



“Model of Cost teeming, Impact of Project Planning & Management in Residential Infrastructure Projects”

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ABSTRACT Irrespective of the industry, project management demands the understanding of several inter-related activities deciding success or failure of the projects. When it is the construction industry, implicit, extensive research to be carried as there are several factors including planning, execution, procurement, resources management, conflict management, legalities etc. have direct impact on the project's cost. These factors being part dynamic environment where they interact technically & socially varying from industry to industry. Construction industry employs huge amount of varied resources with several in-built challenges, risk factors and idiopathic uncertainties. Limited amount of information is known at the initial stages of the project, which later demands the accurate evaluation of economic feasibilities of the project.

Researcher has adopted Survey method where a structured interview schedule was administered to 40 residents who have bought/constructed residential property through developer from various background; educational qualification, occupations, purposes, industries etc. For the current study the sample units are the residents who have bought/constructed residential property through developers which constitute of 40 (Sample size) as researcher received only 40 completely filled questionnaires (sample units) that are chosen randomly. Researcher conducted research by administering a structured interview schedule which consists of attributes related to project planning, project management, cost factors and cost teeming aspects with demographics. The measurement scale adopted are dichotomous and multiple choice questions adopting nominal scales along with five point rating Likert scale measure the attitude of the clients. Thus collected data is analyzed with help of simple descriptive statistics and regression analysis (Impact Model) tests to know the association.

INDEX TERMS : Cost Teeming, Project Planning, Project Management, Residential Infrastructure,

I. INTRODUCTION

Irrespective of the industry, project management demands the understanding of several inter-related activities deciding success or failure of the projects. When it is the construction industry, implicit, extensive research to be carried as there are several factors including planning, execution, procurement, resources management, conflict management, legalities etc have direct impact on the project's cost. These factors being part dynamic environment where they interact technically & socially varying from industry to industry. Construction industry employs huge amount of varied resources with several in-built challenges, risk factors and idiopathic uncertainties. Limited amount of information is

known at the initial stages of the project, which later demands the accurate evaluation of economic feasibilities of the project.

Difficulties in resource accessibilities, environmental concerns and waste management have given momentum to the importance of sustainable project planning. These sustainable construction projects are resource efficient along with being ecofriendly projects which requires proper planning, monitoring and controlling techniques.

Construction projects work alongside deadlines as they point predetermined time bound performance goals.

Deficiencies in planning, procurement and management would lead to disaster. It is the responsibility of the project manager to take decisions regarding resource optimization. One of the best combinations of resources for this sector depends on ability, knowledge and experience of the manager. The more focus on quality of work, better would be the outcomes. As each activity requires different resources, efficient resource analysis would reduce the impact of challenges.

When we look into the literature related to construction industry, cost escalation and cost overrun are the major challenges faced. Success of the projects depends on conceptual cost planning of the project where a project manager has a major role to play.

II. Literature Review

It has been observed that researchers, academicians, In recent decades, researchers and contributor in the field of construction sector have predicted the in construction industry have recognized the impending impact of pre-planning and planning to have desired project outcomes. Hence, they began to accentuate highly on planning activities related to project, where the planning process gained prime importance as a factor leading to success says Wang et al, 2010.

Studies conducted by Kim et al, 2004 reveal the fact the cost management is the key element in decision making at a earlier stages of construction project. They are of the opinion that effective cost evaluation methods will definitely facilitate more effective way of having control over time and costs of the project.

When the cost of the construction project is estimated, the major contribution to cost escalation is due to the inefficiencies occurring at design phase. During the design phase, it is necessary to be aware of design decisions causing cost escalations which are a responsibility of designer and engineer. A well planned, effective design focusing on cost estimation allows management to be aware of decisions as to what is more appropriate in terms profitability and what has to be re-thought/processed to redesign says Weckman et al, 2010.

A study conducted by Carty and Winslow (cited in ElSawy et al, 2011) indicates importance of cost estimation techniques as cost estimates create a center of attention for grabbing new projects. Hence, precise estimation of cost secures the project contract and facilitates attainment of higher profits says Akintoye and Fitzgerald, 1999).

