6th Revised Edition

PROJECT MANAGEMENT AND CONTROL

Narendra Singh

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PROJECT MANAGEMENT AND CONTROL

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Dedicated to

My spiritual Father
Vedmurthy Taponishtha
Shri Ram Sharma Acharya
and
Mother Bandaniya Mataji
Bhagawati Devi Sharma

PREFACE

The book is based on the actual experiences of the author of three decades in very large and reputed organization. The experiences were in the multidisciplines of the projects with the associations of a good project team, reputed contractors, consultants from India and abroad. This opportunity of working and gaining experience in the total activities of the project management was very unique and fortunate. There were opportunities to interact with the best people in the project fields including study of the systems and practices in the best organizations like the then British Steel, British Rail, Commonwealth Development Corporation (CDC), Thames Water Plc. in U.K., during an official training programme.

The objective to write this book is to provide a very practical knowledge on the subject of project management, covering all the stages in the 'Total Project Life Cycle' from concept to completion.

In the current economic scenario, project management has become more significant, especially with the highest priority accorded by the government for the infrastructure projects. Besides this, more investments are being made in the real estates, hospitalities, parks and malls. Special Economic Zones (SEZs) are being opened in several states to bring fast development in the backward areas. All these have resulted in generation of various large and small value projects. Execution of infrastructure projects with Public-Private Partnership/ Participation (PPP) on Build-Operate-Transfer (BOT) basis has become more popular. These developments together have made it more interesting to study and familiarize with all the facets of workings in the project execution and management.

SIXTH EDITION:

The sixth edition of the book has been thoroughly updated with the latest developments in the project management and implementation activities. Besides this, special projects like, Infrastructure projects, Special Economic Zone (SEZ) projects, Real Estate Sector projects and execution of infrastructure projects with Public-Private Partnership (PPP) on Build/ Operate-Transfer (BOT) basis have been discussed in more detail in separate and new chapters in the sixth edition.

I hope, this book with the sixth edition will be very useful to the professional students of the Institute of Cost Accountants of India, Institute of Chartered Accountants of India, Institute of Company Secretaries of India, ICFAI University, IGNOU, MBA Institutes, Engineering Colleges, Universities, all other Institutes including the premier institutes like IIMs and IITs and like, where 'Project Management' is included in the curriculum of their postgraduate studies.

This book would be equally useful to the working managers, faculties of management institutes and universities.

At the end, I express my gratitude to the management of Bhilai Steel Plant, a unit of Steel Authority of India Limited, where I worked and gained a very long a fruitful experience in the project management. This has enabled me to write this book and make available to the students for a practical exposure.

I owe by my heart to Late M.R. Vedula, Dy. Manager and Executive P.S. to me, whose contributions to the first edition of this book was enormous.

I also express my gratitude to the Himalaya Publishing House Private Limited for their continuous efforts in bringing out this book with the latest editions to the society of the nation.

Last, but not the least, I owe to my family members especially, Smt. Ram Kumari Devi, my wife, who have allowed me to do this job by their innumerable selfless sacrifices.

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INTRODUCTION

Project is the beginning of all economic, business, social, welfare and administrative activities. Project, here, we mean the construction activities. Thus, any activity as above, before its final shape takes place, passes through the various construction stages.

Construction activity is combined with various related cycle of activities such as:

- Formulation
- Design
- Detailed engineering
- Technical specification
- Contracts finalization and management
- Execution of project
- Monitoring and control
- Completion and handing over to the final users, involve planning, organizing, co-ordinating, monitoring and control, so as to finally achieve the end objective, *i.e.,* completion of the project. In other words, completion of construction of:
  - the work of an administrative building, residential complex
  - an industrial complex, parks and malls
  - a marketing complex
  - a research and development complex
  - an infrastructure project for power, roads, bridges, ports, rails, aerodromes, etc.

Thus, project, *i.e.,* construction activity associated with planning, organizing, co-ordinating, monitoring and control is the first stage of an economic, business, social, welfare and administrative activity.

