application of public project management methodologies.

1. Public project managers are responsible for determining resource needs, creating assessments of resource capabilities, and ensuring that those resources are deployed in a way that meshes with strategic objectives and public priorities. This requires generating forecasts of need, and exercising flexibility in the face of changing dynamics in public service environments. The practice of allocating resources in ways that make the most of available resources enables the achievement of public value.
2. Public project management plays a critical role in resource allocation within governmental structures, ensuring that resources are effectively utilized to achieve public value. One of the primary roles of public project management in resource allocation is **needs assessment**. Public project managers evaluate the specific requirements of each project by analyzing the scope, objectives, and expected outcomes. This process involves identifying the types of resources necessary, such as human capital, financial support, and technological infrastructure, to meet project goals (Cleland & Ireland, 2015). Through needs assessment, public managers can pinpoint gaps and allocate resources in a way that maximizes efficiency and public benefit.
3. Another essential role is **resource capability assessment**. Public project managers must evaluate the availability, capacity, and suitability of the resources at their disposal. This involves determining whether existing resources can meet the demands of the project or if additional resources need to be procured. In governmental structures, this often includes collaborating with various departments and agencies to pool resources or redirect them from less urgent projects (Kerzner, 2021). By assessing resource capabilities, public project managers ensure that resources are appropriately matched with project demands, reducing waste and enhancing productivity.
4. **Prioritization** is also a key function of public project management in resource allocation. In the context of limited resources, public managers must make decisions about which projects or initiatives should receive priority based on strategic objectives and public priorities. This requires aligning resource allocation with government policies, budget constraints, and the

potential impact on society. According to Larson and Gray (2020), prioritization helps to ensure that resources are distributed in a way that addresses the most pressing needs, while still leaving room for flexibility when unforeseen circumstances arise.

5. **Forecasting** is another critical role. Public project managers must anticipate future resource needs based on the project's life cycle and changing dynamics in the public service environment. This involves predicting the availability of financial resources, labor, and materials over time, allowing for more informed decision-making and the adjustment of resource allocation plans as the project progresses (Pinto, 2019). Accurate forecasting reduces the risk of resource shortages or surpluses, ensuring that projects remain on track.
6. Lastly, public project managers are responsible for **monitoring and evaluation**. Continuous monitoring of resource utilization is essential to ensure that resources are being used efficiently and effectively. Project managers evaluate whether the allocated resources are contributing to the achievement of project goals and make necessary adjustments if inefficiencies are detected. Monitoring and evaluation provide feedback loops that enhance decision-making and improve future resource allocation processes (Heldman, 2018).

SELF-ASSESSMENT EXERCISE 1

List and explain the role of Public Project Management in resources Allocation

1.6 Optimizing Resource Allocation for Government Initiatives

1. Strategic optimization in project management involves implementing methodologies aimed at enhancing speed, reducing costs, and minimizing waste. For public project managers, this requires a precise approach to project scope definition and execution to meet objectives in the most efficient manner possible. One commonly used methodology is **Lean management**, which focuses on eliminating waste (activities that do not add value) in processes. By streamlining workflows and ensuring that only essential steps are included, public projects can be completed faster and at a lower cost. Studies have shown that Lean management is effective in reducing project delays and improving resource allocation, particularly in public infrastructure projects (Liker & Meier, 2016).

2. Another popular methodology is **Agile management**, which is highly adaptive and allows project teams to respond swiftly to changes. Agile promotes iterative development, which means the project is divided into smaller, manageable phases that are completed in cycles. This ensures continuous improvement and quicker decision-making, which is essential in public projects where policy changes or stakeholder demands can shift over time (Rigby, Sutherland, & Takeuchi, 2016). Agile also fosters collaboration among teams and stakeholders, creating a feedback loop that enables adjustments without major disruptions to the project timeline or budget.
3. **Stakeholder collaboration** is a critical aspect of strategic optimization. Public project managers need to engage with a variety of stakeholders, from government agencies to community groups, to ensure that project goals align with public needs and expectations. This engagement can be enhanced by using **technology tools** to collect and share real-time data, which allows stakeholders to make informed decisions based on the most up-to-date information (Rodríguez-Segura et al., 2020). For example, Geographic Information Systems (GIS) and Building Information Modeling (BIM) are technologies that provide visual data representation, helping to reduce misunderstandings and delays caused by information gaps.
4. Additionally, these methodologies enable public project managers to make **data-driven decisions** by leveraging real-time analytics to evaluate trade-offs and risks effectively. This reduces the uncertainty inherent in public projects and allows for adjustments that can prevent wasteful expenditure. As a result, projects not only achieve their goals more efficiently, but they also create **greater public value**, which is a primary objective of public sector initiatives (Kaplan & Norton, 2008).

In conclusion, the application of Lean and Agile methodologies, along with collaborative stakeholder engagement and the use of advanced technology, can significantly enhance the efficiency of public projects. These strategies not only streamline processes but also ensure that public resources are used in a way that maximizes value. However, challenges such as resistance to change and the complexity of stakeholder management still pose barriers to full optimization.

SELF-ASSESSMENT EXERCISE 2

Optimizing Resource Allocation for Government Initiatives

The unit discussed the Background to Public Project Management, exploring its origins, principles, and the frameworks used to manage public sector projects effectively. It emphasized The Importance of Public Project Management, highlighting its role in ensuring successful project execution, accountability, and public value creation. Additionally, the unit examined The Role of Public Project Management in Resource Allocation, focusing on the efficient distribution of limited resources to meet public needs. Lastly, it covered Optimizing Resource Allocation for Government Initiatives, discussing strategies to maximize the use of resources for various government projects, ensuring efficiency, effectiveness, and sustainability in public project outcomes.

In summary, the role of public project management in resource allocation includes needs assessment, resource capability assessment, prioritization, forecasting, and monitoring and evaluation. By applying these methodologies, public project managers ensure that resources are deployed in a manner that maximizes public value while remaining adaptable to changing circumstances.



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2.8 Possible Answers to SAEs

Answer to SAEs 1

The role of Public Project Management in resources Allocation

Allocating resources in governmental structures is a complex endeavour that demands the application of public project management methodologies.

1. Public project managers are responsible for determining resource needs, creating assessments of resource capabilities, and ensuring that those resources are deployed in a way that meshes with strategic objectives and public priorities. This requires generating forecasts of need, and exercising flexibility in the face of changing dynamics in public service environments. The practice of allocating resources in ways that make the most of available resources enables the achievement of public value.
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3. Another essential role is **resource capability assessment**. Public project managers must evaluate the availability, capacity, and suitability of the resources at their disposal. This involves

determining whether existing resources can meet the demands of the project or if additional resources need to be procured. In governmental structures, this often includes collaborating with various departments and agencies to pool resources or redirect them from less urgent projects (Kerzner, 2021). By assessing resource capabilities, public project managers ensure that resources are appropriately matched with project demands, reducing waste and enhancing productivity.

