Course Title

Project Engineering

Chapter 2 & 3

PROJECT APPRAISAL AND FORMULATION & PROJECT PLANNING AND SCHEDULING

Lecture 4 (week 4)

Project proposal, Project development and formulation & Project planning

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Learning Objective

The main objective of this lecture is to understand about:

- Project proposal.
- Procedure of developing project proposal.
- Project development and formulation.
- Concept of project planning

2.2 PROJECT PROPOSAL

The set of documents submitted for evaluation of project is called proposal. A proposal is basic document containing the explanation of all activities to be performed while undertaking an investment venture. A project proposal is a document that describes a proposed project and its purpose, outcomes, and the steps that will be taken to complete the project. [1] It is simply a document used to bring revenue to the concerned organization extensively used in industrial, governmental and academic circle.

The proposal could be a request for a grant to conduct academic research or to sell an item or to build infrastructure or to conduct income generation training and capacity development. In other words, it is written document prepared to do something in a pre-planned way with the view to successfully carry out the proposed assignment. It should establish what the project is, what you're aiming to achieve with it, how you plan on getting there and why it's worthwhile. It may also include a timeline, budget and other closely related aspects. [2] Generally project proposal should satisfactorily answer the following questions:

- What are you preparing to do?
- Why you are proposing to do?
- What specific results you are expecting from it?
- What is the proposed schedule?
- What is the cost of resources?
- What are significant and limitations?
- How the outputs are measured?

Proposal Writing: Science or Art?

Proposal writing may be considered as management science as well as an art. It is management *science* in the sense that writing proposal essentially requires a careful consideration of the following points:

- Identification and selection of right project/s from different point of view
- Formulation of reasonable and achievable objective or objectives
- Selection of appropriate design/method for executing project activities
- Effective and efficient use of scarce resources (doing right things at right time)

On the other hand it is an art in the sense that the proposal we prepare should have a sales value. The sales value depends upon how much convincing strength lies in our proposal and how tactfully it is organized and presented. The words we use, the sentences we construct and the logic we give in your project proposal make significance for its approval and disapproval.
Since each project proposal entails its own uniqueness, it is not possible to get a standard format for developing a project proposal equally applicable for all types and natures of projects. However, the contents of all types of project proposal are broadly classified into two parts: *technical and financial*. Some time *management* part is highlighted separately from technical part.

Technical Part of proposal

Technical part of the proposal gives the technical details and descriptions of the project. The contents of technical part are:

1. *Problem statement:* description of the project problem
2. *Special requirements:* Any special requirements as specified in TOR/RFP/Bid/Tender Notice etc. by client is described.
3. *Test and inspections:* Procedures related to testing, quality assurance, reliability and compliance along with specifications are prepared
4. *Logistics:* Details of equipment, facilities, skills and administrative aspects are listed.
5. *Reporting:* Formats, timing and nature of reporting should be highlighted
6. *CV/Bio-Data & Capability statement:* CV of key persons for the execution of the proposed project is listed along with details. Organizational capability and past similar work experience is focused in this part

Financial Part of Proposal

It deals with the financial details of the project. The financial part of proposal covers the aspects like:

1. Cost of basic materials
2. Statement of work
3. Cost summary
4. Supporting schedules
5. Profit statement
6. Elements of cost
7. Cost break down and work break down structures
8. Cost estimating techniques

Management Part of Proposal

It incorporates the administrative and management capability of the proposing organization in terms of:

1. Organizational structure
2. The financial stability
3. Financial litigation history
4. Accounting system
5. Employee safety, health & Labor related aspects
6. Cost and schedules
7. Past work experiences

2.3 PROCEDURE OF DEVELOPING PROJECT PROPOSAL

Step 1: Project Brief (Statement of Work)

Statement of work is prepared by the client at the project formulation phase. It is also known as wish list of the client which describes the needs and requirements. It is provided by the client in the form of TOR (Terms of Reference or SOW (scope of the work). It includes need, scope, objective, funding constraints, specifications, reporting system etc. of a project.

