

PRACTICES OF PROJECT MANAGEMENT – A CASE STUDY OF SOME INDUSTRIAL PROJECTS IN BANGLADESH

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ABSTRACT

Developing countries like Bangladesh whose economies had been transformed into market-oriented environments have recently been fueled by decades of significant economic growth. To speed up its economic development within the framework of a rapidly changing networked global economy, the country is in dire need of adopting project management expertise in order to serve the cause of effectively implementing a significant number of infrastructure projects and contribute to the goals of industrialization and modernization of it to meet the globalization and technology challenges of the 21st century. This paper introduces the effective project management by taking some industrial projects as a sample, their approaches, information system, conceptual background of the project, that is practiced by thousands of industrial project managers in the more advanced, developed countries, especially in Bangladesh to successfully execute their projects, promotes its usefulness and adaptability to the global business environment and provides an Bangladesh perspective on the subject associated with related recommendations.

Key words: Case study, industrial projects, project management

INTRODUCTION

What is development for a particular society is inherently a rather debatable issue. The process of technology innovation and development is a result of interaction in the social structure and of conflicts that is raised in the environment in which it is produced. The development process is a step-by-step process. Every country, more so the developing countries with scarce resources need plan to guide their efforts for development. The plans can be converted into programmes and projects (Skylark, 1979). Projects are the king-pins of development planning. Projects have been referred to as the excellent organized efforts, as the basic block of development, as the cutting edge of development and as the privileged particles of the development process.

Projects are the pivot of a sectoral programme and the sectoral programmes in turn constitute a well-conceived national plan. But the project formulation needs national plans and vice versa that raise the fundamental issue of the hen and the egg dilemma. Owing to this independence a constant exchange of information and cross-adjustments of requirements, possibilities and adaptabilities between decision makers at the macro and micro-levels are essential for successful planning (Skylark, 1979). A project is a one-time event that creates or manages change, either implementing something new or changing existing programs or systems. In the broadest sense, a project is a specific, finite task to be accomplished. Whether large or small scale or whether long or short run is not particularly relevant. What is relevant is that the project be seen as a unit (Shrutika, 2003).

Projects represent the commitment of human and physical resources to produce specific outputs in a given time and budget framework. Projects vary in scale, purpose and duration. They may be initiated

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within a community, requiring modest inputs and producing tangible outputs within a relatively short timeframe (Hoque, 2003). At the other extreme, projects may require substantial financial resources and only generate benefits in the long term. For example, the former could be an adult literacy project in a village; the latter may be the provision of universal primary education for all children of school age in a country. Whilst the former needs one trainer and a few teaching materials, the latter requires numerous schools, teachers, equipment and administration. Projects may stand-alone or be integrated into a programme, with several projects contributing to one overall goal. Despite the difference in scale and nature of projects, there are aspects of sound project management that are universal. The main objective of the study is to make a critical assessment of the existing practice of project management in Bangladesh. In precise terms, following are the specific objectives of the study:

- i) To assess the practices of project management taking some industrial projects as a sample;
- ii) To suggest some policies regarding this.

MATEIALS AND METHODS

The conceptual foundation and their theoretical applications constitute the core of the subject matter. The concepts and techniques in current use by the organizations are introduced in generic terms and then explained in details. A significant feature of the study is the use of secondary information. The important secondary sources are the corporations’ annual reports, books, journals, magazines, and the daily news paper also. The collected information have been analyzed and examined critically through graphs and figures in order to make the study more informative and useful.

Project management practice is best studied under the context of its life cycle. A possible project life cycle is outlined in table 1(Bishop, 2001).

Table 1. A typical project life cycle

Stage	Documentation
I Identification	Generation of the initial project idea and preliminary design.
II Preparation	Detailed design of the project addressing technical and operational aspects.
III Appraisal	Analysis of the project from technical, financial, economic, gender, social, institutional and environmental perspectives.
IV Proposal Preparation, Approval and Financing	Writing the project proposal, securing approval for implementation and arranging sources of finance.
V Implementation and Monitoring	Implementation of project activities, with on-going checks on progress Feedback.
VI Evaluation	Periodic review of project with feedback for next project cycle.

The project cycle (Diagram 1) represents a continuous process in which each stage provides the foundation for the next. For example, the information generated during project identification (Stage I) provides the basis for detailed project design (Stage II). Stage III reviews the information generated during the preceding two stages from several perspectives to ensure the project is viable. Stages I to III provide the foundations for a project. If they are sound, the project is more likely to succeed in subsequent stages, in terms of securing funding and competent implementation. However, at any point in the first three stages it may be decided that it is more appropriate not to proceed with the proposed project.