Answer to SAEs 1

Optimizing Resource Allocation for Government Initiatives

1. Strategic optimization in project management involves implementing methodologies aimed at enhancing speed, reducing costs, and minimizing waste. For public project managers, this requires a precise approach to project scope definition and execution to meet objectives in the most efficient manner possible. One commonly used methodology is **Lean management**, which focuses on eliminating waste (activities that do not add value) in processes. By streamlining workflows and ensuring that only essential steps are included, public projects can be completed faster and at a lower cost. Studies have shown that Lean management is effective in reducing project delays and improving resource allocation, particularly in public infrastructure projects (Liker & Meier, 2016).
2. Another popular methodology is **Agile management**, which is highly adaptive and allows project teams to respond swiftly to changes. Agile promotes iterative development, which means the project is divided into smaller, manageable phases that are completed in cycles. This ensures continuous improvement and quicker decision-making, which is essential in public projects where policy changes or stakeholder demands can shift over time (Rigby, Sutherland, & Takeuchi, 2016). Agile also fosters collaboration among teams and stakeholders, creating a feedback loop that enables adjustments without major disruptions to the project timeline or budget.
3. **Stakeholder collaboration** is a critical aspect of strategic optimization. Public project managers need to engage with a variety of stakeholders, from government agencies to community groups, to ensure that project goals align with public needs and expectations. This engagement can be enhanced by using **technology tools** to collect and share real-time data, which allows stakeholders to make informed decisions based on the most up-to-date information (Rodríguez-Segura et al., 2020)

UNIT 2 PUBLIC PROJECT MANAGEMENT: KEY ASPECTS AND METHODOLOGIES

Unit Structure

- 2.1 Introduction
- 2.2 Learning Outcomes
- 2.3 Planning in Public Project Management
 - 2.3.1 Public Projects Execution
 - 2.3.2 Monitoring and Controlling in Public Project Management
 - 2.3.3 Managing Resources in Public Project Management
 - 2.3.4 Managing Timelines in Public Projects
 - 2.3.5 Managing Budgets in Public Project Management
- 2.4 Ensuring Transparency and Accountability in Public Projects
- 2.5 Stakeholder Involvement in Public Project Management
- 2.6 Summary
- 2.7 References/Further Readings/Web Resources Contents
- 2.8 Possible Answers to SAEs



2.1 Introduction

The unit will provide a detailed explanation of Public Project Management, covering key aspects such as planning, executing, monitoring, and controlling public sector projects. It will explore methodologies for managing resources, timelines, and budgets, while ensuring transparency, accountability, and stakeholder involvement in the successful completion of public projects.



2.2 Learning Outcomes

By the end of this unit, you should be able to:

- Explain the term planning in Public Project Management
- Describe the concept of Public Projects Execution
- Discuss the concept of Monitoring and Controlling in Public Project Management
- Explain the term Managing Resources in Public Project Management
- Examine the Managing Timelines in Public Projects
- Discuss the ways of Managing Budgets in Public Project Management
- Explain the concept of Transparency and Accountability in Public Projects



2.3 Public Project Management: Key Aspects and Methodologies

2.3.1 Planning in Public Project Management

Public project management begins with a detailed planning phase, where project goals, objectives, and deliverables are clearly defined. In the context of public sector projects, this phase involves aligning the project's goals with the government's strategic objectives and public needs. The planning process also involves the identification of the stakeholders and beneficiaries, assessing project feasibility, risk analysis, and the allocation of resources. A study by Aigbavboa and Thwala (2017) emphasized that planning in public projects is critical for avoiding delays and budget overruns, particularly in infrastructure projects. Planning also includes the development of a detailed project roadmap that outlines tasks, responsibilities, timelines, and budgetary requirements (Osei-Kyei & Chan, 2018). Effective planning ensures that public projects stay aligned with policy objectives, stakeholder expectations, and legal frameworks.

2.3.2 Public Projects Execution

The execution phase of public project management involves the actual implementation of the project plan. During this phase, resources are mobilized, tasks are assigned to project teams, and project activities are carried out. A study by Flyvbjerg (2016) assessed the common challenges faced during the execution phase of public projects, noting that many public sector projects encounter issues such as inefficient resource allocation, lack of skilled labor, and poor coordination among stakeholders. The execution phase also requires constant communication among project teams and stakeholders to ensure that the project stays on track. Public projects, particularly large infrastructure projects, are often executed in phases, with each phase being monitored for compliance with the initial plan, and adjustments are made as necessary to address challenges or unforeseen circumstances (Agyekum-Mensah, Knight, & Coffey, 2017).

SELF-ASSESSMENT EXERCISE 1

- i. Explain the term Planning in Public Project Management
- ii. Describe the Public Projects Execution

2.3.3 Monitoring and Controlling in Public Project Management

Monitoring and controlling are crucial for ensuring that public projects stay within their scope, time, and budget constraints. This phase involves the continuous oversight of project activities to identify deviations from the plan and implementing corrective actions where necessary. Monitoring tools such as key performance indicators (KPIs), earned value management (EVM), and regular progress reports are often used to track project performance (Ika, Diallo, & Thuillier, 2012). According to Osei-Kyei and Chan (2018), in public sector projects, monitoring is critical for ensuring accountability and transparency. Public projects are often subject to scrutiny by oversight bodies, and maintaining accurate records and reporting progress regularly is essential for demonstrating compliance with legal and regulatory requirements. Controlling mechanisms are put in place to ensure that any risks or issues identified during the monitoring process are addressed promptly to avoid project delays or cost overruns.

2.3.4 Managing Resources in Public Project Management

Effective resource management is a fundamental aspect of public project management, as public sector projects often involve significant investments in human, financial, and material resources. According to Kerzner (2017), resource management involves the optimal allocation of available resources to achieve project objectives. In public projects, resource management is often complicated by bureaucratic procedures and the need to comply with public procurement regulations. Ensuring the efficient use of resources is critical for maintaining public trust, as inefficient resource management can lead to wastage, corruption, and project failures (Flyvbjerg, 2016). Resource management also includes human resource management, where project managers must ensure that the project team has the necessary skills, training, and motivation to complete the project successfully.

