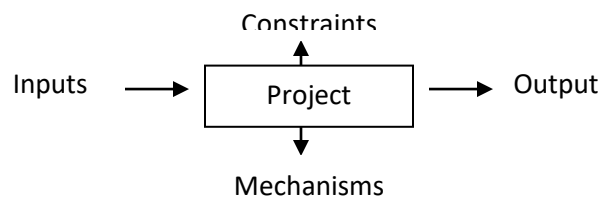


## 1.1 The Project Concept

Project is a means of implementing the firm's plans. As a means of plan implementation, project involves a complex process. Before discussing the complex process of project, it is reasonable to introduce basic concepts of projects.

### ✓ Definition of Project

The term 'project' may be defined as a **complex set of economic activities in which scarce resources are committed in expectation of benefits that exceed the costs of resources consumed**. It refers to *an investment activity* in which resources are committed within a given time framework, to create *assets over an extended time in expectations of benefits which exceeds the committed resources*. Thus, Projects require **resources**. They are also expected to **derive benefits**. Projects are said to be desirable if their benefits are greater than the costs incurred on them. A project can also be referred to *as a non-repetitive activity*. A project is viewed as a **conversion process**. This implies that a project involves a transformation of some form of inputs into an output. (*See the following diagram*).



In the above diagram, we observe that project is a **conversion process which serves in transforming inputs into outputs**. Inputs represent want or need whereas outputs represent satisfied need. Constraints consist of factors such as **financial, legal, ethical, environmental, time, and quality**. Mechanisms include people, knowledge of **expertise, capital, tools and techniques, and technology**.

In general, a project is a temporary endeavor, having a defined beginning and end (usually constrained by date, but can be by funding or deliverables), undertaken to meet unique goals and objectives, usually to bring about beneficial change or added value.

### ✓ Basic Characteristics of Projects

Projects could be small or large. However, regardless of the size of a project, projects have common characteristics. Some of these characteristics are:

➤ **A project has a unique purpose.**

Every project should have a **well-defined objective**. For example, many people hire firms to design and build a new house, but each house, like each person, is unique.

➤ **A project is temporary.**

A project has a **definite beginning and a definite end**. For a home construction project, owners usually have a date in mind when they'd like to move into their new homes.

➤ **A project is developed using progressive elaboration or in an iterative fashion.**

Projects are often defined broadly when they begin, and as time passes, the specific details of the project become clearer. For example, and there are many decisions that

must be made in planning and building a new house. It works best to draft preliminary plans for owners to approve before more detailed plans are developed.

- **A project requires resources, often from various areas.** Resources include people, hardware, software, or other assets. Many different types of people, skill sets, and resources are needed to build a home.
  - **A project should have a primary customer or sponsor.** Most projects have many interested parties or stakeholders, but someone must take the primary role of sponsorship. The project sponsor usually provides the direction and funding for the project.
  - **Have definite location and target group (beneficiaries)**
  - **A project involves uncertainty.** Because every project is unique, it is sometimes difficult to define the project's objectives clearly, estimate exactly how long it will take to complete, or determine how much it will cost. External factors also cause uncertainty, such as a supplier going out of business or a project team member needing unplanned time off.
- ✓ ***Classification of project /capital investment/***

The term capital refers to investments in fixed assets. Capital investments deal with the whole process of identifying and analyzing which projects should be pursued. Capital investments may be classified in different ways. Capital investments may be classified into physical assets, monetary assets, and intangible assets. Capital investments in physical assets include investments in building, machinery, equipment, vehicles, and computers. Investments in monetary assets include investments in debt or equity securities. Debt securities involve bonds, notes, deposits etc whereas equity securities include equity shares (common stock and preferred stock), options, warrants and the like.