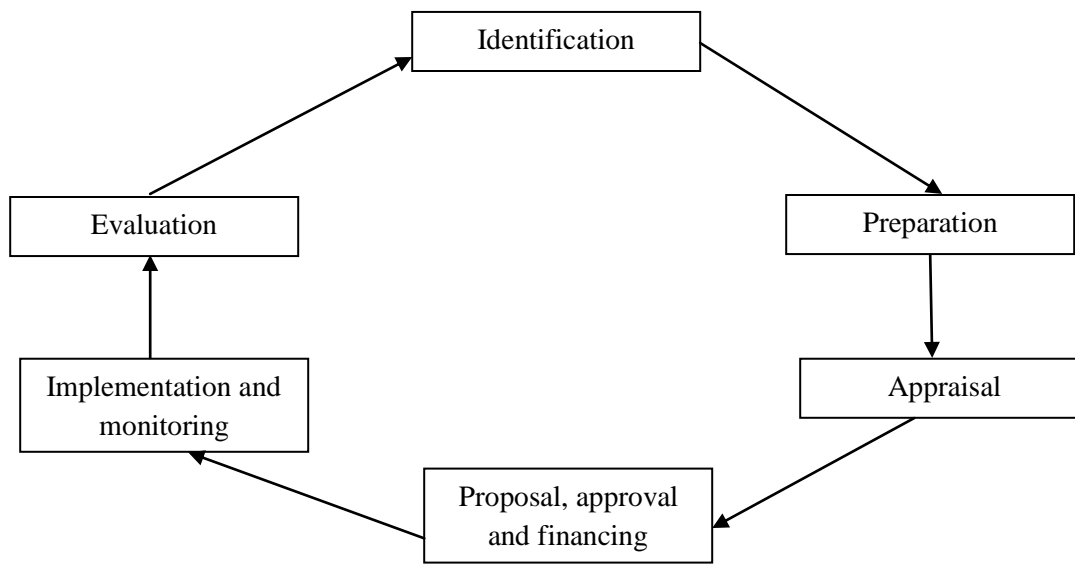


Diagram 1. Stages in the Project Cycle

Desai (1983) and Krishna (1983) provide a good description of the of pre investment stage. The effectiveness of the pre investment has to be judged in terms of the correctness of the investment decision and the time taken to arrive at the decision. This stage involves several agencies, for example, implementing organization which may be a non-departmental or departmental enterprise, the controlling ministry, linked sectoral ministries', Planning Commission, Ministry of Finance, Bureau of Public Enterprises, and Public Investment Board.

How are projects identified? Presently this involves studying imports, substitutes, available local raw material, available technology and skills, inter-industry relationships, existing industry, development plans, old projects. However, these studies are not detailed. Projects are identified more as a 'shopping list' by the administrative agencies. The concern is more to justify the project rather than to meet the demand for goods and services. The capability required to plan a project is not available. Often there is a paucity of alternative projects. Many parameters such as shadow wage rate, accounting ratios, and premium on foreign exchange that are required for conducting a social cost benefit analysis are not available at the time of project identification.

Project appraisal refers to the evaluation of projects, which are essentially the study & the selection between alternatives. As a broad concept, project evaluation includes investment opportunity search, technical, economic, commercial, managerial, organizational studies & financial analysis including the calculation of tests of investment worth. The objective of appraisal is not merely to accept or reject an investment proposal, but to recommend ways in which the project can be redesigned or reformulated to improve its technical, financial, commercial, and economic viability (Chandra, 2006). While social cost benefit analysis is essential, the technical, financial, and commercial viability of a project also needs to be appraised. The main thrust of the appraisal by the Project Appraisal Division and the Bureau of Public Enterprises relates to a comparison of the situation with and without the proposed investment. However, rarely is a basket of proposals available as are alternative options, with details of costs and benefits for each, so that a choice can be made among competing alternatives. Projects in a sector are generally presented for approval one by one. Appraisal is limited to whether there are possibilities for minimizing the capital and operating costs, without redesigning the project benefits. Appraisal would have to emphasize different factors for different sectors. Emphasis in one sector may

be on the impact of low capacity utilization; in another, on escalation in capital costs or on fluctuations in operating cost. Analysis should be related to the factor chosen for emphasis.