This is the reason that the 'Project Management' has been recognized as one of the subjects in the syllabus of almost all the universities/institutes of management/ professional institutes, like Institute of Cost Accountants of India, Institute of Chartered Accountants of India, Institute of Company Secretaries of India, ICFAI University, IGNOU, engineering colleges, etc.

In the current economic scenario, projects have become more significant, particularly in the infrastructure areas. New approaches towards financing and contracts execution systems have made the subject all the more important. Hence, it has become necessary to study the subject of project management and make oneself well aware of the various cycles, which run around the project from concept to completion and handing over to the end-user.

Taking these points and emerging needs to bring out a complete book on the 'Project Management' serving the purpose as a textbook to the students as well as a guide to the working managers and faculties of the management institutes, this book has been written and now updated to the *Sixth Revised Edition*.

The book covers the entire project life cycle (a flow chart given in the first chapter) in four parts such as:

Part – I Project Formation, Appraisal and Investment Decision Making.
Part – II Project Planning, Scheduling, Implementation and Control.
Part – III Project Completion and Evaluation.
Part – IV General, covering the areas like Government projects, Social projects, Imports substitution projects, Infrastructure projects, Special Economic Zone projects and Real Estate Sector projects, Taxonomy in projects and Strategic Management in projects.

Thus, efforts have been made to make the book a complete book on project management to become a textbook to the students and reference/guide book to the working managers, and faculties of the management institutes.

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Part-I

Project Formation, Appraisal and Investment Decision Making

Part-II

Project Planning, Scheduling, Implementation and Control

Part-III

Project Completion and Evaluation

Part-IV

General

CHAPTER 1

PROJECT-CONCEPT, MEANING AND TOTAL PROJECT MANAGEMENT CYCLE – AN OVERVIEW

INTRODUCTION

'Projects', 'capital expenditure', 'capital budgeting', 'project planning and management' are all talked and meant as one subject. Project, here we mean the construction activities. Project planning while is the 'plan' or 'target for the complex activities', capital expenditure is the resource for the project or project planning or capital budgeting. All these terms are the subject matters related to the 'project management and control' and hence would be the contents for discussions in the various chapters of this book.

Objectives

Objectives of this chapter are:

- To explain the concept and meaning of project, capital expenditure, capital budgeting and project planning. These are the different terms used and expressed in relation with the project management and control.
- To make aware that there are various stages in project management from concept to completion.
- To discuss briefly on each cycle in the total project life cycle.

- To focus on the additional work arising for the projects related to Foreign Direct Investments and the projects coming in the Special Economic Zones.
- To highlight on the important aspects including investments policy, diagnosis of causes of cost and time over-runs and various precautions to be taken by the organizations for better project planning and management.

Project: Meaning and Concept

This is explained with an example of construction of residential building.

There are two phases in the management of construction of the building. There was no building prior to two years (two years assumed as construction schedule of the building). Now after two years there is a residential building with all the facilities and services.

First phase is – **Planning** for various activities up to construction and completion of the building.

Second phase is – Management of the construction activities and **final completion** of the building.

In other words, first phase is planning for procurement of land, design, drawings, procurement of cement, bricks, steel and other building materials, manpower, mode of contracts, etc., and management and monitoring of construction activities till the completion of building is the second phase of the work of construction of the building. Thus, there are various activities associated with the completion of the construction of the building.

All the activities mentioned above shall remain a plan or target till the construction of the building is completed.