Projects may also be classified into ***cost reduction (replacement) investments, revenue expansion projects, or mandatory investments.*** Replacement investments aim at replacing the worn out equipment with new equipment to reduce operating costs (material, labor and/or overhead costs), increase the yield (productivity), and/or improve quality. An expansion investment is meant to increase the capacity to cater to a growing demand in the form of entering new markets (market development), introducing new products to the existing market (product development), operating with the same products in the existing markets (penetration), or introducing the new product for new market (diversification). A mandatory investment is a capital expenditure required to comply with statutory requirements, such as pollution control, fire fighting, medical dispensary and so on.

Projects may also be classified into **development projects and business projects.** While business (industrial) projects aim at profit or value maximization of the owners, development projects aim at reducing poverty and are pursued by the government or NGOs.

## **1.2. The importance of project/capital investment**

Almost all projects involve a capital expenditure decision. Capital expenditure decisions often represent the most important decisions taken by an economic entity. The importance of project as capital expenditure decision stems from three inter – related facts:

1. ***They have long-term effects***

Capital investments have the consequences that extend far in to the future. They provide the framework for future activities and have a significant impact on the basic character of a firm.

2. **Irreversibility.** A wrong capital investment decision often cannot be reversed without incurring a substantial loss. This is due to the fact that the market for used capital assets (equipment) in general is ill-organized i.e., the investment may be sold below purchase price or the market for such as second hand investment may be non-existent.

3. **Substantial outlays**

Capital investments require substantial outlays. This is especially the case with investments in advanced technology.

### 1.3. Difficulties of capital investment

What are the major difficulties in capital investments? What are the sources of these difficulties? Although capital investments are so important, they are not without difficulties. These difficulties arise from three major sources; namely,

1. **Measurement problems**

It is difficult to identify and measure the costs and benefits of capital investment proposals.

2. **Uncertainty**

The costs and benefits of capital investments are characterized by a great deal of uncertainty. It is impossible to predict exactly what will happen in the future.

3. **Temporal spread**

The costs and benefits with a capital expenditure decision spread out over a long-period of time, such as 10 – 20 years, or 20 – 40 years this creates problems in estimating the discount rates and establishing equivalences.

### 1.4. Project success criteria (Parameters)

During a project's life, management focuses attention on three basic parameters: quality, cost and time. A successfully managed project is one that is completed at the specified level of quality; on or before the deadline; and within the budget. In addition, client satisfaction will indicate success and possibility for replication or sustainability.

Every project is constrained in different ways. Some project managers focus on **scope, time, and cost** constraints. Other people focus on the quadruple constraint, which adds **quality** as a fourth constraint. The scope, time, and cost limitations are sometimes referred to in project management as the triple constraint.

To create a successful project, a project manager must consider **scope, time, and cost and balance these three often-competing goals:**

1. **Scope:** What work will be done as part of the project? What unique product, service, or result does the customer or sponsor expect from the project?
2. **Time:** How long should it take to complete the project? What is the project's schedule?
3. **Cost:** What should it cost to complete the project? What is the project's budget? What resources are needed?

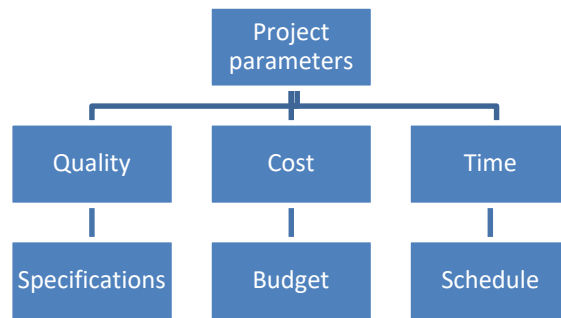
Other people focus on the quadruple constraint, which adds **quality** as a fourth constraint.

- **Quality:** How good does the quality of the products or services need to be? What do we need to do to satisfy the customer?

Other also suggests these four constraints plus risk.

- **Risk:** How much uncertainty are we willing to accept on the project?

Whatever its size, a project's success is based on the three main criteria.



Therefore, project will deem to be successful if it:

- ▶ Delivers the outcome with an agreed upon quality.
- ▶ Does not overrun its end date.
- ▶ Remains within budget (cost of resources).