It is gathered that there are project-approving authorities at the four levels namely, Corporation, Ministry, Planning Commission and National Economic Council. At the Corporation level, the Board of Directors has the authority to scrutinize and examine the projects, to give its comments & recommendations, and to approve projects whose total cost does not exceed Taka 1.00 million. At the Ministerial level, the respective Ministry has the authority to approve projects costing not more than Taka 5.00 million. Projects costing above Taka 5.00 million but not more than Taka 20.00 million have to receive approval of the Planning Commission. At National Economic Council level, the Executive Committee has the ultimate authority to approve projects costing more than Taka 20.00 million (Skylark, 1979).

Main scope of work during the project implementation stage includes: preparation of the detailed project report, selection and finalization of contracts with process licensors, selection of consultants for finalization of contracts, preparation of expenditure profile/budget estimates, finalization of project work contracts, procurement of equipments and materials, project construction—land acquisition, site preparation, scheduling, erection, and commissioning, arrangements for start-up activities in consultation with operating departments, management reporting for progress monitoring and control.

The bulk of the cost and time overrun occurs during the project implementation phase. A good analysis of the causes of the overrun is provided by Dikshit (1983). They may be grouped as follows along with those under project formulation: project formulation, capabilities and availability of infra structure, system support inadequacy, environmental constraints, social, political, and behavioral aspects.

Monitoring is the faculty of continuous, periodic or by exception reviews or overseeing by management at different level of the hierarchy of the implementation of an activity / project to ensure that input deliveries (including finances), work schedules, targeted outputs and other required actions are proceeding according to designed plans and budgets. The purpose of monitoring is to achieve efficient and effective project performance by providing feedback to project management and inferences at all levels. This enables management to improve operational plans and to take timely corrective actions in case of shortfalls and constraints. Process of project monitoring starts at the project level itself. In a less fortunate country like Bangladesh, major developments investment takes place in the public sector. Therefore, the position of the concern executive agencies, ministries become significant in project monitoring. At the national level, there is a body, which monitors and evaluates the projects.

RESULTS AND DISCUSSION

Case of Industrial Projects

Chittagong Dry Dock and Heavy Steel Structure Works: The project has, after liberation of Bangladesh, been under BSEC. The project has been executed under rather long term Yugoslavian credit assistance. The work started on it in 1966 with the approval of P.P. the target of completion was set for 1970. Originally it was decided to set up one slipway and one dock and no major workshop. The cost was estimated at TK 65 millions. Engineering services were given as grant but equipments, construction supervision, supply; erection and commissioning were to be financed through Yugoslavian credit.

After liberation due to loss of facilities in Pakistan, G.O.B. decided to build 2 docks – one for repair and the other for construction (but no slipway) and a fullfledged workshop. Before liberation only

about 15% work was done (land acquisition, Adm. Building) because during 1966-68 Government had abandoned the project due to funds constraints. It was not a core project. In 1971-72 the Yugoslavian credit was renegotiated. P.P. took a long time in getting approval. Work started at 1993 with a new target for 1997. Revised estimate stood at TK 590 million and project was given core project status. For procurement of workshop machinery Yugoslavian was not interested.

Further efforts to arrange funds failed. In 1979 the project scheme was again revised to 1 dock with small workshop but no slipway. Japanese credit was finally arranged for workshop machinery. Dock portion was completed in 1981. Workshop and its machinery were ready after installation in June 1984. Workshop machinery is from Japan. The Electric overhead traveling cranes have been purchased from India. Dock cranes have been supplied from Yugoslavia and Japan.

The final project cost is TK 1330 million. Cost has risen due to heavy delays and administrative overhead, inflation, change in rate of exchange (originally TK48=1 U.S. dollar, in 1974 TK 12=1 U.S. dollar, in 1984 TK27=1 U.S. dollar), increase in interest burden. Originally 6.5%, then 9% and lately 11%. TK 300 million is only the cost of interest.

The main reasons of delay have been: change of project objectives, delay in arranging funds, liberation war.

