

MULTIPLE PROJECT EXECUTION SYSTEM FOR A CONSTRUCTION CONTRACTING ORGANIZATION

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Abstract - Construction companies manage multiple projects scattered over their area of business, thus to operate profitably there is dire need to monitor resources, time and costs effectively so that the projects can be successfully delivered.

Proper management within an organization is very important to have the best productively thus to deliver it every organization should have a proper way of managing the work within themselves. The thesis shall restrict to mid-level contracting organizations involved in construction of small scale infrastructure projects located in of Madhya Pradesh. Basically a study will be done emphasizing on scheduling of multiple projects along with the financial management.

A case study of an organization will be done which has three or more projects running simultaneously of almost same scale on which a complete analysis will be done. Size of projects shall limit to value of 10 Crores and within a timeframe of 2 years.

Key Words: Proper management, organization, Construction, execution, multiple projects, Scheduling

1. INTRODUCTION

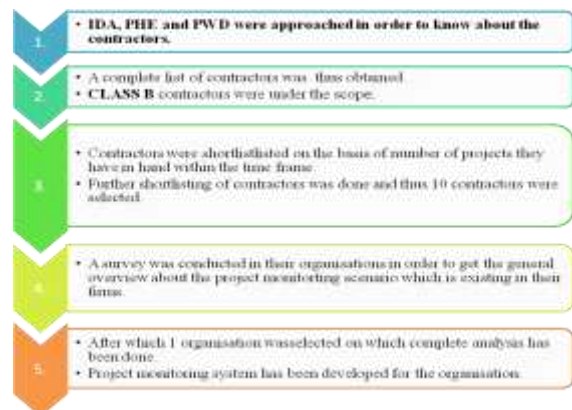
To prepare a lean and efficient project execution framework for multiple projects under the same organization that addresses many of project management challenges.

To have a complete database for an organization related to Scheduling, Estimation, Financial management, Resource allocation, Material and Time so that a complete analysis can be done and gaps can be figured out so that an improvised method can be devised.

1.1 Criteria for selection of case studies

- According to the scope the contractors whose projects cost ranges from 2 to 10 Crores were targeted.
- Sufficient number of projects must be running simultaneously.
- The time frame of the projects running should be within 2 to 3 years.
- Construction of small/medium scale water supply projects located in state of Madhya Pradesh.

1.2 Methodology of data collection



2. PROJECT MANAGEMENT AND MONITORING

According to a study which was done in year 2005 by pipc, it was concluded that 95% of companies state that project management is vital to the success of their business and will support their future business plans.

- It was also stated that:
- 31% of projects fail to deliver on time.
- 31% of projects fail to deliver within budget.
- 58% of projects fail to deliver the benefits as set out in the business case.
- 60% of companies attempt to run too many projects at the same time.
- 34% of companies use software tools to enable improved project management practice.

2.1 MONITORING DURING PROJECT EXECUTION

The focus of project management during the execution process is:

- Track and monitor project activities to measure actual performance to planned performance.
- Review and communicate status and future actions.
- Monitor and mitigate potential risks.

- Execute a rigorous change management process to control changes to the project’s objectives, specifications and overall definition.
- Execute an issue tracking process to ensure that there is a central repository for project issues that are addressed in a timely fashion.

2.2 Relationship between project planning and project monitoring and control

	Project Planning (PP)	Project Monitoring and Control (PMC)
Plan & Track	SP 1.2 Establish Estimates of Work Product and Task	SP 1.1 Monitor Project Planning Parameters Time Plan (PP SP 2.1) - Costs, Effort (PP SP 1.4) - Attributes of the work results and Duties (PP SP 1.2) - Resources (PP SP 2.4) Knowledge and Skills (PP SP 2.5)
	SP 1.4 Determine Estimates of Effort and Cost	
	SP 2.1 Establish the Budget and Schedule	
	SP 2.4 Plan for Project Resources	
	SP 2.5 Plan for Needed Knowledge and Skills	
	SP 2.7 Establish the Project Plan	
Commitment Management	SG 3 / SP 3.3 Obtain Plan Commitment	SP 1.2 Monitor Commitments
Risk Management	SP 2.2 Identify Project Risks	SP 1.3 Monitor Project Risks
Data Management	SP 2.3 Plan for Data Management	SP 1.4 Monitor Data Management
Stakeholder Involvement	SP 2.6 Plan Stakeholder Involvement	SP 1.5 Monitor Stakeholder Involvement
Issue Management		SG 2 Manage Corrective Action to Closure

3 SURVEY FORM

Survey Form for Construction Contracting Organization		
Business Information		
1.Name of Organization		
2. Address		
3.Phone		
4.Email		
5.Website		
6.Primary Contact Person		
7.Designation		
8. Types of projects involved in :		
9.No. of employees in the organization	a)	0 to 10
	b)	10 to 25
	c)	25 to 50
10.No. of construction projects running		
11.Class of Contractor Registration		
B		
Project Management Questionnaire		
1. Do you think project monitoring in your organisation is vital for your business and will support your future business plans?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
1		
2. Do you use any software tools to enable improved project management practice?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
2a. If yes, then which?		
3. Do you measure project progress against common set of Key Performance Indicators?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
4. In the past 2 years, how many projects have you been involved in?		
5.Of these projects how many:		
5a.Have failed?		
5b.Were challenged? (A challenged project is a project that is completed, but is either late, over-budget or does not meet all the requirements. It delivers moderate value, less than what was anticipated.)		
5c. Were successful?		