Step 2: Pre / Feasibility Study

To determine whether the project offers a promising investment opportunity. To determine whether there are any aspects of the project that are critical requiring in depth investigation by way of market surveys, laboratory test, pilot plant test etc. [3]If the prefeasibility study indicates that the project is worthwhile proposition, a feasibility study is taken up.

Step 3: Preliminary Design

It stress architectural concepts, evaluation of technological process alternatives, size and capacity decisions, and comparative economic studies. [4]The objective of this phase is to create a design that will correctly and completely implements the requirements shown by study.

Step 4: Proposal Development

It begins with

- *Project title:* a proposal begins with the title.
- *Executive summary:* a brief ES should be prepared which describes the brief information and objectives of the project.
- *Project description:* it provides the general description of the project.
- *Project objective:* the objective should be SMART. General objective is set up followed by specific goal.
- *Implementation of project:* show the project schedule by preparing bar charts, CPM/PERT, resource aggregation showing the milestones. [5]
- *Project budget:* cost component and sub components are detailed. Itemized in expenses head should be mentioned.
- *Project Monitoring and controlling:* mechanism of monitoring and controlling and logical framework can be provided.

2.3 PROJECT DEVELOPMENT AND FORMULATION

A project needs to be fully defined in order to provide terms of reference for the management of project. It usually involves: Identification of Needs, Project Ideas, Project Proposal and Project Formulation. Most commonly used techniques for project development and formulation are:

(a) Feasibility Analysis

(b) Cost-Benefit Analysis

(c) Input Analysis

(d) Environmental Analysis

(a) Feasibility Analysis

It is a process of determining, if project can be implemented. Before making a final decision to take up a project, the technical, economic, commercial and financial justification of the chosen project shall be done in concrete terms. [4]It is usually done to justify the concept of

project at disposal and its further action. It is a backbone of project planning. [5]The purpose is to evaluate the options to achieve the objective or benefits outlined while developing project idea. [6]

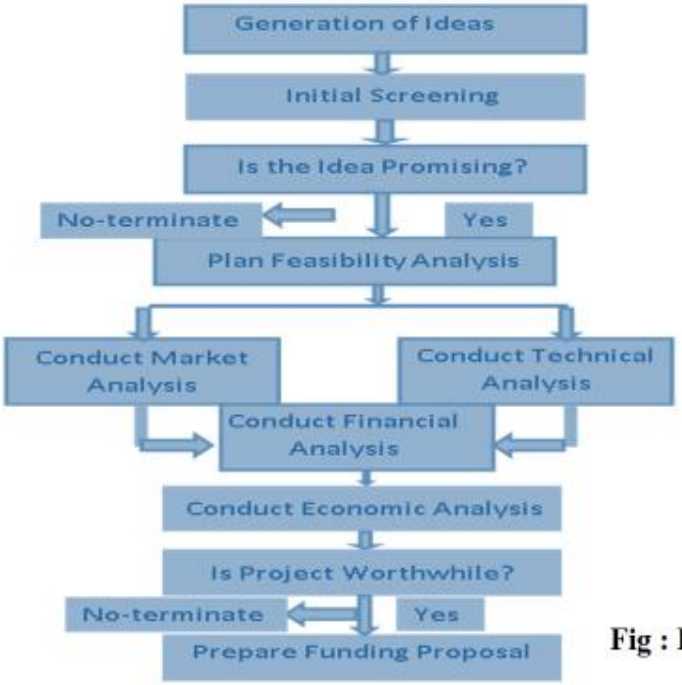

Fig : Feasibility Analysis (5)

(b) Cost-Benefit Analysis

In simple term it is known as economic analysis of the investment proposal from the larger social point of view. Therefore it is regarded as social cost benefit analysis (SCBA). The focus is on the social costs and benefits of the project, which may often be different from monetary costs and benefits. In public project, it focuses on social profitability expressed in terms of economic growth, social development, employment generation etc. In private project, it examines the profitability of project ability to earn net profit to investors.