### 1.1 Plan, Project and Program

Plan is courses of action determined in order to be done in the future to achieve certain level of goals. It lists of activities which are going to be done to reach desired objectives. Plans could be divided into two major categories as strategic plan and operational plan. Operational plans are those which are designed to bring strategic plan into practice. They are plans designed to implement the day to day activities of an organization. They are functional plans that operationalize an organization. Operational plan could be classified as standing plan and single use plan. Further single use plan is classified as projects, programs and budget. Therefore, projects and programs are types of plans.

It is necessary to distinguish between projects and programs because there is sometimes a tendency to use them interchangeably. While a project refers to an investment activity where resources are used to create capital assets which produces benefits over time and has a beginning and an ending with specific objectives, a program is an on-going development effort or plan. A program is therefore a wider concept than a project. It may include one or several projects at various times whose specific objectives are linked to the achievement of higher level of common objectives. For instance, a health program may include a water project as well as construction of a health center both aimed at improving the health of a given community that previously lacked access to these essential facilities. Projects which are not linked with others to form a program are sometimes are referred to as stand- alone projects. The following are the similarities and differences of projects and programs.

A *program* is a collection of projects. The projects must be completed in a specific order for the program to be considered complete. Because programs comprise multiple projects, they are larger in scope than a single project. For example, the United States government has a space program that includes several projects such as the Challenger project. A construction company contracts a program to build an industrial technology park with several separate projects. Unlike projects, programs can have many goals. The NASA space program is such that every launch of a new mission includes several dozen projects in the form of scientific experiments. Except for the fact that they are all aboard the same spacecraft, the experiments are independent of one another and together define a program.

	<b>Project</b>	<b>Program</b>
<b>Difference</b>	<ul style="list-style-type: none"> <li>✓Has specific area/geographic unit</li> <li>✓Is specific in objectives/purpose</li> <li>✓Has specific targets groups</li> <li>✓Has clearly determined and allocated fund</li> <li>✓Has specific life time</li> </ul>	<ul style="list-style-type: none"> <li>•May not have specific area</li> <li>•Has got general objectives</li> <li>•May not have specific target groups</li> <li>•May not have clear and detailed financial allocation</li> <li>•May not have specific time of ending (open ended)</li> </ul>
<b>Similarities</b>	<ul style="list-style-type: none"> <li>➢ Has purpose/objectives</li> <li>➢ Require input (financial, manpower, material, etc.)</li> <li>➢ Generate output (goods and/or services)</li> <li>➢ Operate over space and time</li> </ul>	

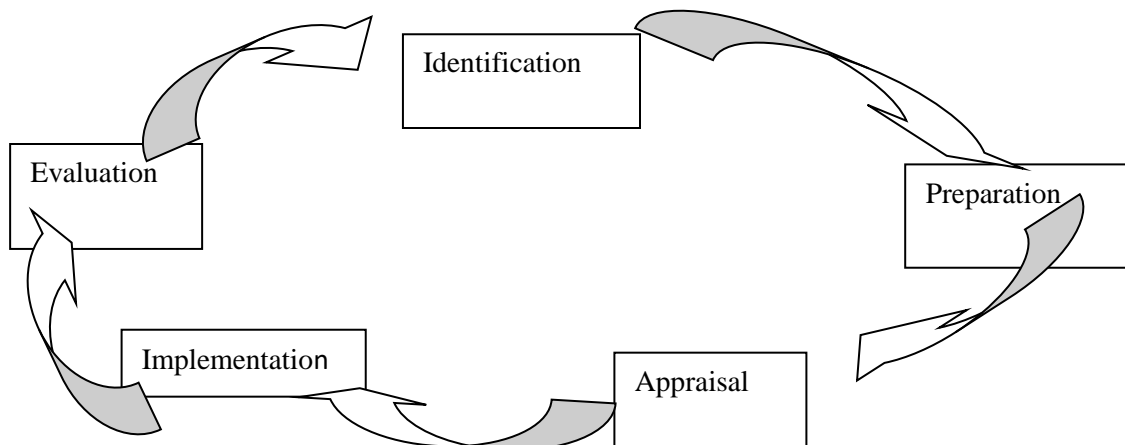
## 1.7. Project Life cycle

Project passes through series of activities called stages. There are different approaches to describing the project cycle. Above, we present one way of describing the project cycle or stages in capital investments. In the following section we try to highlights two other approaches to project cycle; namely, the World Bank and United Nations Industrial Development organizations (UNIDO).