General Electric Manufacturing Plant (GEMP)

This project is another classical example of project product failure in Bangladesh. The project was initiated during Ayub Khan's time in early 1960's. AEI of England prepared the project document for this project in 1964 after which the then Pakistan Government approached for loan from different agencies. Russia accepted to provide the project loan. Promash Export of USSR did the detailed study and selected the project size in 1966. Construction started in 1967. The estimated cost was then Tk75 million. It was agreed that Russia will provide engineering services, plant and machinery for full capacity (set at 8000tonnes/ year of 18 types of 3 phase transformers, isolators, circuit breakers and switchgears). Provide for erection, commissioning, jigs and fixtures, all raw materials for first years, building steel materials, and design of buildings and provide training in Russia and implant training at Chittagong. Bangladesh was supposed to provide land, construct buildings with own bricks, cement and assist in erection.

Dr. Nazrul Islam, a Professor of Engineering College was appointed as the first Project Manager. During 1967-70 there was very slow progress on the construction of building due to low L.C. allocation and the detailed design was not received from the Russian organizations in time. This led to tension between the Russian and their local counterparts and Dr. Islam left the project. Till 1972 construction work did not proceed and thereafter continued at slow rate up to 1975.

In 1975 revised decision was taken to reduce the size of the plant to about 60%, since the Pakistan market was no more available. But some of the equipments were already bought for 100% capacity for parts of the project. On the other part the portion had to be reduced even further to make an average of 60%. The scheme of the project was thus revised to TK 870 million in 1975. Again in 1976 the scheme was revised down to TK600 million due to straining of relations with the USSR organization. Project announced completed in 1979 though it is difficult to say so because original scheme was not followed. Some portions are 100% implemented, others are completely omitted. During the project about 80 Russian technicians with their families worked with the project and almost all have left in 1982.

Production is extremely poor. No 3 phase transformers are produced because the design is very heavy and hence the transformers produced are very costly. Rural electrification was supposed to be the

main market. Under the U.S. aid advice only single phase transformers are being used for rural electrification. These are imported from USA, Japan and Korea. BPSB cannot buy from GEMP because their loans are of tied type. The plant has only assembled some transformers and is striving to make single phase transformers. The plant cannot be even disinvested because there are no buyers. Only assembly of isolators, circuit breakers is being done. The plant is considered a sick unit.

Karnaphuli Paper Mills (KPM)-BMR

KPM was commissioned in 1953 with an installed capacity of 30,000 tons of paper per annum under a World Bank loan by the help of a consortium of suppliers from USA, England, Germany, Sweden and Italy for EPIDC. Over the years the capacity utilization had reduced. A BMR project was thought of in 1964 by the then private owners Dawoods and some machinery like filters for pulp washing plant; Knife grinding machines, chips blowers etc. were produced. The investment was only partially implemented. In 1968-69 Stadler –Hartner, a Canadian firm carried out a recovery side. In 1976 Sandwell, Canada carried out a study of the mill supported by World Bank. The total investment stated to be TK 580 millions. The study suggested replacement of digesters and recovery boilers. In 1976 Celpap, Sweden, also carried out a study supported by SIDA in certain areas of the mill. This study indicated investment cost of TK 140 millions and a P.P. for TK140 millions was submitted. However, later it was felt that these estimates were conservative and P.P. was revised to TK240 millions in 1979-80.

Major works involved are to arrest chemical losses in the pulp mill by a new washing plant, reconditioning of soda recovery boilers, rebuilding of precipitator and other misc. rehabilitation works. Replacement of roll grinder machine and rehabilitation and speeding up of paper-machines were added later on to the ambit of work. The completion target was set at the design of pulp washing building and blow valves took place. Celpap AB, Sweden, are the consultants. The completion date of the project was later revised to Dec., 1983 and revised again to Feb., 1984. Works with regard to the precipitator have gone out of phase. Original suppliers in USA sent their engineer very late and his report was not accepted. Rebuilding cost was very high. It was decided to make a new precipitator and offers were obtained from India, Sweden and Japan. “Fläkt”, India has got the work. L.C. opening was delayed by 6 months. This segment of work went out of phase from the rest of the project.

The consultants have promised to show positive results from the guarantee test run in quality and quantity (corresponding to 30,000 AD tons/year and saving of TK 2,000 per ton of paper in production cost). In June 1984 all those involved did not feel that this saving is likely to be achieved.

In June, 1984, according to BCIC, following works were still pending. Rebuilding of precipitator (not erected Oct., 1984) top blow system of digester not working satisfactory, Chlorine Mixer including pump did not function in spite of completion of works, no water saving by using surface condenser, production speed at 242 m/m with 56gsm paper at targeted could not be achieved, problems with chips washing pump, turbine cooling water recirculation pump did not performed well. There are also problems with regard to pressurization of paper mill head box. Up to Oct., 1984 chipper machine was still not commissioned also delaying the trimming of sister RDBE project.

