

Himalaya College of Engineering

Project Engineering

BCE IV/I

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Chapter 1: Introduction of Project and Project Management

- Definition, Characteristics and Examples of projects
- Classifications
- Project Objectives and goal(s)

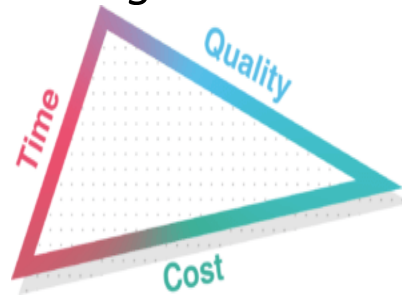
Project definition

- A project is a planned set of interrelated and sometimes dependent tasks that must be executed over a certain period of time taking into consideration certain costs, resources and other limitations. The task must be completed in order to reach a specific **goal**.
- Any **project** is not just a way to make or do something but it's an opportunity to achieve some desired result by implementing it through a systematic management approach (for example, producing a product or sharing of knowledge).

Project characteristics

A project includes the following characteristics:

- Every project has defined aim/goal , objectives, resources and time frame
- A project is the process of working to achieve a goal.
- Time management, resource management, cost management and quality control are important factor of any project work which should controlled through *project management sector*.



- The way of project implementation might be through direct or contract/subcontract basis
- Has a single definable purpose, specific tasks and expected outcome/result. This is usually specified in terms of cost, schedule and performance requirements.

Project Characteristics contd...

- Every project is unique. It means - doing something differently or/and something that was not done previously. It never to be repeated exactly the same way. The use of different methodology, variables , social and environmental circumstances, and used technology might be different to make the project unique.
- Every project bears constraints. Though the type and nature of constraints may vary as per cost/ resources, quality, time and complexity. Bur they should be solved timely and effectively.
- Every project has risks and uncertainties, but that might be tangible or intangible/hidden. Proper planning and effective project management strategy required to solve them or minimize the effects.
- Consent/approval process is an important for project implementation and its sustainable use.
- Budgeting/ costing management, resource management is important
- A project should have defined beneficiaries/ target groups
- A project should give quality outcome which could be assured through proper monitoring and controlling in all phases of the project cycle (i.e before, during and after the construction).

Goal /Aim

- **Goal: Something that you plan to achieve in the future.**
- Types: Primary goal, ultimate goal, immediate goal, long term goal, short term goal, personal goal, common goal, achievable goal, ambitious goal, modest goal

Project goal should be **SMART (specific, measurable, achievable, relevant/reliable and time based) .**

Project objectives

- **Objectives-** are defined strategies or implementation steps to attain the identified **goals**.
- Unlike **goals**, **objectives** are specific, measurable, and have a defined completion date. They are more specific and outline the “who, what, when, where, and how” of reaching the goals.

Project boundaries

- Scope: defines what will be covered in a project.
- Resource: what can be used to meet the scope.
- Time: what tasks are to be undertaken and when.
- Quality: the spread or deviation allowed from a desired standard.

Project classifications

Classification of project based on

- Scope
- Objectives
- Resources/budget, cost, Source of capital
- Timeframe
- Implementing organization
- Complexity
- Project content

Project classifications contd...

According to funding source

- Government funded
- Donner agency funded
 - ✓ Grant projects
 - ✓ Loan Projects
 - ✓ Private sector funded

According to methodology used

- Qualitative (Qual)
- Quantitative (Quan)
- Both Qual and Quan

Project classifications contd...

According to technology used

- Labor intensive
- Capital /Technology intensive

According to nature

- New construction
- Rehabilitation
- Simple
- Complex

Project classifications contd...

According to collaboration/partnership

- **Bilateral** (grants under the agreement from bilateral agencies like GTZ)
- **Multilateral** (provide subsidy, grant and loan from multilateral agencies like WB, ADB, UN agencies)
- **Joint Venture** (include foreign investor)
- A **joint venture** (JV) is a business arrangement in which two or more parties (local and foreign) agree to pool their resources for the purpose of accomplishing a specific task. This task can be a new **project** or any other business activity.
- **Joint venture** is a **legal** organization that takes the form of a short **term** partnership in which the persons jointly undertake a transaction for mutual profit. Generally each party contributes assets and share risks. It provide benefit for **Technology Transfer**.

Project classifications contd...

Technology Transfer

- The transfer of new technology from the originator to a secondary user, especially from developed to developing countries in an attempt to boost their economies.
- Technology transfer, is the process of transferring/ disseminating technology from the places and in groups of its origination to wider distribution among more people and places.
- It occurs along various models: among universities, from universities to businesses, from large businesses to smaller ones, from governments to businesses, across borders, both formally and informally, and both openly and surreptitiously.
- The long-term goal of technology transfer is to sustain economic growth in the foreseeable future through the development and commercialization of new technologies. In the global economy, the wealth of one nation is directly affected by its relationship with other nations. **Technology transfer is possible through Joint Venture Projects.**

Project classifications contd...

According to Scale and size

- Mega, Major , Medium, Small , Micro

Mega projects are large-scale, complex ventures that typically cost **\$1 billion or more**, take **several years** to develop and build, involve multiple public and private stakeholders, are transformational, and impact millions of people.”

- **Needs to do Environment Impact Assessment (EIA).**

Project classifications contd...

Major projects

Major project means:

- Development costs exceed \$1 million and that:
- (i) requires **one year or longer** to reach operations status;
- (ii) involves **more than one state agency**; or
- (iii) substantially alters work methods of state agency personnel or the delivery of services to clients; and
- (B) any information resources technology project designated by the legislature in the General Appropriations
- **Needs to do EIA**

- **Major projects** are generally large-scale infrastructure **projects** in transport, environment and other sectors such as culture, education, energy or ICT. They also concern big productive investments and research & development **projects**.

- **Medium Projects** more people-focused forms of project management than traditionally used by larger organizations.
- Need IEE

Project classifications contd...

According to scale and size ...

- Small projects
- The most common form of project enacted by institutions and large-scale organizations who may use small projects in order to accomplish a range of small-order tasks
- They are complementary for large scale projects
- Can finish in short time

Micro-project is a very small **project** suggested, owned and managed by the beneficiaries (poor families with income less than US\$ 2 per day) themselves. Like a “self help” project. Something that an individual can do to improve their own lives.

Project classifications contd...

According to timeframe

- Project can be characterized by these characteristics:
- **Temporary.** This key characteristic means that every project has a finite start and a finite end. The start is the time when the project is initiated and its concept is developed. The end is reached when all objectives of the project have been met (or unmet if it's obvious that the project cannot be completed – then it's terminated).
- **Normal** : Finish within scheduled/ given timeframe
- **Extended / Crash:** Needs effective project management through overlapping or shortening of some activities to save man, money and materials

Project classifications contd...

According to size

- **Major projects** are generally large-scale infrastructure **projects** in transport, environment and other sectors such as culture, education, energy or IT.
- They also concern big productive investments and research & development **projects**.
- Needs to do IEE (Initial Environment Examinations)

According to Project content

Structural

Structural design and engineering

Mechanical

Mechanical design and engineering

Electrical

Electrical design and engineering

Impact study

Environmental impact studies

Environmental

Environmental design and planning

Data

Data services

Risk

Risk analysis services

Utilities

Utility/Power Plant construction

Waste

Disposal/Recycle facility construction
New

Project classifications contd...

According to function

- Innovative
- Emergency
- Disaster prevention
- Environment safeguard measures
- Service / profit oriented , social or commercial
- Research and Development

According to objectives

- Product oriented
- Process oriented

According to Risk

- High risk
- Moderate
- Low risk