Project cycle refers to the various stages through which project planning proceeds from the inception to implementation. In other words, it is the life cycle through which a project advances from infancy to maturity. The main features of this cycle are information gathering, analysis, and decision-making. What is the primary preoccupation at each stage in the project cycle?

### 1.7.1. Project life cycle – BAUM (World Bank) Approach

According to World Bank, project cycle involves five stages; namely, project identification, project preparation, project appraisal, project implementation, and project evaluation. See the following diagram:



**Figure 1.1: Baum's project cycle** (Source: Baum 1978)

Let's highlight the major activities in each stage

### **1. Project identification**

This stage is also called pre-feasibility studies. In this stage, projects that can contribute towards achieving the specified objectives are identified (listed). Project ideas may come from:

- ❖ New experiments from previous project failures
- ❖ New experiments from expansion
- ❖ Replication of successful project tested elsewhere
- ❖ New experiments from shortages or excess of resources
- ❖ External threats
- ❖ Opportunities
- ❖ Internal strengths and/or weaknesses
- ❖ Other sources

Project identification is also concerned with elimination of inferior alternatives (projects) from the identified ones. The output of this stage is project that is prima-facie (at first sight or based on first impression) promising and further work is justified.

### **2. Project preparation**

Project preparation is the most important stage in project planning. Project preparation stage, also called feasibility study, is concerned with the detailed study of all aspects of the projects.

### **3. Project Appraisal**

Appraisal is the comprehensive and systematic assessment of all aspects of the proposed project. The project is reviewed (appraised) to confirm that it accords with the broad objectives. It is to ensure that the project represents a high priority use of the firm's resources. What aspects of the project should be appraised? The project is appraised from different perspectives: technical, commercial (market), financial, economic and ecological.

### **4. Project implementation**

It is the stage at which the conclusions are reached & decisions made are put into action. What activities should be done during project implementation? Some of the major activities in during project implementation phase include:

- ❖ Detailed designs and specifications are drawn;
- ❖ Tender documents are prepared;
- ❖ Bids are invited and evaluated,
- ❖ Orders for imputes are placed;
- ❖ Contracts are signed; workers are hired, trained and put to work;
- ❖ Materials are moved to sites etc.

### **5. Project Evaluation**

What is the major focus of project evaluation phase? Where it begins? Implementation phase is followed by supervision and follow up. The execution of the project should be supervised closely and progress should be reported regularly to ensure that the implementation is progressing without deviating from the envisaged path and the objectives of the project have been reached. Project evaluation is a monitoring (checking) activity in order to:

- ❖ Find out how things are going
- ❖ Encourage the project team
- ❖ Check that promised resources are in fact working on project tasks
- ❖ Rapidly learn about concerns and difficulties
- ❖ Show concern for the success of the project
- ❖ Take corrective action if things go wrong

### 1.2.2 Project cycle- UNIDO approach

Projects implemented during the Baum's traditional project cycle approach were not successful mainly due to lack of popular participation in their formulation, selection, implementation and evaluation. The projects could not achieve their objectives, if ever at all, they were not sustainable. Recognizing these limitations, during 1994 the World Bank changed its approach from top down planning to bottom up, which emphasizes on the need of the beneficiary participation in project planning. The essence is that the beneficiaries can better identify their problems; identify possible alternative course of action; generate ideas for project planning addressing what resources need for its implementations and how it helps them to overcome their problems.