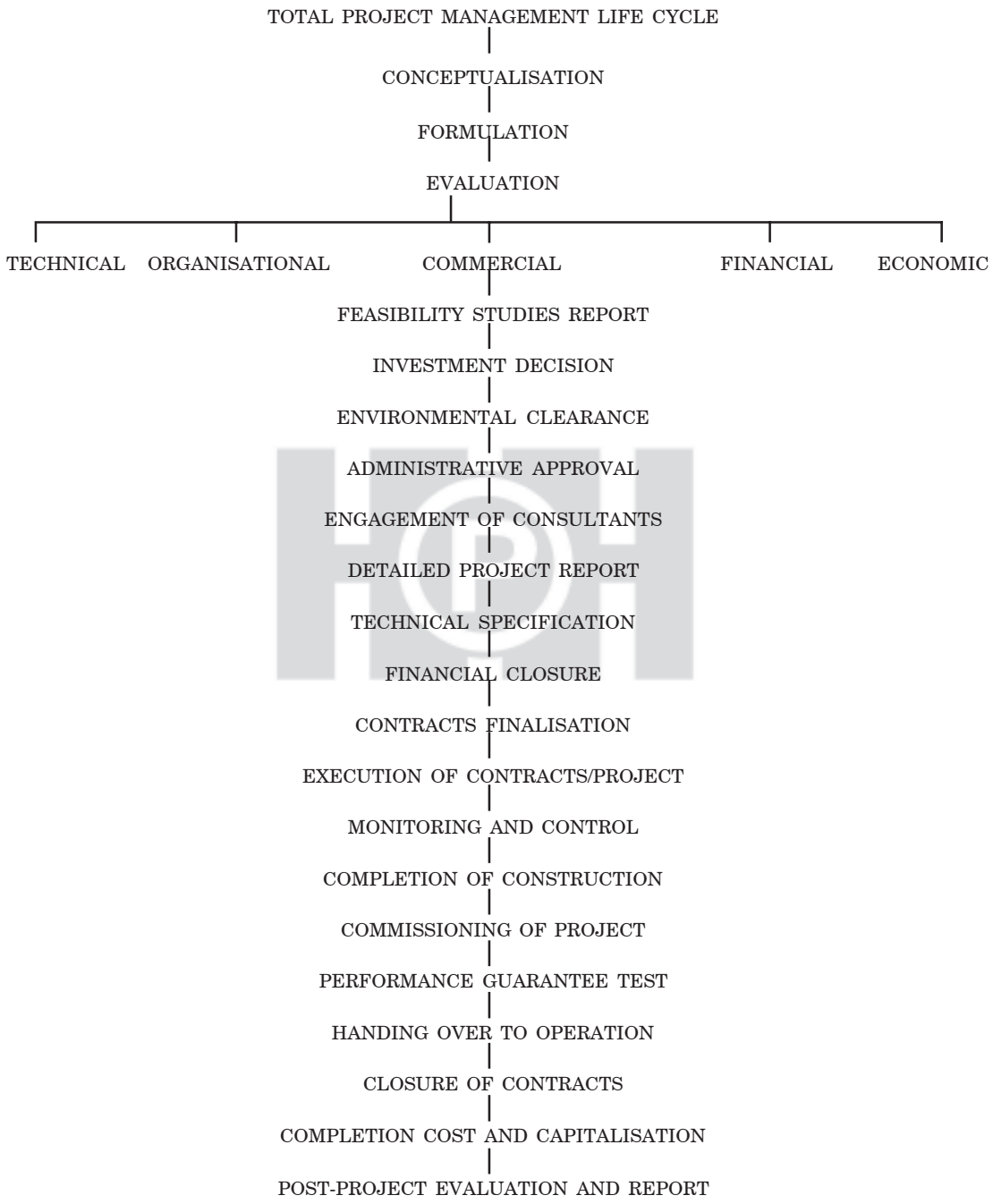
From the foregoing example, project may be defined as planning and management task for various activities for the completion of final work, i.e., construction of building in the present case. Thus, project is a 'plan' for arranging, coordinating, supervising, management and monitoring and completion of various activities related to the final objective, i.e., construction of residential building. In other words, all activities prior to completion of construction work of the building shall be taken together as one time job and termed as 'project' management and the 'building' as an outcome from the project management.

In similar way, examples can be given for construction of an integrated steel plant, power plant, construction of road, port, etc.

Thus, all activities prior to the completion of construction work shall be combined and termed as "project" as one time activity. After the completion of all the activities, 'project' is converted into a power plant, steel plant or so on as the case may be, which will be generating power and producing steel, etc., respectively for many years till the useful life of plant and machineries.