(c) **Input Analysis**

It makes the analysis of human and non-human resources of the project. The human resource analysis focuses on acquisition, utilization, development and maintenance of workforce in a project. It also includes allocation of responsibilities, job description and job specification. Non-human resources include material, their supplies, quantity and quality, machinery, information, production technology, plant capacity etc.

(d) **Environmental Analysis**

The environment in which project is expected to operate requires serious consideration. The positive and negative impact of the project on environment should be examined including pollution, soil erosion, damage to ecology, resource depletion etc. Environment Impact Assessment (EIA) should be carried out for large scale project before the implementation of project to examine the impact on ecology and social impacts. [6]Initial environment Examination (IEE) is done to small scale projects.

CHAPTER 3

PROJECT PLANNING AND SCHEDULING

3.1 CONCEPT OF PLANNING

Meaning of General Planning

In the simple sense, planning means thinking ahead of an operation to be performed. It is the function of selecting the enterprise objectives and establishing the policies, procedures, and programs necessary for achieving them. [7]Planning includes both assessment of future opportunities and challenges for an organization and developing strategies to achieve the organizational goals. Planning is the intellectual capability of manager who decides whether or not the act or take up to a particular event or not. [6]

Meaning of Project Planning

This is the second phase of the project life cycle. It is concerned with development a project for investment. It identifies and addresses the tasks required for accomplishment of project objectives. It acts as a roadmap for managing the project. It determines how the project objectives will be accomplished. It involves detailed design, budgeting, scheduling and allocation of resources. It is the process of thinking through and making explicit the project's objectives, goals and strategies necessary to bring the project through its lifecycle to successful termination. [8]

Steps of project planning: [9]

1. DEFINE : The objective of the project in definite words.
2. ESTABLISH: Goals and stages intermediate to attain the final target.
3. DEVELOP: Forecast and means of achieving goal, i.e., activities.
4. EVALUATE: Organization's resources – financial, managerial, and operational to carry out activities and to determine what is feasible and what is not.
5. DETERMINE: Alternatives – individual courses of action that will allow to accomplish goal.
6. TEST: For consistency with company's policy.
7. CHOOSE: An alternative which is not only consistent with its goals and concept but also one that can be accomplished with the evaluated resources.
8. DECIDE : on a plan

Planning is important because it provides direction, unifying framework and performance standards.

3.2 FEATURES OF PROJECT PLANNING

1. ***Process*:** It is a systematic mental process of doing things and involves creative thinking and imagination.
2. ***Future/goal oriented*:** Planning is essentially thinking ahead and preparing for future. It provides direction to the organization.
3. ***Intellectual Process*:** Planning is a mental exercise involving creative thinking and imagination. A manager can prepare sound plans only when he has sound judgment, foresight and vision.
4. ***Primary Function*:** Planning serves as basis for other functions of management. It precedes all other functions of management such as organizing, staffing, leading/directing and controlling.
5. ***Aims at efficiency*:** Sound planning leads to accomplishment of desired objectives at minimum possible cost. It helps in optimization of resources.
6. ***Continuous*:** Planning is an ongoing process. Plans are prepared for specific time period. As the conditions changes new plans are prepared**.**

3.3 FUNCTIONS OF PROJECT PLANNING

1. Stating the objectives of the project to be undertaken.
2. Definition of work requirement.
3. Definition of resource needed such as funds, materials, machines, human resources, facilities etc.
4. Determining the time frame of the overall project and also scheduling its various stages.
5. To eliminate or minimize the risk and uncertainty.
6. It provides a basis for organizing the work on the project and allocating responsibilities to individuals.

3.4 IMPORTANCE OF PROJECT PLANNING

1. Making Objective clear.
2. Helps in coordination.
3. Economy and efficiency in operation of resources.
4. Reduce risk and uncertainty.
5. Provide the basis of control.
6. Facilitates decision making.
7. Helps the organization at right path.

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