There are different levels of participation and accordingly different views as to its role in project planning and overall economic development. Some view participation as means for sustainability of project. Others view it as an end result of sustainable project to community. However, the reality is that as far as project is a policy instrument to achieve development and as far as popular participation is means and ends for development, it should be safely concluded that participation is both a means and ends for sustainable development. But, the decision as to which level of participation is desirable depends on the level of democratization in a community, educational level of the community, level of awareness of the community and objectives of the project sponsoring entity.

According to the new project cycle (WB, 1994), project cycle has four phases:

- A. **Listening to stakeholders:** As the issue of the project is the issue of development, and since development is community issue, the community is supposed to be the agents of the project planning. In essence, the idea for the project should come first from the beneficiaries and the role of the project sponsoring entity is limited to facilitating issues related to its implementation.
- B. **Piloting the project:** refers to from implementing the proposed project ideas from the community on a very small scale to be used as a testing ground. This is the experimentation phase.

**C. Demonstrating** : refers to showing the result of the experiments to the community so that they can judge its viability and decide whether to continue or discontinue with the project idea.

**D. Mainstreaming the project:** this refers to expanding the project ideas which receive sufficient community supports and decide to be viable to other areas.

A project is not a one shot activity. Even a shooting star has a time and life span. Project lifecycle is spread over a period of time. There is an unavoidable gestation period for the complex of activities involved to attain the objectives in view. This gestation period, however, varies from project to project but it is possible to describe, in general terms, the time phasing of the project planning activities common to most projects.

The principal stages in the life of the project are:

The project life cycle can be put in different ways based on the detailness of the identification of the different phases of the project process. Accordingly, we will have two project life-cycle models.

1. The six phased project life cycle model and
2. The four phased project life cycle model

**The six phased project life cycle model-** this project cycle model has six stages for project development like identification, initial formulation, evaluation or project appraisal, formulation, project implementation and project completion.

**A. Identification:** Development projects are expressly designed to solve the varied problems of the economics whether in the short or long run. Business projects can be initiated from problems/potential problems of stakeholders of a business entity. The surveys or in depth studies would locate the problems and the project planner will have to identify the projects that would solve the problems most effectively. At this stage, we are concerned with the kind of action and type of project that would be required in rather broad term.

**B. Initial Formulation:** Identification is only the beginning in the lifecycle of a project. Having identified the prospective projects, the details of each project will have to be worked out and analyzed in order to determine which of them could be reckoned as suitable for inclusion in the surveys, and number of feasibility study group are set up, as the name implies to examine the possibility formulating suitable projects and to put concrete proposals in sufficient detail to enable authorities concerned to consider the feasibility of the proposal submitted.

**C. Evaluation or Project Appraisal:** After the business or socio –economic problems of an economy have been determined and development objectives and strategies agreed, concrete steps have to be taken. The main this takes is that of formulating appropriate development projects to achieve plan



objectives and meet the development needs of the economy. Proposals relating to them are then put to the plan authorities for consideration and inclusion of the plan. These proposals as pointed out above take the following forms of feasibility studies:

- Commercial feasibility
- Economic feasibility
- Socio-economic feasibility
- Financial feasibility
- Technical feasibility