Total Project Management Life Cycle

A flow chart of total project life cycle is as under:



Now a brief description of each of the stages is given.

Conceptualisation

This is the first stage in the project life cycle. Conceptualisation is the idea, thought, initial plan, first stage of thinking by an entrepreneur, manager or economic planner about his scheme, plan for eliminating the problems in the existing operation or to avail of the opportunities prevailing. The concept may be to set up a new unit or to expand the existing operation or modernise, computerise, diversify, modify, replace the existing machine with a higher capacity of equipment, to initiate action for quality improvement, etc.

Formulation

Formulation is the further firming up of the concepts, ideas, thinking, etc., for putting the same into a realistic action plan.

Evaluation

When the concepts about an action plan become more and more clear, it becomes necessary to examine all the aspects related with decision making for investments.

Feasibility Studies Report

When details on technical, commercial, financial as well as economic aspects are not able to be compiled within the organisation or with the in-house expertise and data bank, feasibility studies report is got prepared by an expert/consultant in the field.

Investment Decision

This is the stage in project life cycle, when, based on earlier action and studies such as conceptualisation, formulation, evaluation process, an investment decision is taken for further processing for the statutory clearances including land acquisition and administrative approvals for project. Land acquisition including resettlement and rehabilitation (R and R) should be finalised and completed before the actual job on project begins. For SEZ Project Land Acquisition has to be completed before the approval of Government is obtained for SEZ. Without this, Government will not accord approval for SEZ as per recent directives of Government. Resettlement and rehabilitation will include adequate compensations for land of owners and their rehabilitation at the suitable places. The objective is that, affected populations must be properly treated and satisfactorily settled. This will enable the smooth sailing of the project activities.

Environmental Clearance

Nowadays, statutory clearances from State as well as Central Government level pollution control boards are must, before the administrative approval is granted and permission is given for execution of projects.

Administrative Approval

After the aforesaid actions, administrative approval from the competent authority is processed. After the administrative approval only, the projects are executed.

Engagement of Consultants

Consultants are either – in-house consultant or outside consultant or foreign consultant. Sometimes, the projects are executed on turnkey contract basis or on EPC

(Engineering, Procurement and Construction) contract basis. When the contractor of project is given full responsibility including the design, engineering, consultancy as well as monitoring and supervision of the project, in that case, there may not be requirement of a full-time consultant. But, still consultant may be required for the basic engineering and approval of drawings for the project executed on the contracts modes other than EPC.

Detailed Project Report

Before the project is undertaken for execution, detailed project report is got prepared. Detailed project report is prepared for all the items of work pertaining to the project.

Technical Specification

Technical specifications are got prepared for every work. Technical specifications will specify the technical requirements and all other terms and conditions for execution of the project as one package or into various packages.

Financial Closure

Before the contracts for projects are finalised or even before approval of the competent authority is obtained for the projects, finalisation of the financing of the projects has to be completed. Financing of project may be from external commercial borrowings, foreign direct investment, financial institutions, equity participation through joint venture or issue of shares to the public. Completion of all these arrangements for financing modes of the project is called 'financial closure'.

Contract Finalisation

Contracts may be Turnkey, Non-turnkey, Engineering Procurement Construction (EPC), Build Operate Transfer (BOT), Build Own Operate Transfer (BOOT), Build Own Operate Lease (BOOL), Build Own Operate Sale (BOOS), etc. Under this stage, mode of execution of project on any of the above modes of contract is decided.

Execution of Contract/Project

After the contract/contracts have been finalised, the next stage for execution of contract and project starts. This includes, meetings with contractors, follow-up the progress by the contractors, site activities, etc.

Monitoring and Control

Monitoring and control involves monitoring and control of physical progress, financial progress, quality control, performance guarantee parameters, so as to ensure the successful project management and completion of the project.

Completion of Construction

This includes physical completion of project in all respects, so that the project is finally commissioned for commercial production.