2.3.5 Managing Timelines in Public Projects

Managing timelines in public projects is essential for ensuring that projects are completed on schedule. Time management involves developing a detailed project schedule, identifying key milestones, and setting deadlines for the completion of various project tasks. According to Ika et al. (2012), delays in public sector projects are common due to various factors, including bureaucratic red tape, poor coordination among stakeholders, and unforeseen challenges such as environmental or legal issues. To mitigate delays, public project managers use project management tools such as Gantt charts and critical path method (CPM) to track progress and ensure that deadlines are met. Effective time

management in public projects also involves flexibility, where project managers adjust schedules when necessary to accommodate changes or address unexpected challenges (Osei-Kyei & Chan, 2018).

2.3.6 Managing Budgets in Public Project Management

Budget management is a critical aspect of public project management, as public sector projects are often funded by taxpayer money. Public projects must adhere to strict budgetary constraints, and any cost overruns or misallocation of funds can lead to public distrust and loss of credibility. According to Aigbavboa and Thwala (2017), effective budget management involves developing a detailed project budget that outlines all expected costs, including labor, materials, equipment, and contingency funds for unforeseen expenses. Budget management also involves regular financial reporting and audits to ensure that project expenditures align with the approved budget. In public projects, transparency in budget management is crucial, as public sector projects are often subject to scrutiny by government auditors and anti-corruption bodies (Flyvbjerg, 2016).

2.4 Transparency and Accountability in Public Projects

Transparency and accountability are fundamental principles in public project management, as public sector projects are funded by taxpayer money and directly impact citizens' lives. A study by Osei-Kyei and Chan (2018) emphasized the importance of transparency in project planning, execution, and reporting to build public trust. Public projects must adhere to legal and regulatory frameworks, and project managers are required to report regularly on project progress, budget expenditures, and challenges faced during the project. Accountability mechanisms, such as internal and external audits, are often put in place to ensure that public funds are used efficiently and that project outcomes meet the expected standards (Flyvbjerg, 2016). Stakeholder involvement is also critical for ensuring accountability, as stakeholders can provide oversight and input into project decisions, ensuring that the project meets the needs and expectations of the public.

2.5 Stakeholder Involvement in Public Project Management

Involving stakeholders in public project management is essential for ensuring that public projects meet the needs of the community and align with government policies. Stakeholders in public projects include government agencies, local communities, contractors, and non-governmental organizations (NGOs). A study by Ika et al. (2012) highlighted that stakeholder involvement is crucial for gaining public support for the project, addressing community concerns, and ensuring

that the project has a positive social and environmental impact. Stakeholder involvement also enhances transparency and accountability, as stakeholders can provide input into project decisions and monitor project progress.

SELF-ASSESSMENT EXERCISE 2

- i. Explain the concept of Managing Timelines in Public Projects
- ii. Discuss the ways of Managing Budgets in Public Project Management



2.6 Summary

The unit examined Public Project Management by exploring essential components including planning, execution, monitoring, and control of public sector projects. It delved into methodologies for managing resources, timelines, and budgets effectively. Additionally, it emphasized ensuring transparency, accountability, and active stakeholder engagement, which are critical for the successful completion of public projects.



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2.8 Possible Answers to SAEs

Answers to SAEs 1

Planning in Public Project Management

Public project management begins with a detailed planning phase, where project goals, objectives, and deliverables are clearly defined. In the context of public sector projects, this phase involves aligning the project's goals with the government's strategic objectives and public needs. The planning process also involves the identification of the stakeholders and beneficiaries, assessing project feasibility, risk analysis, and the allocation of resources

Public Projects Execution

The execution phase of public project management involves the actual implementation of the project plan. During this phase, resources are mobilized, tasks are assigned to project teams, and project activities are carried out. A study by Flyvbjerg (2016) assessed the common challenges faced during the execution phase of public projects, noting that many public sector projects encounter issues such as inefficient resource allocation, lack of skilled labor, and poor coordination among stakeholders.

Answers to SAEs 2

Managing Timelines in Public Projects

Managing timelines in public projects is essential for ensuring that projects are completed on schedule. Time management involves developing a detailed project schedule, identifying key milestones, and setting deadlines for the completion of various project tasks. According to Ika et al. (2012), delays in public sector projects are common due to various factors, including bureaucratic red tape, poor coordination among stakeholders, and unforeseen challenges such as environmental or legal issues.

Managing Budgets in Public Project Management

Budget management is a critical aspect of public project management, as public sector projects are often funded by taxpayer money. Public projects must adhere to strict budgetary constraints, and any cost overruns or misallocation of funds can lead to public distrust and loss of credibility. According to Aigbavboa and Thwala (2017), effective budget management involves developing a detailed project budget that outlines all expected costs, including labor, materials, equipment, and contingency funds for unforeseen expenses

UNIT 3 SOCIAL COST BENEFIT ANALYSIS (SCBA)

Unit Structure

- 3.1 Introduction
- 3.2 Learning Outcomes
- 3.3 Introduction to Social Cost Benefit Analysis
- 3.3 Features of Social Cost Benefit Analysis (SCBA)
- 3.4 Procedure of Social Cost Benefits Analysis
- 3.5 Rationale FOR SCBA
- 3.6 UNIDO Approach for Measuring SCBA
- 3.7 Summary
- 3.8 References/Further Readings/Web Resources
- 3.9 Possible Answers to Self-Assessment Exercise(s) within the content



3.1 Introduction

This unit covers the concept of Social Cost-Benefit Analysis (SCBA) in Public Project Management. It includes the definition, which explains SCBA as a method for evaluating the economic, social, and environmental impacts of public projects. The unit outlines key components such as costs, benefits, and externalities, emphasizing its significance for decision-making. It highlights the features of SCBA and explores the UNIDO approach for measuring SCBA. The rationale behind SCBA is discussed, stressing its importance in evaluating the broader impact of projects. Finally, the procedure of conducting SCBA is explained, detailing the steps involved in the analysis.



3.2 Learning Outcomes

By the end of this unit, you should be able to:

- Define the concept of Social Cost Benefit Analysis (SCBA)
- Explain the concept Social Cost-Benefit Analysis (SCBA) in Public Project Management
- Outline and explain the Components of Social Cost-Benefit Analysis
- Explain the Significance of Social Cost-Benefit Analysis
- Itemize Features of Social Cost-Benefit Analysis
- Explain Procedure of Social Cost Benefits Analysis
- Outline the Rationale FOR SCBA
- Explain the UNIDO Approach for Measuring SCBA



3.3 Social Cost Benefit Analysis (SCBA)

3.3.1 Definition of Social Cost-Benefit Analysis (SCBA) in Public Project Management

The term social cost refers to all those harmful consequences and damages which the community on the whole sustains as a result of productive processes and for which private entrepreneurs are not held responsible. Social cost benefit analysis is a methodology developed for evaluating investment projects from the point of view of the society as a whole.

