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# **Case Study on Construction Projects for Quantifying the Scope for Improvement of the Construction Efficiency (Improvement of Efficiency of an Construction)**

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**ABSTRACT:** India is a growing economy. It is estimated to be the third largest economy by 2050. Because of the GDP growth and more emphasis on infrastructure growth, from roadways to airways, ports to airports and power production facilities. Development will lead to massive construction and there will be a positive growth in industries related to construction. Our Project reports the results of a questionnaire survey of project managers, site engineers, supervisors and craftsmen, in India, to identify the factors influencing construction labour productivity

**KEYWORDS:** efficiency productivity;

## **I. INTRODUCTION**

Throughout countries in the world; state that the construction is big business in their country. Construction has important role in their country's development and prosperity. Economics of the country depend very much on the trends of the construction. For example country like in Malaysia also a developing country which the construction industry employs over 500,000 people and represent 9.5 percent of the work force in the country in the year 2002. The total contract value of the construction in 2002 was exceeded 41.5 billion RM which represents 3.2 percent of the gross domestic product (GDP). Although it accounts for less than 5 per cent of GDP, the industry is strong growth push because of its extensive linkages with the rest of the economy. In particular, the industry has extensive linkages with construction related manufacturing industries such as basic metal products and electrical machinery (Source: Market Watch Malaysia 2004 – Construction and Building Material Industry) Clear then, anything that impacts on the building and construction industry has potential to affect the whole economic. The construction industry is a unique and complex compare to other industries as it involves many participants in all trends. Due to this, conflict and disputes can be easily occurred as for example; changes in plans quantities or details of construction which are inherent in the nature of construction

That is because much of construction works involves things that are hidden beneath the ground and those hidden things may not actually be as had been anticipated. Also, even with the best of intentions, the plans may not work as well as expected

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When changes occur, there is the potential of disagreement. Also, whenever two people interpret contract language, there is the potential of disagreement. The disagreements can be regarded as disputes which are common in construction industry because the design and construction process are complex and imperfect as well as it takes so many individuals and companies to construct a building.

## OBJECTIVE

The objectives of this study are manifold and they are as follows:

- Examining current practices in construction of projects and scope for improving it by innovation in product and process.
- Identifying specific action and good practice which would help to achieve more efficient construction in terms of quality and customer satisfaction, timeliness in delivery and value for money.
- Demonstrates the best practice project for the improvement that can be achieved through the applications.

## II. STATEMENT OF PROBLEM

Today, carelessness and negligence in construction industry have risen to greater prominence. Political and economic trends are increasing the economic pressure on construction industry; resulting in disputes from careless design and inadequate construction practices. Besides, complex construction can likewise result in complex disputes. Great concern has been expressed in recent years regarding the dramatic increase in conflict and disputes in the construction industries of many countries and the attendant high cost. In construction practice, there are numerous construction problems that occur largely through many reasons between the various parties in a design / construction effort. The construction problems may occur from the initial stage until the closeout stage of the project. The occurrences of construction problems can lead to negative impact towards client organization.

## III. METHODOLOGY

The methodology adopted for this study is as follows. A detailed survey is carried out to analyze the problem and the literatures can be seen in the references of the current paper.

Flow chart



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## Stage 1

- Demand of infrastructure needs or budgets or funds what we require
- Present scenario what is happening
- Comparing the above study

Finding why Indian construction industry not meeting the demand in terms of

- a. capital funds
- b. human resource
- c. inadequacy in design

## stage 2

- Finding the area of need for improvements
- Causes or factors affecting improvements

## Stage 3

- Setuping interviews with the construction managers, public authority, ministries.

## Stage 4

- Results and discussions
- Conclusion.

## IV. RESULTS AND DISCUSSION

To achieve higher productivity it is essential that the organization leadership develop and maintain a culture of high productivity in how projects are planned and executed. For construction safety it has been proven that it is essential that company and project leadership be committed to eliminating accidents and achieving a zero-accident environment. In a clearly defined safety culture reinforced with effective proven Best Practices, training, planning and clear accountability many companies have significantly reduced accidents on their projects. The same is true for improving construction labor productivity. When leadership is committed to improving productivity and reinforce that with implement Best Practices for planning and implementing projects then it is possible to achieve improvement.

The culture which results in improved labor productivity would include:

Commitment of company resources to Implementing Best Practices for quality front-end engineering Effective planning of all phases. Contractors need to provide adequate facilities for disposing of trash efficiently and to provide appropriate general project cleaning. Another important element is to have clear expectations of workers and enforce the rules. Tools and equipment should also be stored properly and located near the work sites. Workers should be expected to place trash and debris in proper receptacles,

### NEED FOR IMPROVEMENT AND FACTORS AFFECTING:

- To improve the quality of human resource management practices.
- To decrease the total cost and duration of the project.
- To eliminate unnecessary labor cost involved in construction.
- To increase productivity of construction.

Fig. 2 equipment hazard graph



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## FACTORS AFFECTING IN CONSTRUCTION

### 1. PHYSICAL FACTORS:

Site congestion factor will never enable the labor to do work in comfortable manner and over time work will not give good productivity in any job. In most of the cases design complexity will affect the speed of work.

### 2. ECONOMIC FACTORS:

On time payment should be done right at the time when the work is accomplished. Discontinuity of work schedule will affect labor's financial status and sufficient amount of pay should be given to labor.

### 3. PSYCHOLOGICAL FACTORS:

Psychological factors deal with many parameters. In civil Engineering point of view, in recent years the cultural difference is making the worker to work uncomfortably and work satisfaction with respect to job is very much necessary.

### 4. ORGANIZATIONAL FACTORS:

Quality of work is good/maintained in firm. Sufficient Crew size should be provided by the firm for accomplishing the task. Accommodation and food should be maintained in a better manner by the top manager.

### 5. ENVIRONMENTAL FACTORS:

It is very clear to mention that climatic condition will affect the working performance but the firm is the primarily responsible for resolving HVAC problems for laborers. The project manager and the site supervisor should always maintain the site condition in a good manner.

### 6. DESIGN FACTORS:

Innovative design methodology creates discomfort in work but proper training approach will eradicate this problem. It is must to say that violation of code practices by the firm should be totally abolished only the design problems won't occur.

## V. SUMMARY AND CONCLUSION

We need to see infrastructure groundwork taking place on a massive scale in India. And the government needs to take concrete efforts to mobilize more funds for the space. World class infrastructure holds the key for India to become a sustained development. Coupled with a quantum growth in the construction sector of the country, infrastructure development is significant for rapid growth across all sectors as it provides access to rural areas, easy approach to markets, besides opening up new regions for investment opportunities. With the backdrop of active government initiatives, friendly policies and rising investment trends in the sector, the Indian Construction sector offers promising growth trends and opportunities.

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