Commissioning of Project

After the project has been physically completed, i.e., work on all the activities such as civil engineering work, structural fabrication, supply and installation of equipment have been completed, the next stage comes for commissioning of the project, so as to

make the commercial utilisation of the project. Commercial utilisation is meant as commercial production as envisaged in the approved project.

Performance Guarantee Test

After the project has been commissioned and commercial production started, the next stage is to do the performance guarantee test as per parameters envisaged in the contracts.

Handing Over to Operation (end-users)

After the performance guarantee tests have been conducted and plant and equipments have stabilised, the commissioned plant is handed over to Operation Department, i.e., (the end users) of the project.

In some organisations, the handing over of the plant and equipment is done by executing the handing over and taking over act. Authorities from both the departments, i.e., Project and Operation sign this Act.

Closure of Contracts

After the project has been completed, commissioned, performance guarantee test completed and handed over to operation, all the contracts are finalised and closed.

Completion Cost and Capitalisation

The last but one activity in the project life cycle, is to workout the completion cost and capitalise the cost of completed project in the books of accounts as a fixed asset.

Post-project Evaluation and Audit

The last stage in the project life cycle is the post-project evaluation and post-completion audit report. In this stage, after the completion of the project, the actual results, completion cost, profitability, etc., are compared with the provisions made in the approved project. The variations are scrutinised for the adverse results for correction in the future projects.

Total project life cycle as discussed is for the indigenous investments (financing) based projects. In case of foreign direct investments (FDI) based project, the total projects life cycle will get enlarged as indicated below:

A Flow Chart

↓

Preparation of preliminary feasibility study report

↓

Signing of Memorandum of Understanding (MOU) between foreign company and the State Government

↓

Formation of a new company in India by the Foreign Company
Preparation of detailed feasibility study report

Signing of Memorandum of Agreement (MOA) with State Government where the project would be set up

↓

Approval of the project by the Board of the foreign company for FDI in India

↓

Clearance of Foreign Investment Promotion Board (FIPB) of the Govt. of India

Besides the industrial and foreign direct investment projects, there are other types of projects, which require additional activities to be done, before the projects are started for implementation.

Projects in Special Economic Zones:

For the projects coming in the special economic zones, following additional activities are required to be done in the total project life cycle:

(i) Acquisition of land.
(ii) Settlement of price of land and payment thereof to the landowners.
(iii) Clearances from the concerned departments of the State Government.
(iv) Approval from the State Government for the land acquisition.
(v) Approval from the Board of Approval (BOA), the final approving authority from the Government for the SEZ projects.

Projects related to Real Estates, Malls, Parks, IT Parks, Hospitality, etc.:

Similar to the projects in SEZ areas, clearances and approvals of the State Government for land acquisition are obtained for the projects of real estate, malls, parks, etc.

Greenfield's Projects

For the Greenfield's projects (projects in the new location), following additional clearances are required:

(i) Industrial licence.
(ii) Electrical licence.
(iii) Land acquisition.
(iv) Environmental clearance.

To conclude, it may be stated that each and every stage in the total project life cycle is important. A quick understanding and decision at every stage will enable the fast movement in the project life cycle. This will ultimately help in implementing the projects without any cost and time over-run and realize the benefits envisaged in the projects.

AN OVERVIEW

In a large ongoing organisation, operation and project management activities are concurrent.

The needs arise to know about the following:

(i) Investments in projects in an organisation.

(ii) Continuous investments and long-term investment planning

(iii) Strategy for adoption of new technologies.

(iv) Factors to be considered for new investments in projects

(v) Diagnosis of delay in projects and its consequences.

(vi) Investment policy in project in an organisation.

(vii) Key lessons learnt from the execution of projects.

(viii) Important issues/guidelines.

Now an overview (general survey) of these aspects is undertaken.

Investments in Project in an Organisation

Investment in a large organisation has its own peculiarities, which makes the process of investment planning an important task. Some of these peculiarities are:

(i) High investment cost

(ii) Long implementation schedules

(iii) Long gestation period

(iv) Dynamic domestic and international market

(v) Government priorities and policies

(vi) Development in the technologies

(vii) Substantial delays in the past

(viii) High cost of capital.