In Social-Cost Benefit Analysis the focus is on social costs and benefits of a project. These often tend to differ from the costs incurred in monetary terms and benefits earned in monetary terms by the project.

Social Cost-Benefit Analysis (SCBA) is an evaluation method used to assess the overall value of a public project by comparing the social costs and benefits derived from it. Unlike traditional cost-benefit analysis (CBA), which primarily focuses on the financial or economic benefits, SCBA also includes non-monetary factors, such as environmental, social, and community impacts. A study by Mishan and Quah (2020) defines SCBA as a systematic approach to calculating and comparing the benefits and costs of a project in terms of its impact on the welfare of the society, taking into account externalities that affect stakeholders beyond the financial realm.

SCBA is essential in public project management because many projects—such as infrastructure development, healthcare systems, and educational reforms—directly affect the public and broader social systems. Public sector projects often have significant externalities, and SCBA helps quantify these to ensure that project outcomes align with the societal objectives of equitable growth and sustainability (Mishan & Quah, 2020).

SELF-ASSESSMENT EXERCISE 1

Define term the Social Cost-Benefit Analysis (SCBA) in Public Project Management

3.3.2 Components of Social Cost-Benefit Analysis

1. Identification of Costs and Benefits
SCBA begins with identifying all the possible costs and benefits associated with the public project. According to a study by

Boardman et al. (2018), these costs and benefits are not restricted to monetary values but include social and environmental factors. This includes both tangible costs, such as construction and operation, and intangible costs, like environmental degradation or displacement of communities. Benefits may include improved quality of life, reduced poverty, and enhanced social equity (Boardman et al., 2018).

2. Monetization of Social Impacts

Once the costs and benefits are identified, they are quantified in monetary terms to allow for comparability. A study by Pearce, Atkinson, and Mourato (2019) explains that this stage is complex due to the challenge of assigning monetary value to intangible elements such as ecosystem services or social equity. Various methods, such as contingent valuation or revealed preference, can be used to assign value to these social impacts (Pearce, Atkinson, & Mourato, 2019).

3. Discounting Future Costs and Benefits

Future costs and benefits are discounted to present value terms using a social discount rate. A study by Layard (2020) suggests that choosing an appropriate discount rate is crucial as it affects the valuation of long-term projects like climate change initiatives. Lower discount rates are often favored for public projects due to their long-term social significance (Layard, 2020).

4. Net Present Value (NPV) Calculation

After monetizing and discounting, the Net Present Value (NPV) is calculated. This is done by subtracting the present value of costs from the present value of benefits. According to Boardman et al. (2018), a positive NPV indicates that the project is socially beneficial, while a negative NPV suggests it will impose more costs than benefits on society.

5. Sensitivity Analysis

A study by Sugden and Williams (2021) highlights the importance of conducting a sensitivity analysis to test how different assumptions—such as discount rates, inflation, or growth rates—affect the outcome of the SCBA. This component helps policymakers understand the potential risks and variability associated with the project.

3.3.3 Significance of Social Cost-Benefit Analysis

SCBA plays a crucial role in ensuring that public resources are allocated efficiently, with the goal of maximizing social welfare. A study by Mishan and Quah (2020) points out that SCBA helps decision-makers evaluate whether a project provides a net benefit to society by capturing both direct and indirect impacts, including externalities. For example, a highway project may lead to economic growth, but it could also increase

pollution and disrupt local communities. SCBA helps balance these factors by assigning them comparable values (Mishan & Quah, 2020). In terms of social equity, SCBA ensures that projects do not disproportionately benefit one segment of the population at the expense of others. According to Pearce et al. (2019), it allows for a more comprehensive analysis that includes marginalized groups, ensuring that the project outcomes contribute to inclusive development and reducing inequalities.

Prospects of Social Cost-Benefit Analysis

As public projects become more complex and involve diverse stakeholders, the need for SCBA will continue to grow. A study by Sugden and Williams (2021) suggests that SCBA is becoming increasingly integrated with sustainability frameworks, particularly in sectors such as climate change, healthcare, and urban development. As the demand for sustainable development grows, SCBA will be used to evaluate the long-term impacts of projects on future generations (Sugden & Williams, 2021).

Furthermore, advancements in data analytics and machine learning are likely to enhance the accuracy of SCBA models. According to Layard (2020), future SCBA will benefit from real-time data and predictive modeling, allowing for more dynamic assessments of social impacts. This will improve the precision with which future benefits and costs are estimated, making SCBA an even more valuable tool for public project management.

Conclusion

Social Cost-Benefit Analysis is an indispensable tool in public project management, helping policymakers make decisions that maximize social welfare by considering both economic and non-economic impacts. By identifying and monetizing both tangible and intangible costs and benefits, SCBA ensures that public projects deliver equitable and sustainable outcomes. Its significance lies in its ability to account for externalities, provide comprehensive project evaluations, and guide resource allocation in a way that benefits society as a whole. The prospects for SCBA are bright, with technological advancements and an increased focus on sustainability likely to enhance its application in future public projects.

3.3.4 Features of Social Cost-Benefit Analysis

1. Assessing the desirability of projects in the public, as opposed to the private sector.
2. Identification of costs and benefits
3. Measurement of costs and benefits.

4. The effect of risk and uncertainty in investment appraisal.
5. Presentation of results-the investment criterion

3.3.5 Procedure of Social Cost Benefits Analysis:

The objective of social cost-benefit analysis is, in its widest sense, to secure and achieve the value of money in economic life by simply evaluating the costs and benefits of alternative economic choices and selecting an alternative which offers the largest net benefit.

- 1 Estimates of costs and benefits which will accrue to the project implementing body.
- 2 Estimates of costs and benefits which will accrue to individual members of society as consumers or as suppliers of factor input.
- 3 Estimates of cost and benefits which will accrue to the community
- 4 Discounting the costs and benefits which accrue over a period of time to determine the feasibility of the project.

3.4 Rationale FOR SCBA

In SCBA the focus is on the social costs and benefits of the project. These often tend to differ from the monetary costs and benefits of the project. The principal sources of discrepancy are:

1. *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. When imperfections exist, market prices do not reflect social values. The common market imperfections found in developing countries are:
 - (i) Rationing
 - (ii) Prescription of minimum wage rates, and
 - (iii) Foreign exchange regulation
2. *Externalities:* A project may have beneficial external effects. For example, it may create certain infrastructural facilities like roads which benefit the neighboring areas. Such benefits are considered in SCBA, though they are ignored in assessing the monetary benefits to the project sponsors because they do not receive any monetary compensation from those who enjoy this external benefit created by the project. Likewise, a project may have a harmful external effect like environmental pollution. In SCBA, the cost of such environmental pollution is relevant, though the project sponsors may not incur any monetary costs.
3. *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.