6. Do you have any existing system for monitoring of projects?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
6a.If yes, then give a brief description about it.		
6a.		
7.Is it computerized or manual	<input type="checkbox"/> Computerized	<input type="checkbox"/> Manual
8. what is the Rescheduling time period?	<input type="checkbox"/> Daily	<input type="checkbox"/> Weekly
	<input type="checkbox"/> Quarterly	<input type="checkbox"/> Monthly
9. Would you implement any new project execution system if developed?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
10.Till what time you are planning to implement?	<input type="checkbox"/> 3 months	<input type="checkbox"/> 6 months
	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years

3.1 Thus, on the basis of the analysis ADROIT ASSOCIATES was selected.

Some other reasons which were considered for the selection were:

- It has maximum no. of projects in the last 2 years.
- It has maximum no. of projects running, i.e. 11.
- The projects which have been selected for the case study are at 3 different stages.
- The staffs of the organisation were co-operative during the survey process and showed keen interest in getting a monitoring system being developed for their system.
- Organisation is willing to expand its business.

3.2 DETAILED DATA COLLECTION

About the organisation

- Adroit Associates, a total water solution enterprise based in Indore (M.P.) with its projects spread across central India since 1987.

Expertise

- Water Treatment Plants
- RCC Elevated Tanks, Underground tanks
- Intake Wells
- Sewerage Treatment Plants
- Industrial Water Treatment Plants
- Water Supply Projects/ Water Softeners
- Pressure Filtration Plants

3.3 Major On-going/Executed Projects

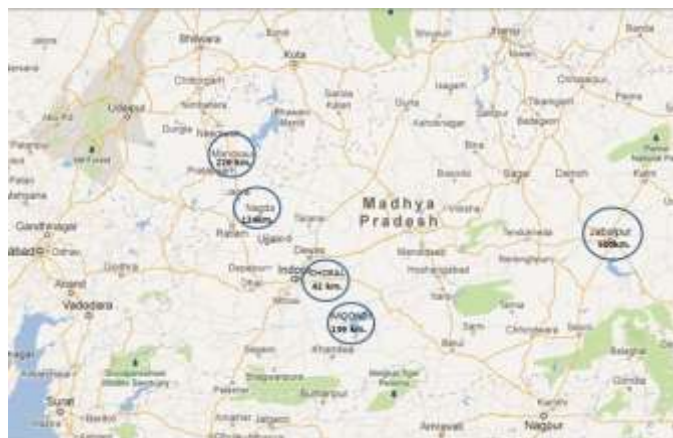
The organisation has been in this line of work for over 25 years now and have successfully designed and executed water infra projects in the central India region. They have on their credits more than 60 water treatment plants, over 30 RCC Overhead tanks and about 10 intake pumping stations.

On-going projects:

- There are 11 projects which are presently running. They are as follows:
- Dharampuri Water Treatment Plant
- Mahi WTP, Bolasa Dam
- Khedi WTP, Jhabua
- Choral WTP, Choral Reservoir, Indore

4. COSTRUCTION

- Garoth WSS Scheme, Mandasaur
- Sardarpur Intakewell Birla Gram WTP , Nagda
- Intakewell at Chambal River, Nagda
- Hargarh WSS Scheme, Jabalpur
- Moondi WSS Scheme



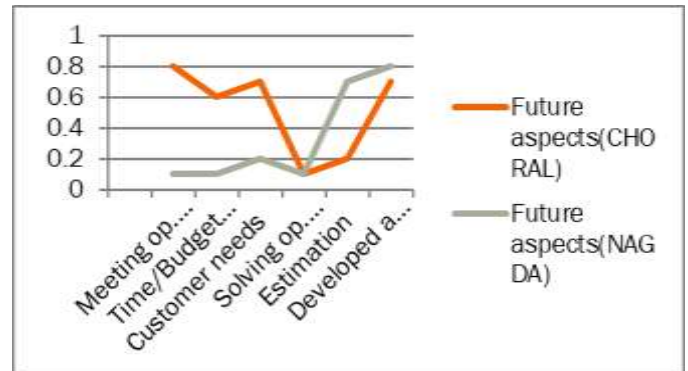
4.1 ANOVA Analysis

DEFINATION

- ANOVA IS USEFUL IS COMPARING TWO, THREE OR MORE MEANS.
- ANOVA techniques investigate any number of factors which are supposed to influence the dependent variable of interest.
- It is also possible to investigate the differences in various categories within each of these factors.

- The dependent variable in question is metric (interval or ratio scale).
- The independent variable is categorical (nominal scale).

4.2 Comparison of future aspects with various factors



5. CONCLUSIONS

- Proper scheduling of work and provision of scheduling charts at site changed the orientation of work team to target oriented.
- The reporting system was once able to find discrepancy between the material used and estimated. An urgent inquiry was called and it was found that there was a lot of wastage of material and material was also used by labour for other personal purposes. This made engineer at site more vigilant about the wastages and kept a watch material consumed Vs estimated.
- The average labour productivity was once calculated for an activity and it was found cost of labour per m³ of concrete was way above the prevailing contract rates in the market. Some steps were taken to improve productivity at site and results could be easily observed.

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