Continuous Investments and Long-term Investment Planning and Project Management

Apart from the investments done in the initial set up of the plants and their subsequent expansion/modernisation, need is felt for going in for investment under AMR (Additions Modifications and Replacement) schemes. The basic aims for investment under AMR schemes are:

(i) To maintain existing level of production from the existing facilities.

(ii) To replace the ageing plant and equipment.

(iii) To take care of minor imbalances in the capacities of various equipments.

(iv) Due to continuous improvements in the growth of the economy of the country as well as of the neighbouring countries, there would be corresponding increase in the demand of the products manufactured by the organisation. In order to meet the demand, new capacity additions by expansion of existing plants and setting up of new units will have to be undertaken.

(v) At the same time, due to liberalisation of the economy and for establishing themselves as consistent and reliable exporter, Indian companies also need to be modernised to produce cost effect and quality products. With this in backdrop, Indian companies also plan their investments in the ongoing modernisation programmes because of the following reasons:

- Technology not commensurated with the technology elsewhere in the world.
- Old/obsolete technology due to which cost of products being higher and quality not comparable with that available elsewhere in the world.
- Competition has increased due to liberalised imports in terms of cost and quality.
- The energy consumption, say per tonne of steel produced by the Indian steel companies being much higher as compared to developed countries.
- To take steps towards improvements of environment and implement eco-friendly technologies in the modernised/new installation.
- To cut down the cost of production by increasing the productivity, increasing the yield, etc.

Strategies for Adoption of New Technologies

Before using the technologies, some definite strategy has to be adopted. Some of the points to be considered are:

(i) Short-term and long-term demand and supply position of products using new technology should be carried out.

(ii) Market study.

(iii) Reasonableness of cost of new technology.

(iv) Reasonableness of cost of product.

(v) Alternative technologies/products.

(vi) Problems in absorption of the technology including logistics.

(vii) Techno-economic viability of new technology.

Factors to be Considered for New Investments

Some critical factors to be considered are given below. Most important is that we should learn from our past experiences and workout do's and dont's for new investments.

Objectives and Benefits of Investment in Project to be Clearly Spelt Out

The objectives of the investment and the benefits likely to accrue are required to be clearly identified. Investment decisions should be backed up by sound appraisals from techno-commercial considerations. Quantification of benefits is a must. Stress should be on tangible aspects rather than the intangibles. To the extent possible, the investment proposal should mention about the market potential of the products resulting from the investment. This will result in making the investment proposals complete and comprehensive to arrive at the correct decision.

Adoption of Technologies Keeping in View the Developing Technologies and Our Needs

Investment decisions should take into account whether appropriate technology is being considered from our requirement angle. It should also take into account the new technologies and which shall be available for commercial exploitation. Exposure to new technological developments is necessary for decision-making. Sufficient database is essential, which is presently lacking.

Exercising Care while Adopting/Retrofitting New Technologies

In an existing plant, when a new technology is adopted/retrofitted, the complete system should be studied. It has been the experience that in such cases, imbalances are observed after the adoption of new technology and then the gaps are filled by using AMR schemes. The techno-economic appraisal of the project is not complete before arriving at the investment decisions.

Selection of Consultant

The successful implementation of projects depends upon the accuracy of estimation of volume of works, capital costs, production/operation costs, implementation schedule, etc. The consultant should be fully conversant with the conditions prevailing in the areas of investment, market rates, etc., so as to workout the above parameters reasonably. These should be comparable to the projects implemented elsewhere. The consultant should know better than the client about the technical matters. For this, the consultant should be well conversant with the facility/technology being adopted as well and should preferably have past experience in similar projects/licence agreements with technology pioneers.

Selection of Proven Suppliers/Turnkey Contractors

Proper selection of suppliers/turnkey contractors plays a very vital role in the implementation of a project. Improper selection of suppliers/contractors generally lead to time and cost over-run. Learning from the past, it is felt that only suppliers proven for their technology for their adherence to contract specifications, timely delivery, timely erection with excellent track records of timely completion of projects, etc., should be considered for placement of orders. At least these points should be given due weightage in the process of selection of contractors.