4. **Concern for Savings:** Unconcerned about how its benefits are divided between consumption and savings, a private firm does not put differential valuation on savings and consumption. From a social point of view, however, the division of benefits between consumption and savings is relevant, particularly in the capital-scarce developing countries. A rupee of benefits saved is deemed more valuable than a rupee of benefits consumed.
5. **Concern for Redistribution:** A private firm does not bother how its benefits are distributed across various groups in the society. The society, however, is concerned about the distribution of benefits across different groups. A rupee of benefit going to an economically poor section is considered more valuable than a rupee of benefit of going to an affluent section.
6. **Merit Wants:** Goals and preference not expressed in the market place, but believed by policy makers to be in the larger interest, may be referred to as merit wants. For example, the government may prefer to promote an adult education programme though these are not sought by consumers in the market place.

3.5 UNIDO Approach for Measuring SCBA

UNIDO stands for United Nations Industrial Development Organisation Approach. Towards the end of the 1960s and in the early 1970s two principal approaches for Social Cost Benefit Analysis emerged: the UNIDO approach and the Little-Mirrlees approach. The UNIDO method of project appraisal involves five stages:

1. Calculation of financial profitability of the project measured at market prices.
 2. Obtaining the net benefit of project measured in terms of economic prices
 3. Adjustment for the impact of the project on savings and investment.
 4. Adjustment for the impact of the project on income distribution.
 5. Adjustment for the impact of project on merit goods and demerit goods whose social value differ from their economic values.
1. Calculation of financial profitability of the project measured at market prices: Stage first of the UNIDO approach is concerned with the determination of the net benefit of the project measured at market prices.

2. Net Benefit in terms of economic prices: Stage two of the UNIDO approach is concerned with the determination of the net benefit of the project in terms of economic prices., also referred to as shadow prices. 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
 - (i) Increase or decrease the total consumption in the economy.
 - (ii) Increase or decrease production in the economy.
 - (iii) Decrease imports or increase imports
 - (iv) Increase exports or decrease exports.

3. Adjustment for the impact of the project on savings and investment: Most of the developing countries face scarcity of capital. Stage three of the UNIDO method, concerned with this, seeks to answer the following questions:
 - (i) Given the income distribution impact of the project what would be its effect on savings.
 - (ii) What is the Value of such savings to the society?

4. Adjustment for the impact of the project on Income Distribution impact: Many governments regard redistribution of income in favour of economically weaker sections as a socially desirable objective. Due to practical difficulties in pursuing the objective of redistribution entirely through the tax, subsidy and transfer measures of the government, investment projects are also considered as instruments for income distribution and their contribution toward this goal is considered in their evaluation.

5. Adjustment for the impact of project on merit and demerit goods: In some case, the analysis has to be extended beyond stage four to reflect the difference between the economic value and social value of resources. The difference exists in the case of merit goods and demerit goods. A merit goods is one for which the social value exceeds the economic value. For example a country may place higher social value than economic value on production of oil because it reduces dependence on foreign supplies. In case of demerit good, the social value of the good is less than its economic value.

SELF-ASSESSMENT EXERCISE 2

- Q1 what is Public project
 Q2 Identified the Components of a Public Project
 .



3.6 Summary

This unit covers the concept of Social Cost-Benefit Analysis (SCBA) in public project management, which evaluates both the costs and benefits of projects from a societal perspective. It includes components such as economic, environmental, and social impacts. The significance of SCBA lies in its ability to guide decision-making for socially optimal projects. Key features include quantifying non-market effects and long-term impacts. The UNIDO approach emphasizes measuring SCBA for development projects. The rationale for SCBA is to ensure resources are allocated efficiently. The procedure involves identifying costs/benefits, quantifying them, and conducting a net present value analysis.



3.7 References/Further Readings/Web Resources

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3.8 Possible Answers to SAEs

Answers to SAEs 1

Definition of Social Cost-Benefit Analysis (SCBA) in Public Project Management

The term social cost refers to all those harmful consequences and damages which the community on the whole sustains as a result of productive processes and for which private entrepreneurs are not held responsible. Social cost benefit analysis is a methodology developed for evaluating investment projects from the point of view of the society as a whole

Social Cost-Benefit Analysis (SCBA) is an evaluation method used to assess the overall value of a public project by comparing the social costs and benefits derived from it. Unlike traditional cost-benefit analysis (CBA), which primarily focuses on the financial or economic benefits, SCBA also includes non-monetary factors, such as environmental, social, and community impacts.

Procedure of Social Cost Benefits Analysis:

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Rationale FOR SCBA

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1. *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

UNIT 4 PROJECT PLANNING, ANALYSIS AND MANAGEMENT

Unit Structure

- 4.2 Introduction
- 4.2 Learning Outcomes
- 4.3 Public Project in the Public Sector
 - 4.3.1 Components of a Public Project
 - 4.3.2 Characteristics of Public Project
- 4.4 Project Sustainability
- 4.5 Prospects of Public Projects
- 4.6 Choice between mutually exclusive projects of unequal life
 - 4.6.1 Optimal Timing
 - 4.6.2 Determination of Economic Life
 - 4.6.3 Interrelationship between investment and financing aspects
- 4.7 Market Risk in Project Analysis
- 4.8 Firm Risk in Project Analysis
- 4.9 Summary
- 4.10 References/Further Readings/Web Resources
- 4.11 Possible Answers to Self-Assessment Exercise(s) within the content



4.1 Introduction

This unit will discuss the concept of public projects in the public sector, focusing on their definition, components, and characteristics. It highlights the importance of project sustainability and prospects for public projects. The unit covers decision-making in selecting mutually exclusive projects with unequal life spans and examines optimal timing and economic life determination. It also addresses the interrelationship between investment and financing aspects. Additionally, the unit delves into market and firm risks in project analysis, emphasizing how these factors influence public project implementation and evaluation.



4.2 Learning Outcomes

At the end of this unit, you should be able to:



4.3 Public Project

4.3.1 Definition of a Public Project in the Public Sector

A public project refers to any initiative undertaken by a government entity or public institution aimed at delivering goods, services, or infrastructure for the benefit of the public (Zakari et al, 2023). These projects are often financed through public funds such as taxes, grants, or international loans and are designed to enhance the welfare of citizens by addressing their needs, such as healthcare, education, transportation, and public utilities (Awortwi, 2020). Public projects can also be initiated to stimulate economic growth, reduce poverty, or promote social equity. The nature and scope of these projects can vary significantly depending on the country's socio-economic priorities, political environment, and available resources.