There was also shortage in the availability of raw materials produced by the mill itself and through the associate RDBE project. Fresh trial runs subsequent to some shut down works have been postponed to early 1985 due to the shortage of paper in the country. The local authorities are blaming the consultants for inadequate engineering, constant revisions in the action program check lists, poor inspection whereas the consultants have complained for delayed payments and delay in supply of data and that consultants have to stand for guarantee test in spite of the fact that some of the equipments have been put in usage since quite some time. SIDA's independent consultant on a review mission states that none of the parties are free of blame. SIDA has played an important role in reconciliation.

The project has been delayed due to delay in writing the formal contract with consultants, custom clearance delays, delay in detail engineering, identification of linkage items between two suppliers, delays in procurement. For some extra funds requirements at one stage, FRG funds were planned to be used. However, difficulties arose in making advance down payments to suppliers through FRG grant. Later on all these orders were shifted to SUDA grant. Sometimes KPM bridge-financed opening of L.C.'s.

Project cost have increased due to delay, inadequate original estimates, increase in project appetite, ordering of link items at almost commissioning stage, inadequate competence build-up (a separate training project has been added to the project lately), some of the older items outside the scope of BMR now need replacement. The review mission consultant finds that the paper sheet cutting machine capacity is inadequate and has noted that unrealistic time schedule for the final part of the erection phase has caused inefficient use of available resources. Total cost spent up to June 1984 was approaching TK 280 millions.

There has been a considerable increase in the foreign exchange expenses. The project organization has been too small and the authority level of project management rather low for the kind of investment undertaken. Effect of environmental reinforcement of competence has probably not been well understood and taken care of.

CONCLUSIONS

A successful project manager would be substantially benefited from our analysis points. Better project management requires strengthening project management capabilities at all stages of the project life cycle (Korgaonker, 1983). More scientific pre-investment investigative studies need to be undertaken for large/complex projects. To achieve this, long-term association is necessary between consultancy companies and research institutions. Pre-investment studies should focus on opportunities available, a global state of art review of trends, likely plant size, technologies, locations, environmental impacts, approximate value of investments involved, and process feasibilities. Such studies should be widely disseminated and discussed to generate creative project identification.

A definite time schedule should be set up for the pre-investment stage of the project as, our analysis has shown; this stage is subject to inordinate delays. Agencies involved in issuing permits/ clearance for foreign exchange, import license, and custom clearance should be involved in appraisal to minimize the risk of delays in obtaining clearances. Scarce construction materials such as steel, cement, and petroleum, oil and lubricants need to be planned along with the detailed project report to enable advance procurement action.

Capital cost estimation needs to be realistic. Special data bank/libraries need to be set up giving time and cost estimates for various activities in completed projects in major sectors. Cost estimates should take the likely impact of anticipated inflation and escalation clauses, likely revisions in administered prices and wage rates, and exchange rate fluctuations. The estimates should reflect total system costs including those in linked projects and development expenses for land acquisition, approach roads, water supply, and geological and geophysical investigations at site. For closely-held technologies, expenditure on purchase of information from abroad will have to be included. Risk analysis should be undertaken regularly to improve the forecast of estimated cost at completion.

There is a need to research into appropriate project management models for large projects and on specific issues like effect of project uncertainties. Proper documentation of experience and data generated in project planning, execution, and commissioning phases, indicating the problems encountered, remedial actions taken, and lessons learnt, would be valuable. There is an urgent need to

modernize and update construction technologies in Bangladesh. Agencies with the capability are very few. New capacities for construction equipment should be created or imports allowed where necessary.

Perhaps the most neglected area to date is the development of human resources for project management. There is no institution in the country offering a specialization programme in this field. Efforts in post-experience training in project management are also limited. Specific courses in project management are not found in graduate or undergraduate curricula of universities and other institutions. Appropriate training and development measures are, therefore, a crying need of the hour to eventually man the projects with well trained personnel.

Therefore, it can be concluded that improvements in the various aspects of the project management would improve the profitability of the projects. Hence, every effort should be made, as soon as possible, to improve the project management practices in Bangladesh. In order to overcome the problems and deficiencies encountered in the various aspects of project management, an opinion survey of the concerned personnel may be conducted which would improve the project management practices in Bangladesh.

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