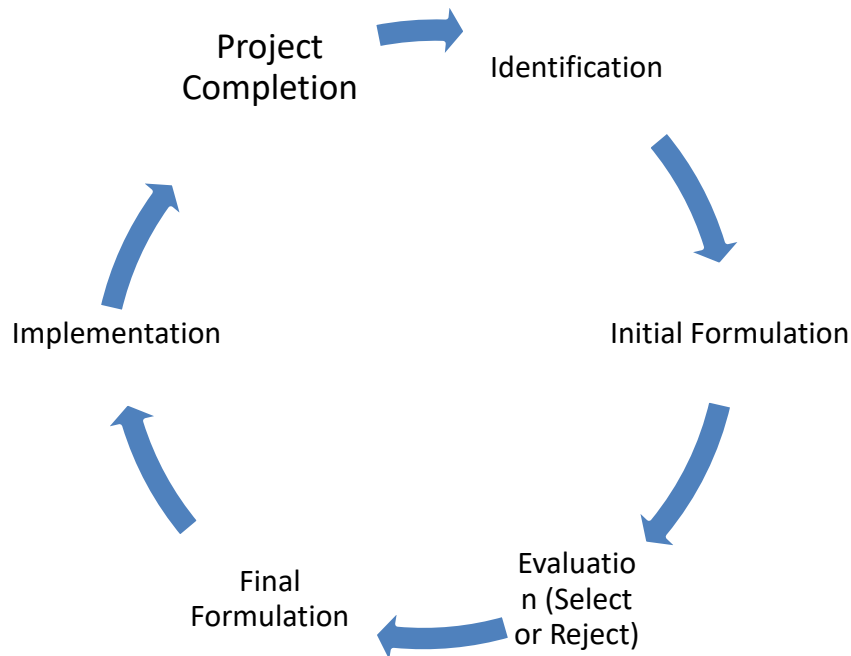
The scope for scrutiny under each of these five heads would necessarily render their careful assessment and the examination of all possible alternative approaches. The process almost invariably involves making decision relating to technology, scale, location, costs and benefits, time of completion (gestation period), degree of risk and uncertainty, financial viability, organization and management, availability of inputs, know-how, labor etc. The detail analysis is set d own in what is called a feasibility report.

**D. Formulation:** One the project has been appraised and approved, next step would logically appear to that of implementation. This is, however, not necessarily true, is the approval is conditional to certain modifications being affected or for other reasons, such as availability of funds, etc. The implementation stage will be reached only after these pre-conditions have been fulfilled. Project formulation divides the process of the project development into eight distinct and sequential stages. These stages are:

- General Information
- Project description
- Market Potential
- Capital cost
- Source of finance
- Assessment of working capital requirement
- Other financial aspects
- Economic and social variables

**E. Project Implementation:** Last but not least, every entrepreneur should draw an implementation time table for his project. The network has been prepared, the project authorities are now ready to embark on the main task of the implementation of the project. To begin with, successful implementations depend on how well the network has been designed. However, during the course of implementation, many factors arise which cannot be anticipated techniques have been developed for the project implementation. Some of them are PERT, CPM, GERT, WRSP and LOB.

**F. Project Completion:** It is often debated as to the point at which the project life cycle is completed. The cycle is completed only when the development objectives are realized.



**Four phase project life cycle model** – the four phase project cycle model has four stages for project development which include: - Initiating, Planning, Executing, and controlling and Monitoring.

#### **A. Initiating**

During the initiation process, you will

- ☞ Refine the project goals
- ☞ Review the expectations of all stakeholders, and
- ☞ Determine assumptions and risks in the project.

Project team selection and statement of work (SOW) is also made. SOW is a document that provides a description of the services or products that need to be produced by the project.

#### **B. Planning**

During the planning process,

- ☞ You will detail the project in terms of outcome, team members' roles and responsibilities, schedules, resources, scope and costs.
- ☞ You will produce a project management plan, which is a document that details how your project will be executed, monitored and controlled, and closed.
- ☞ Such a document also contains a refined project scope, and is used as the project baseline.

#### **C. Executing**

During the executing process, you apply your project management plan. In other words you direct your team so that it performs the work to produce deliverables as detailed in the plan. The executing process also involves implementing approved changes and corrective actions.

#### **D. Controlling and monitoring**

During the controlling and monitoring process, you supervise the project activities to ensure that they do not deviate from the initial plan and scope. When this happens, you will use a change control procedure to approve and reject change requests, and update the project plan/scope accordingly. The controlling and monitoring phase also involves getting approval and signoff for project deliverables.

#### **E. Closing**

During the closing process, you formally accept the deliverables and shut down the project or its phase. You will also review the project and its results with your team and other stakeholders of the project. At the end of the project you will produce formal closure document, and a project evaluation report.