Public projects are generally large-scale and long-term endeavors that require effective planning, management, and evaluation to achieve their intended outcomes. Given their scope, public projects involve various stakeholders, including government agencies, contractors, non-governmental organizations, and citizens. As such, they demand high levels of accountability and transparency to ensure that public resources are used efficiently (Rosenbloom & Kravchuk, 2019).

4.3.2 Components of a Public Project

Identified the Components of a Public Project (Zakari, et al. 2023):

1. **Project Identification and Planning**
This is the initial phase where public needs and problems are identified, and potential projects are conceived. The government, through its various ministries or departments, assesses public demands and proposes projects that align with national or regional development goals (Flyvbjerg, 2018). At this stage, feasibility studies are often conducted to evaluate the practicality, costs, and potential impacts of the proposed projects.

2. **Project Design and Approval**
Once a public project is identified, the design phase begins, involving the creation of detailed plans and specifications. These designs must adhere to legal and regulatory frameworks to ensure compliance with government standards. The project also undergoes a rigorous approval process, where it is reviewed by relevant governmental bodies, financial controllers, and, in some cases, the public (Domingues et al., 2021).
3. **Project Financing**
Securing funds for public projects is a critical component. Public projects are financed primarily through government budgets, but they can also be supported by international donors, private partnerships, or loans from financial institutions such as the World Bank or the International Monetary Fund (IMF). The financing process often involves complex negotiations to ensure that the project's costs are covered without burdening the public sector's financial health (Gómez-Ibáñez, 2019).
4. **Project Execution**
During this phase, the project is implemented according to the approved design and within the allocated budget. The government usually contracts private firms or public entities to carry out the execution. Monitoring mechanisms are put in place to ensure the project progresses as planned and to resolve any arising issues (Grimsey & Lewis, 2017).
5. **Project Monitoring and Evaluation**
Continuous monitoring is vital to ensure the project stays on track in terms of timelines, costs, and expected outcomes. Evaluation is carried out both during and after project completion to assess its overall success, efficiency, and the quality of the outcomes. Evaluation also helps to identify any lessons learned that can inform future projects (Li et al., 2020)".

4.3.3 Characteristics of Public Project

Identified Characteristics of Public Project (Zakari et, al 2023).

- (1) **Objectives:** A project has a set of objectives or a mission. Once the objectives are achieved the project is treated as completed.
- (2) **Life cycle:** A project has a life cycle. The life cycle consists of five stages i.e. conception stage, definition stage, planning & organising stage, implementation stage and commissioning stage.
- (3) **Uniqueness:** Every project is unique and no two projects are similar. Setting up a cement plant and construction of a highway are two different projects having unique features.

- (4) **Team Work:** Project is a team work and it normally consists of diverse areas. There will be personnel specialized in their respective areas and co-ordination among the diverse areas calls for team work.
- (5) **Complexity:** A project is a complex set of activities relating to diverse areas.
- (6) **Risk and uncertainty:** Risk and uncertainty go hand in hand with project. A risk-free, it only means that the element is not apparently visible on the surface and it will be hidden underneath.
- (7) **Customer specific nature:** A project is always customer specific. It is the customer who decides upon the product to be produced or services to be offered and hence it is the responsibility of any organization to go for projects/services that are suited to customer needs.
- (8) **Change:** Changes occur through out the life span of a project as a natural outcome of many environmental factors. The changes may vary from minor changes, which may have very little impact on the project, to major changes which may have a big impact or even may change the very nature of the project.
- (9) **Optimality:** A project is always aimed at optimum utilization of resources for the overall development of the economy.
- (20) **Sub-contracting:** A high level of work in a project is done through contractors. The more the complexity of the project, the more will be the extent of contracting.
- (10) **Unity in diversity:** A project is a complex set of thousands of varieties. The varieties are in terms of technology, equipment and materials, machinery and people, work, culture and others.

4.3.4 Project Sustainability

A key consideration for public projects is ensuring their long-term sustainability. This involves planning for the ongoing maintenance and operation of infrastructure, as well as ensuring that services continue to meet the evolving needs of the population (Jiang et al., 2022).

Significance of Public Projects

- i. **Economic Growth**
Public projects, particularly in infrastructure development (such as roads, schools, and hospitals), are fundamental drivers of economic growth. They improve the efficiency of markets by reducing transportation costs, increasing access to education and healthcare, and facilitating trade and investment (Osei-Kyei & Chan, 2017).

- ii. **Public Welfare**
By providing essential services such as clean water, electricity, and healthcare, public projects directly contribute to the welfare of citizens. These projects address critical issues such as poverty, health disparities, and access to education, thereby improving the quality of life for large sections of the population (Estache, 2020).
- iii. **Social Equity**
Public projects also aim to reduce inequalities by ensuring that underserved or marginalized communities receive equitable access to services and opportunities. Projects targeting rural development, for example, help bridge the gap between urban and rural populations (Domingues et al., 2021).
- iv. **Job Creation**
Public projects often generate significant employment opportunities, both directly and indirectly. During the execution phase, labor is needed for construction, administration, and project management. Indirectly, public projects stimulate local economies by creating demand for materials, services, and supply chains (Gómez-Ibáñez, 2019).
- v. **Improved Governance and Accountability**
Successful public projects contribute to better governance by setting a standard for transparency and accountability in the use of public resources. By involving multiple stakeholders, including citizens, public projects also promote democratic participation and oversight (Grimsey & Lewis, 2017).

4.4.5 Prospects of Public Projects

- i. **Innovation and Technology Integration**
As public projects evolve, there is an increasing trend towards integrating innovative solutions and new technologies, such as smart city technologies and renewable energy projects, into public service delivery. These advancements can lead to more efficient and sustainable project outcomes (Jiang et al., 2022).
- ii. **Public-Private Partnerships (PPPs)**
A growing prospect for public projects is the expansion of Public-Private Partnerships (PPPs), where private sector expertise and capital are leveraged to enhance public project execution. PPPs help reduce the burden on government budgets and ensure that projects are delivered on time and within budget (Osei-Kyei & Chan, 2017).

iii. Sustainability and Climate Resilience

With climate change becoming a global concern, future public projects will likely focus more on sustainability and resilience. Projects designed to improve water management, renewable energy, and urban infrastructure can mitigate the impacts of climate change while promoting sustainable development (Li et al., 2020).

iv. Global Collaboration

International cooperation plays an increasingly important role in public projects, especially in developing countries. Through organizations like the United Nations, World Bank, and regional bodies, countries can access funding, expertise, and technology transfer to support large-scale projects (Domingues et al., 2021).