Detailed Micro Plans and Strategy of Implementation

In depth, review of activities at the planning stage of proposals is a must. Strategies for implementation for capital investment should be discussed and detailed out. Experience should be drawn from cases in the past.

Faster Decision Making Required

In the present space age, technological developments/innovations are taking place every now and then. This calls for faster decision making process, so that advantages related to the early part of product cycle, wherein competition is less (due to lesser number of players in the market) are exploited. This means the organisation should have more autonomy in matters related to investment planning.

Technology and Know-how Transfer

Technology transfer aspect should be given due weightage while deciding upon the investments. It is desirable during the estimation stage itself, provisions are made in the estimates for this head. It may be worthwhile to note that the technology transfer from Soviets to Indians was better at Bhilai Steel Plant compared to Rourkela Steel Plant or Durgapur Steel Plant. This is because the Soviets stayed for longer periods after commissioning of the units imparting the skills of operation, giving training to the Indian operators, etc., compared to the stay of foreign experts at RSP or DSP which was very brief once the plants were commissioned. This factor along with aggressive research

and development will help in proper absorption and assimilation of latest technology in the organisation.

Product-mix After Investment in Projects

The product-mix resulting after investment is a very important aspect for coming to investment decision. Past experiences should always be taken into consideration while deciding the product-mix under the new investment proposal.

Continuous Upgradation of Technology

Technology is continuously getting updated in almost each and every field. Once a technology has been adopted/retrofitted, it should be continuously updated/upgraded with respect to the technological advancements taking place elsewhere in the world. This is essential to match the levels of productivity and quality being achieved elsewhere in the world.

Manpower Planning and Training

This is a critical area and continuous development of skills for new technologies is a must. Automation and computerisation of various operating units would need special attention.

Finally, any investment made should give returns that are envisaged at the time of approval.

Diagnosis of Delays in Projects

With the experience and general survey, it is observed that the main reasons for delays in projects including major expansion and modernisation projects are:

- Project ownership between operation and project authorities in dilemma
- Delayed response for corrective measures
- Lack of involvement in planning stage
- Overdependence on consultants
- Contracting agencies competence:
  - — Lacking in commitment
  - — Lack of experience
  - — Cash flow constraints
  - — Commercial disputes with subcontractors/vendors
  - — Inadequate mobilisation
- Increase in quantities of work with reference to original estimates
- Inadequate planning for structural fabrication
- Delays in indigenous equipment supplies.

Consequences of Delays in Projects

(i) Interest loss

(ii) Higher capital cost due to:

- Inflation
- Change in foreign exchange parity

(iii) Loss of profit as envisaged due to deferment of benefits

(iv) Risk of outdated technology

(v) Project remains unprofitable throughout its life

(vi) Production loss

(vii) National loss of resources

(viii) Loss of production incentive (in financial terms) to workers.

Types of Investment

Category	*Purpose/Objective*
Additions	● To sustain present level of production
	● To give incremental output/productivity
Modification	● For ease of operation/maintenance
	● Technological upgradation
Replacement	● Expansion/Backward-forward integration
	● Diversification — New products
New Technology	● New facility
	● Retrofitting with old facilities
Quality Improvement	● Customer satisfaction
Pollution Control	● Statutory

Investment Policy in Projects

While deciding the investment policy in an organisation, following points are considered:

- Resources are not only costlier but also are scarce.
- Resources to be judiciously deployed based on techno-economics consideration only and after due prioritisation.
- Categorisation of investments: (prioritisation)

  Category — A:

  - Statutory requirements
  - *Essential* Replacement of *critical* facilities for sustaining production and having financial impact say 20% and above on the investment (Gross margin to investment)

Category — B:

- Additions and modifications with internal rate of return of say 25% and above/ maximum payback period of three years.

Category — C:

- Schemes not falling under A and B
- To be taken up separately.