III.OBJECTIVES

The objectives of the current research are-

1. To ascertain Project Planning factors influencing Cost Teeming in Residential Infrastructure development Projects
2. To study the Project Management factors influencing Cost Teeming in Residential Infrastructure development Projects
3. To identify cost factors influencing Cost Teeming in Residential Infrastructure development Projects
4. To analyze the impact of Project Planning, Project Management and Cost Factors on Cost Teeming (Impact Model-Regression)

IV. HYPOTHESIS

H0: Project Planning (PP), Project Management (PM) & Cost Factors (CF) has no impact on Cost Teeming (CT)

H1: Project Planning (PP), Project Management (PM) & Cost Factors (CF) has an impact on Cost Teeming (CT)

V. METHODOLOGY



Researcher has adopted Survey method where a structured interview schedule was administered to 40 residents who have bought/constructed residential property through developer from various background; educational qualification, occupations, purposes, industries etc. For the current study the sample units are the residents who have bought/constructed residential property through developers which constitute of 40 (Sample size) as researcher received only 40 completely filled questionnaires (sample units) that are chosen randomly. Researcher conducted research by administering a structured interview schedule which consists of attributes related to project planning, project management, cost factors and cost teeming aspects with demographics. The measurement scale adopted are

dichotomous and multiple choice questions adopting nominal scales along with five point rating Likert scale measure the attitude of the clients. Thus collected data is analyzed with help of simple descriptive statistics and regression analysis (Impact Model) tests to know the association.

VI. LIMITATIONS

Every research has its own limitations due to the occurrence of natural biases, time, professionalism, ethics and selection of the right sample size or technicalities related to research tool. Current research is limited to identify the factors of project planning, management and cost factors that have influence on cost teeming only. Clients/residents are spread across the geographical area of Bengaluru city which limits the area of the study. The responses obtained may be biased due to the time, convenience in answering, understanding of the question asked and willingness to give right response.

VII. ANALYSIS

1. Project Planning Factors

Chart-1: Project Planning Factors

Source: Primary Data

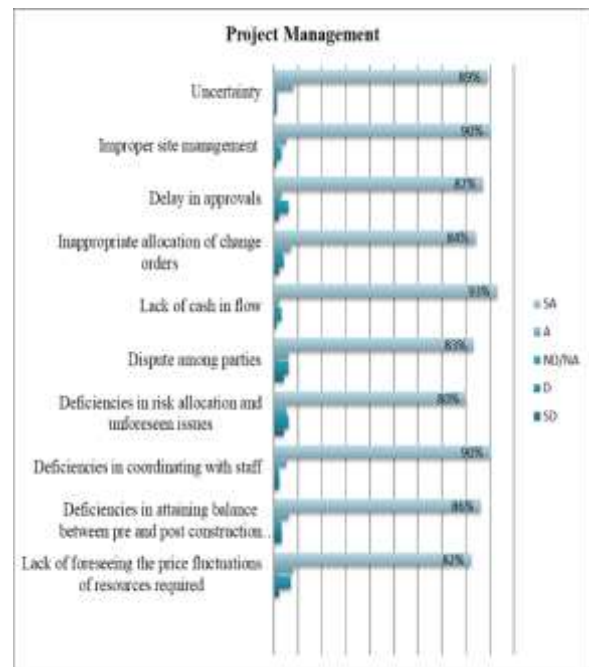
Dmytro Kobylkin (2020), the method of managing change for infrastructure projects is the topic of this study. "Infrastructure project," "changes management in infrastructure project," and other words for managing projects, programmes, and portfolios of projects have been formalized as the result of extensive research. Using a modified multi-criteria approach, the classification of infrastructure projects has been simplified. The authors' conceptual model may be used to develop infrastructure project change management parameters. For the current study, researcher has identified poor estimation, improper planning, inappropriate goal setting, lack of experience in planning, deficiencies in budget planning, deficiencies in scheduling, deficiencies in work breakdown and ambiguous contract provisions which are rated 80%, 85%, 83%, 80%, 78%, 90%, 78% and 75% respectively.