4.5 Choice between mutually exclusive projects of unequal life

Mutually exclusive projects are those projects out of which we choose between two projects of an unequal life. For Example: Alpha Ltd. is considering two machines, A and B. Though designed differently, they serve the same function. Machine A, costs ₦75,000 and lasts for 5 years. Its annual operating cost will be ₦22,000. Machine B, costs ₦50,000 but lasts for only 3 years. Its annual operating costs will be ₦20,000. Assuming discount rate 22% How should Alpha Ltd. Choose between the two machines?

Solutions

$$\begin{aligned} \text{Cost of Machine A} &= 75,000 + \frac{12,000}{(1.12)^1} + \frac{12,000}{(1.12)^2} + \frac{12,000}{(1.12)^3} + \\ &\frac{12,000}{(1.12)^4} + \frac{12,000}{(1.12)^5} \\ &= 228,260 \end{aligned}$$

$$\begin{aligned} \text{Cost of Machine B} &= 50,000 + \frac{15,000}{(1.12)^1} + \frac{15,000}{(1.12)^2} + \frac{15,000}{(1.12)^3} \\ &= 86,030 \end{aligned}$$

The present value of costs associated with machine B is lower than that of machine A. Based on such a comparison, one may argue that, machine B is preferable to machine A. For a proper comparison of the two alternatives, that have different lives, we have to convert the present value of costs into a uniform annual equivalent (UAE). The UAE is simply:

$$UAE = \frac{PVCOST}{PVIFA_{r,n}}$$

The UAE of the two machines is calculated below

$$\text{Machine A} \quad \text{UAE} = \frac{118,260}{3.605} = 32,804$$

$$\text{Machine B} \quad \text{UAE} = \frac{86,030}{2.402} = 35,826$$

The choice between machines A and B can be made by comparing their UAE. Since the UAE of machine A is lower than the UAE of machines B, machine A is preferable to machine B.

4.6 Optimal Timing

In real life, an investment is rarely a "now or never" proposition. Typically, it can be undertaken now or at some point of time in the future. Given this option, the issue of optimal timing assumes significance. Under conditions of certainty, the optimal timing may be determined by using the following procedure:

- (i) Examine alternative dates when the investment can be made.
- (ii) Estimate the net future value as of each alternative date and convert the same to its current value.
- (iii) Choose the timing that has the highest current value.

This procedure may be explained with the help of an example. Alpha Ltd. is evaluating different dates for investing in a project. The net present value for various dates is as follows:

Time	Net Future Value (₹. In Million)
20	
28	
33	
36	
38	

Time	Net Future Value (₹. In Million)
0	$\frac{20,000}{(1.12)^0} = 20.0$
2	$\frac{28,000}{(1.12)^1} = 25.0$
2	$\frac{33,000}{(1.12)^2} = 26.30$
3	$\frac{36,000}{(1.12)^3} = 25.62$
4	$\frac{38,000}{(1.12)^4} = 24.25$

The Optimal timing is year 2 because it maximizes the current value

2.6.1 Determination of Economic Life

A distinction may be made between the physical life and the economic life of an asset. The physical life of an asset represents the number of years it can be used to produce a certain output by regular maintenance and repair. The economic life of an asset refers to the number of years

the asset should be used to produce a certain output. The economic life of an asset is influenced by the behaviour of operating and maintenance costs on the one hand and capital costs on the other. Operating and maintaining costs cover labour, material and power expenses to operate, maintain and repair the asset. Capital costs, also referred to as ownership costs, represent the decline in the value of the asset over time.

2.6.2 Interrelationship between investment and financing aspects

The most commonly followed procedure for capital budgeting involves four steps namely:

- a. Forecast the post-tax cash flows of the project.
- b. Assess the riskiness of the project
- c. Estimate the post-tax weighted average cost of capital
- d. Calculate the net present value.

2.6.3 Inflation and Capital Budgeting

Inflation has been a persistent feature of the Indian economy. Hence, it should be properly considered in capital investment appraisal. Since the cost of capital, the discount rate, is typically expressed in nominal terms, all the cash flows should also be expressed in nominal terms.

2.6.4 International Capital Budgeting

In international capital budgeting we have to come up with the forecasted exchange rates. Then we have to convert all the dollar cash flows into rupees. And then we have to calculate the Net Present Value in rupees with the help of rupee discount rate.

SELF-ASSESSMENT EXERCISE

Q1. What are the Special Decision Situations?

4.7 Market Risk in Project Analysis

The critics of project risk approach fall into two groups. These are:

1. Market Risk
2. Firm Risk
3. Market Risk: The market Risk affects all the projects in an industry and not a particular project. The concept of market risk has been explained with respect to factors which are beyond the control of individual corporates. The market risk is further subdivided into:
 - i. Security Market Risk
 - ii. Interest rate Risk

iii. Purchasing Power Risk

- (i) **Security Market Risk:** Often we read in the newspaper that the stock market is in the bear hug or in the bull grip. This indicates that the entire market is moving in a particular direction either downward or upward. The economic conditions and political conditions affect the security market. The recession in economy affects the profit prospect of the industry and the stock market. These factors are beyond the control of the corporate and investor. They cannot be entirely avoided by the investor. It means that the market risk is unavoidable. The forces that affect the stock market are tangible and intangible events. The tangible events are real events such as earthquake, war, political uncertainty and fall in the value of currency. Intangible events are related to market psychology. The market psychology is affected by the real events
- (ii) **Interest Rate Risk:** Interest rate risk is the variation in the single period rates of return caused by the fluctuations in the market interest rate. Most commonly interest rate risk affects the price of bonds, debentures and stocks. The fluctuations in the interest rates are caused by the changes in the government monetary policy and the changes that occur in the interest rates of treasury bills and the government bonds. The bonds issued by the government and quasigovernment are considered to be risk free. If the stock market is in a depressed condition, investors would like to shift their money to the bond market, to have an assured rate of return. The interest rates not only affect the security traders but also the corporates bodies who carry their business with borrowed funds. The cost of borrowing would increase and a heavy outflow of profit would take place in the form of interest to the capital borrowed. This would lead to a reduction in earnings per share and a consequent fall in the price of share.
- (iii) **Purchasing Power Risk:** Variations in returns are caused also by the loss of purchasing power of currency. Inflation is the reason behind the loss of purchasing power. Purchasing power risk is the probable loss in the purchasing power of the returns to be received. The rise in price penalizes the returns to the investor, and every potential rise in price is a risk to the investor. The Inflation may be demand-pull or cost-push inflation. In the demand -pull inflation, the demand for goods and services are in excess of their supply. The cost push inflation, as the name itself indicates that the inflation or the rise in price is caused by the increase in the cost. The increase in the cost of raw material,

labour and equipment, makes the cost of production high and ends in high price level.