Key Lessons Learnt from the Executed Projects

- Large investment at one go not advisable.
- Cost and implementation schedule to be more realistic.
- Competence of contracting agencies crucial for success.
- Operation department in an ongoing organisation to play lead role in finalisation of technological specification (TS).
- Minimise costs at the stage of technical specification.
- Operation users to own the projects.
- Minimise semi-defective products in product-mix.

Important Issues/Guidelines

Following issues/guidelines emerge as a result of the overview of the investment planning in an organisation:

- Present economic environment
  - — No budgetary support [in case of Government companies]
  - — No external help
  - — Self-dependence
- Investment within internal resource generation.
- Prioritisation guidelines.
- Unit's expectation vs. corporate objectives (in case of corporate and units based organisation).
- Calculation of envisaged benefits (realistic approach/projection)
- Mode of tendering.
  - — Turnkey vs. non-turnkey
- System of award of contract
  - — Bonus/penalty
- Before undertaking new schemes review of existing facilities to be done
- Simplification of procedures
- Selection of technology to be independent
- Monitoring – Time and cost over-run
- Strategy to handle deviations and delays
- Committed task force (Project) Personnel
- Authority, Accountability and Continuity (No transfer of project personnel during construction and one year of operation)

- Proper planning
- Balancing facilities to be covered
- More insurance spares (to take care of breakdowns)
- Idle underutilised assets

QUESTIONS AND GUIDANCE

1. Explain the meaning and concept of project.
2. What are the various stages in the total project life cycle? Make a flow chart to explain the same.
3. Discuss in brief about the various stages in the total project life cycle.
4. Write short notes on:
   (*i*) Conceptualisation
   (*ii*) Financial closure
   (*iii*) Formulation.
5. Please explain in brief the difference between:
   (*i*) Financial closure and closure of contracts
   (*ii*) Completion cost of project and post-project evaluation and audit
   (*iii*) Conceptualisation and formulation
   (*iv*) Feasibility Studies Report and Detailed Project Report.

Guidance

Financial Closure: This stage is to finalise the sources of finance from various agencies for the total project cost with all terms and conditions. This is required to be finalised and decided before the work on project gets started. Financing arrangement may be:

(*i*) Tie-up with the foreign partner as a joint venture

(*ii*) Equity participation

(*iii*) Term loan from the banks and financial institutions

(*iv*) To go for finance from the market/bonds/deposit/issue of shares.

(*v*) Internal generation

Whereas, closure of contracts is the last stage function on the completion of work in the project. This may include finalisation of all contractual disputes, escalation payments, statutory claims, liquidated damages if any, etc.

Completion Cost of Project and Post-project Evaluation: When project work has been completed, all contracts have been finalised, *completion cost of project* is prepared taking into consideration the actual expenditure for the work done, liability for any dues yet to be settled, escalation, duties and taxes variations finalised.

Post-project Evaluation: This stage is to workout the completion cost and also evaluate the performance parameters as envisaged in the approved project report and also in the contract.

Any shortfall or deviation is brought to the notice of management for necessary correction.

Conceptualisation and Formulation: Conceptualisation is the initial ideas about a proposal prior to the second stage, i.e., formulation of project. Conceputalisation is just the idea, whereas formulation is a firmed up detailed activity in the investment decision making.

Feasibility studies report and detailed project report: A detailed comparative study of these two reports has been made and shown in the book.

6. What are the additional jobs to be done in case of projects being financed through Foreign Direct Investment (FDI), Greenfield's projects and SEZ (Special Economic Zones) projects?
7. Discuss about the 'overview' of investment planning in an organisation.
8. You are appointed as a consultant for a project. Advise to the management for the factors to be considered while deciding a new investment in an organisation.
9. You have been appointed as a project accountant. Please analyse reasons for delays in project as well as consequences of delays.
10. You as a project accountant of a company advise on the investment policy of the company.
11. What are the lessons learnt from a project after the execution?
12. You were appointed to make a general survey of a project. What are your suggestions/guidelines to be followed in the new projects?

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