2. Ascertaining Project Management Factors

Knight et al (2000) examined the factors influencing cost escalation in construction sector. They found that there are several factors which cause unanticipated cost steaming during construction. Further, researcher adopted subjective, objective and secondary descriptors

to measure the impact on performance. *Ng et al (2007)* investigated the role of conflict management in large scale designs & projects. According to authors, thorough understanding of conflict; nature, sources, impact on cost and implementation of DART could be the solution to the challenges regarding cost escalation. Lack of forecasting price fluctuations, deficiencies in attaining balance between pre and post construction, deficiencies in unseen or risk allocation, deficiencies in coordinating with staff, dispute among parties, lack of cash flow, inappropriate allocation of change orders, delay in approvals, improper site management and uncertainty are the attributes rated as 82%, 86%, 90%, 80%, 83%, 93%, 84%, 87%, 90% and 89% strongly agreeing.

Chart-2: Project Management Factors



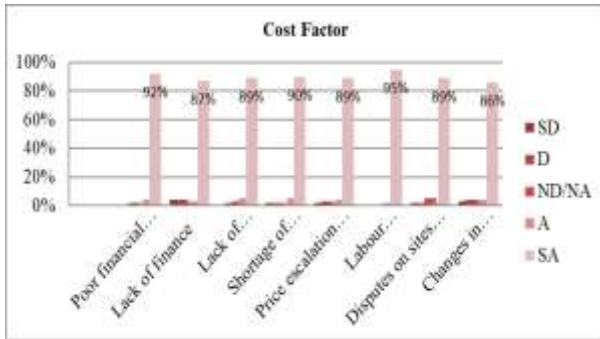
Source: Primary Data

3. Ascertaining Cost Factors:

Hassimet al. (2003) agrees that cost forecasting, financial requirements are crucial during the tendering stage of construction as cash flow failure leads to project collapse in the beginning. Similarly, other factors considered constitute poor cash flow, cash management, and improper estimations etc which have been significantly influencing the cost overrun in the infrastructure development projects. For the current research, researcher has considered poor financial controls, lack of finance, lack of estimation, shortage of raw materials, price escalations of materials,

labor absenteeism, disputes on sites and changes in the design plan as major attributes influencing the cost teeming.

Chart-3: Cost Factors



Source: Primary Data

It can be observed from the Chart-3, 92% of the residents strongly agree that poor financial management stipulates the cost teeming, followed by 87% of residents strongly agreeing to factor lack of finance, followed by lack of estimations (89%), shortage of raw materials (90%), price escalation of materials (89%), labour absenteeism (95%), disputes on sites (89%) and changes in design accounts to 86%.

4. Testing of Hypothesis – Impact Model

H0: Project Planning (PP), Project Management (PM) & Cost Factors (CF) has no

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.670	.290		2.652	.005
	PP	.362	.068	.512	6.782	.000
	PM	.278	.049	.413	5.652	.000
	CF	.276	.048	.412	5.501	.000

Dependent Variable: Cost Teeming

impact on Cost Teeming (CT)

To test the hypothesis researcher has adopted regression analysis where the impact of Project Planning (PP), Project Management (PM) & Cost Factor (CF) on Cost Teeming (CT) is measured.