SELF-ASSESSMENT EXERCISE

Q1. Define Market Risk in Project Analysis.

4.8 Firm Risk in Project Analysis

Firm risk is unique and peculiar to a firm or an industry. Firm risk stems from Managerial inefficiency; Technological change in the production process; Availability of Raw Material

Changes in the Consumer Preferences; Labour Problems.

The nature and magnitude of the above- mentioned factors differ from industry to industry, and company to company. They have to be analysed separately for each industry and firm. Broadly, firm risk can be classified into:

- (i) Business Risk
- (ii) Financial Risk
- (i) Business Risk: Business risk is that portion of the firm risk caused by the operating environment of the business. Variation that occurs in the operating environment is reflected on the operating income and expected dividends. The variation in the expected operating income indicates the business risk. Business risk is divided into external business risk and internal business risk:
 - (a) Internal Business Risk: Internal business risk is associated with the operational efficiency of the firm. The operational efficiency differs from company to company. The efficiency of operation is reflected on the company's achievement of its pre-set goals and the fulfillment of the promises to its investors. The various reasons of internal business risk are discussed below:

Fluctuations in the Sales: The sales level has to be maintained. Loss of customers will lead to a loss in operational income. Hence, the company has to build a wide customer base through various distribution channels. Big corporates bodies have long chain of distribution channel. Small firms often lack this diversified customer base.

Research and Development: Sometimes the product may go out of style or become obsolescent. It is the management, who has to

overcome the problem obsolescence by concentrating on the in-house research and development program.

Personnel Management: The personnel management of the company also contributes of the operational efficiency of the firm. Frequent strikes and lock out result in loss of production and high fixed capital cost. The labour productivity would also suffer. The risk of labour management is present in all the firms.

Fixed Cost: The cost components also generate internal risk if the fixed cost is higher in the cost component. During the period of recession or low demand for product, the company cannot reduce the fixed cost. At the same time in the boom period also the fixed factor cannot vary immediately. Thus, the high fixed cost component in a firm would become a burden to the firm.

Single Product: The internal business risk is higher in the case of firm producing a single product. Hence, the company has to diversify the products if it has to face the competition and the business cycle successfully

(b) **External Business Risk:** External Risk is the result of operating conditions imposed on the firm by circumstances beyond its control. The external factors are:

Social and Regulatory Factors: This risk is more in industries related to public utility sectors such as telecom, banking and transportation. The government tariff policy of the telecom sector has a direct bearing on its earnings. Likewise, the interest rates and the directions given in the lending policies affect the profitability of the banks.

Political Risk: Political risk arises out of the change in the government policy. With a change in the ruling party, the policy also changes.

Business Cycle: The fluctuations of the business cycle lead to fluctuations in the earnings of the company. Recession in the economy leads to a drop in the output of many industries. The effects of the business cycle vary from one company to another

(ii) **Financial Risk:** It refers to the variability of the income to the equity capital due to the debt capital. Financial risk in a company is associated with the capital structure of the company. Capital Structure of the company consists of equity funds and borrowed funds. The presence of debt and preference capital results in a commitment of paying interest or pre fixed rate of dividend. The residual income alone would be available to the equity

shareholders. The interest payment affects the payments that are due to the equity investors

SELF-ASSESSMENT EXERCISE

1. What is Public project
2. Identify the Components of a Public Project



4.9 Summary

This unit explores the concept of public projects in the public sector, focusing on their definition, components, and characteristics. It highlights the importance of project sustainability and prospects for public projects. The unit covers decision-making in selecting mutually exclusive projects with unequal life spans and examines optimal timing and economic life determination. It also addresses the interrelationship between investment and financing aspects. Additionally, the unit delves into market and firm risks in project analysis, emphasizing how these factors influence public project implementation and evaluation.



4.10 References/Further Readings/Web Resources

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4.11 Possible Answers to SAEs

Answers to SAEs 2

Business risk is divided into external business risk and internal business risk:

- (a) **Internal Business Risk:** Internal business risk is associated with the operational efficiency of the firm. The operational efficiency differs from company to company.

Research and Development: Sometimes the product may go out of style or become obsolescent. It is the management, who has to overcome the problem obsolescence by concentrating on the in-house research and development program.

Personnel Management: The personnel management of the company also contributes of the operational efficiency of the firm. Frequent strikes and lock out result in loss of production and high fixed capital cost. The labour productivity would also suffer. The risk of labour management is present in all the firms

Fixed Cost: The cost components also generate internal risk if the fixed cost is higher in the cost component. During the period of recession or low demand for product, the company cannot reduce the fixed cost. At the same time in the boom period also the fixed factor cannot vary immediately. Thus, the high fixed cost component in a firm would become a burden to the firm.

Single Product: The internal business risk is higher in the case of firm producing a single product. Hence, the company has to

diversify the products if it has to face the competition and the business cycle successfully

- (b) **External Business Risk:** External Risk is the result of operating conditions imposed on the firm by circumstances beyond its control. The external factors are:

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Political Risk: Political risk arises out of the change in the government policy. With a change in the ruling party, the policy also changes

Answers to SAEs 2

Public project and Identified the Components of a Public Project

A public project refers to any initiative undertaken by a government entity or public institution aimed at delivering goods, services, or infrastructure for the benefit of the public (Zakari et, al 2023). These projects are often financed through public funds such as taxes, grants, or international loans and are designed to enhance the welfare of citizens by addressing their needs, such as healthcare, education, transportation, and public utilities (Awortwi, 2020).

Identified the Components of a Public Project (Zakari, et al. 2023):

1. **Project Identification and Planning**
This is the initial phase where public needs and problems are identified, and potential projects are conceived. The government, through its various ministries or departments, assesses public demands and proposes projects that align with national or regional development goals (Flyvbjerg, 2018). At this stage, feasibility studies are often conducted to evaluate the practicality, costs, and potential impacts of the proposed projects.
2. **Project Design and Approval**
Once a public project is identified, the design phase begins, involving the creation of detailed plans and specifications. These designs must adhere to legal and regulatory frameworks to ensure compliance with government standards. The project also undergoes a rigorous approval process, where it is reviewed by relevant governmental bodies, financial controllers, and, in some cases, the public (Domingues et al., 2021).

3. Project Financing

Securing funds for public projects is a critical component. Public projects are financed primarily through government budgets, but they can also be supported by international donors, private partnerships, or loans from financial institutions such as the World Bank or the International Monetary Fund (IMF). The financing process often involves complex negotiations to ensure that the project's costs are covered without burdening the public sector's financial health (Gómez-Ibáñez, 2019).