ENVIRONMENT

ENVIRONMENTAL STATUS

With approval, the Nixon Administration established the Environmental Protection Agency (EPA) in 1970 under a plan, which combines numerous pollution control responsibilities that had been divided among several agencies. EPA's primary responsibilities include the regulation of air quality, water quality and chemicals in commerce, the development of regulatory criteria for the management and disposal of solid and hazardous wastes and the cleanup of environmental contamination.

ENVIRONMENTAL PROTECTION AGENCY

EPA also provides financial support to state and local governments to help them in administrating pollution control program and fulfill some certain federal environmental requirements. EPA assigns some laws and regulations to ensure the protection of environment. Some of the important laws and regulations are discussed below:

CLEAN AIR ACT 1970
The Clean Air Act seeks to protect human health and environment from emissions that pollute air. It requires the EPA to establish minimum national standards for air quality and assigns responsibility to assure fulfillment with the standards. It also addresses the prevention of pollution in areas with clean air and protection of the stratospheric ozone layer.

Key Elements
- Reducing outdoor or ambient concentrations of air pollutants that cause smog, haze, acid rain and other problems
- Reducing emissions of toxic air pollutants that are causing cancer or other serious health effects
- Phasing out production and use of chemicals that destroy stratospheric ozone

CLEAN WATER ACT 1972
The 1972 legislation launches motivated programs for water quality improvement that are still being implemented. The Clean Water Act (CWA) today consists of two major parts; one is the provisions for municipal sewage treatment plant construction. The other is regulatory requirements, which apply to industrial and municipal discharges. Industries were given to install "Best Practicable Control Technology" (BPT) to clean up waste discharges. The primary focus of BPT was on controlling discharges of conventional pollutants, such as suspended solids, biochemical oxygen demanding material, coli form and bacteria and pH.

Key Elements
PROJECT MANAGEMENT CONCEPT

A project is unique in the sense that it is not a routine operation, but a specific set of activities designed to accomplish a singular goal.

Project Management is a set of principles, methods and techniques for effective planning of objective-oriented work, to establish a basis for effective scheduling, controlling and planning in management of various steps of the projects.

Project management emerged because of the growing demand for complex, complicated, customized goods and services and expansion of human knowledge. It depends on combination of production/distribution and finally allows a number of disciplines to contribute in the development of goods and services.

In other words, it provides an organization with powerful tools that improve the organization’s ability to plan, organize, implement and control its activities and the ways it uses its people and resources.

FUNCTIONS OF MANAGEMENT

1. Planning
Planning is deciding what to do, when to do & how to do. Planning is necessary to ensure proper utilization of human & non-human resources. Planning involves defining a goal and determining the most effective course of action needed to reach that goal.

2. Organizing
An organization can only function well if it is well-organized. Organizing involves assigning tasks and responsibilities to employees with the specific skill sets needed to complete the tasks. It is the process of bringing together physical, financial and human resources and developing productive relationship amongst them for achievement of organizational goals.

3. Leadership
It motivates organizational methods to work efficiently for achievement of organizational goals. It requires the use of authority to achieve those ends as well as the ability to communicate effectively. It is an aspect of management which deals directly with influencing, guiding, supervising and motivating the subordinates.

4. Controlling
The controlling function of management is useful for ensuring all other functions of the organization are in place and are operating effectively. Controlling involves establishing performance standards and monitoring the output of employees to ensure each employee’s performance meets those standards.
2. **FOUR FACILITATING FUNCTIONS**

i. **Risk Management**
Steps to identify and mitigate potential risks are known as risk management. Project risk management is concerned with identifying and planning for potential risks that may impact the project. Its process includes Risk management planning, Risk Identification, Qualitative risk analysis, Risk response planning and risk monitoring and control.

ii. **Project Human resources management**
The number of workers/personnel and their types of skill vary during the course of project. Project human resources management ensures effective use of such human resources and includes Human resources planning, get project team and develop project team and management of project team.

iii. **Project Communication management**
Project communication management ensures proper and timely communication. Managing stakeholders, communication of the plan, collecting information regarding its execution, obtaining feedback from the personnel involved and communicating status of project all drop under communications management.

iv. **Procurement Management**
It concerns procurement and contract supervision. The processes included in this knowledge area are plan purchases and acquisition, Plan contracting, request seller responses, select sellers, contract administration and contract closure.
6. Project Management
This section should describe the role and responsibility of each member of team. It introduces related personnel and their experience on related projects.

7. Methodology
The methodology section is the most important part of the proposal. It should include detailed information on the involvements to be made, procedures to be used, measurements, observations, laboratory investigations etc.

8. Duration of the Project
The protocol should specify the time that each phase of the project is likely to take, along with a detailed month by month timeline for each activity to be undertaken.

9. Costs
It explains cost requirements for each step in methodology, based on calculations. Cost estimates will include salaries of all technical and non technical personnel, as well as indirect costs like travel, communication, computer use and production.
WORK BREAKDOWN STRUCTURE

WBS is a particularly important project tool for dividing complex projects to simpler and manageable tasks. In WBS, much larger tasks are broken down to manageable elements of work in graphical display known as tree diagram format for providing common framework for project planning, monitoring and communication. These elements can be easily supervised and estimated. WBS is not restricted to a specific field but it can be used for any type of project management.

PURPOSE OF WBS

- WBS in a project is needed for:
- Accurate and readable project organization
- Accurate assignment of responsibilities to the project team
- Indicates the project target
- Helps to estimate the cost, time and risk
- Illustrate the project scope

BENEFITS OF WBS

All the work within the WBS can be:

Definable
Can be described and easily understood by project participants

Manageable
Specific responsibility and authority can be assigned to a responsible individual

Estimate-able
Cost in resource can be estimated required to complete the project

Integrate-able
Integrates an activity with other project elements

Measurable
Can be used to measure progress i.e. has start and completion dates and measurable target

Adaptable
Sufficiently flexible so the addition/ of work can be easily accommodated in the WBS framework
CONTINGENCY ESTIMATION ON LUMP SUM CONTRACTS

Contingency estimates are usually associated with lump sum contracts. They refer to the amount of money added to cost estimate for the purpose of absorbing project risks. This amount is typically not revealed to the customer. If the project is executed with little or no risk impact, the contingency amount is taken as increased profit.

There are number of methods for estimating contingency amounts for lump sum contracts ranging from small to large scale projects. The three primary methods are:

1. PERCENTAGE ESTIMATE
The percentage estimate is the easiest and most common method of estimating contingency. To apply this method, the project planning team will develop cost estimates of different activities of the project. Cost of these activities will then combine to arrive at the project cost. This project cost will then be increased by some percentage amount of the total project cost.

2. RISK MANAGEMENT APPROACH
In this case, project planning team identifies all the various risk factors like fire, accidents, earthquake etc. After identifying all the risks, the project planning team calculates risk event status for each like high class or low class risk. At the end, the total contingency estimate is derived by adding all the risk event statuses.

This risk management approach can be performed on each activity or on whole project. Using this approach on each activity will result in higher contingency estimate than using it on whole project. This method also results in higher contingency amount than percentage estimate.

3. COMPUTER MODELING
Computer modeling involves different techniques such as Monte Carlo simulation, Decision tree analysis, Range estimating etc to arrive at a contingency estimate. These techniques are the part of advanced project management. Comparing with other methods of contingency estimate, this method depends upon the skills of person designing the model. Computer modeling approach has become common in large construction companies.