Variables	Mean	Std. Deviation	N

CT	1.71	.389	40
PP	1.46	.386	40
PM	1.73	.350	40
CF	1.78	.349	40

From the Table-1, it is evident that all the 40 respondents have embraced their opinions about the Project Planning (PP), with mean value 1.46 with std. Deviation of 0.386 and Project Management (PM) with mean value 1.73 and std.deviation of 0.350, Cost factor (CF) with mean value 1.78 and .349 std.deviation in actual Cost Teeming (CT) with the mean value of 1.71 and std.deviation of 0.389

Table 2: Model Summary for Impact of PP and PM on CT

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.446	.457	.438	.37094	.457	19.952	3	36	.000

a. Predictors: (Constant), PP, PM, CF

Table-2 displays the model summary of the impact of PP and PM on CT of infrastructure development projects in Bengaluru. For the current study, predictor variables are PP, PM, CF and the dependent variable is the CT. R square values are used to identify the percentage of total change in the actual CT (Dependent variable). The determining factor was found to be $R^2: .457$ which indicates a significant positive relationship between the identified variables. The determining factor showed 45.7% ($F=19.95$) of Cost Teeming is dependent of Project Planning, Project Management and cost factors in infrastructure development projects in Bengaluru.

Table 3: Regression Analysis for Impact of PP and PM on CT

Source: Primary Data

It is known that standardized regression coefficients measure the degree of influence of each predictor variable on the criterion variable. Higher the beta value greater is the influence of variables. Table-3 reveals that coefficient of PP 0.512 which is greater than the coefficient of Project Management and cost factors. From the regression coefficients it is substantiated that Project Planning, Project Management and cost factors have an impact on Cost Teeming in infrastructure development projects.

VIII. Findings of the Study

1. For the current study, researcher has identified poor estimation, improper planning, inappropriate goal setting, lack of experience in planning, deficiencies in budget planning, deficiencies in scheduling, deficiencies in work breakdown and ambiguous contract provisions which are rated 80%, 85%, 83%, 80%, 78%, 90%, 78% and 75% respectively.
2. Lack of forecasting price fluctuations, deficiencies in attaining balance between pre and post construction, deficiencies in unseen or risk allocation, deficiencies in coordinating with staff, dispute among parties, lack of cash flow, inappropriate allocation of change orders, delay in approvals, improper site management and uncertainty are the attributes rated as 82%, 86%, 90%, 80%, 83%, 93%, 84%, 87%, 90% and 89% strongly agreeing.
3. 92% of the residents strongly agree that poor financial management stipulates the cost teeming, followed by 87% of residents strongly agreeing to factor lack of finance, followed by lack of estimations (89%), shortage of raw materials (90%), price escalation of materials (89%), labour absenteeism (95%), disputes on sites (89%) and changes in design accounts to 86%. Results of hypothesis tested reveals that null hypothesis is rejected and alternate hypothesis is accepted meaning there is a impact of factors influencing and challenges faced in actual buying (online) of software products by b2b clients.
4. Higher the beta value greater is the influence of variables. Table-3 reveals that coefficient of PP 0.512 which is greater than the coefficient of Project Management and cost factors. From the regression coefficients it is substantiated that Project Planning, Project Management and cost factors have an impact on Cost Teeming in infrastructure development projects.

IX. Suggestions

Indian construction industry is growing at very faster pace due to rising incomes, credit facilities, readily available residential properties, and strong willingness of the people to own property. Apart from these, government support to industry also has a role to play. Cost overrun is the major concern when it is the question of residential property. It has been observed that there are several reasons contributing to cost overrun. Project managers/consultant must ensure better planning focusing on proper goal setting,

budgeting, work break down, scheduling etc to overcome cost teeming due to planning. Similarly, proper site management including conflicts, resource management, material management to be given utmost importance. Cost factors such as labor absenteeism, price negotiations, disputes or change orders to be addressed immediately.

X. Conclusion

Construction Project involves high stake endeavour pointing predetermined time bound performance objectives. Without proper resource planning and procurement, no activity can be executed without pre scheduling. Project managers must always take concrete decisions under various scheduling needs such as resource utilization and resource constraints. The time and cost are unswervingly dependent on available resources. The time required may be calculated by allocating the productivity associated with the resources used on the activity. Researcher has carried out research to identify the factors causing cost teeming in residential infrastructure projects. It is found that project planning, project management and cost factors have a significant impact on the cost teeming. Developers are suggested to emphasize on better project planning, management and cost factors.

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