

A STUDY ON LOW COST HOUSING CONSTRUCTION WITH DELAY MANAGEMENT

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Abstract - Low value housing construction technologies aim to chop down construction value by victimization alternatives to standard strategies and Input. "It is effective budgeting and technique that facilitate in reducing value of construction through use regionally obtainable material in conjunction with improve skills and technology while not sacrificing the strength, performance and life of structure. "Low value housing simply satisfies the foremost bottom and basic human desires for shelter and neglects different desires that individuals aim home as well as psychological, social, and aesthetic desires and ultimately, need for self-actualization. By victimization Low value Housing Technologies we will scale back approx. 25% of the total cost of housing. The problem of delays in industry may be a world development and there's no exception. The main purpose of this study is to spot the delay factors and also the result on the project completion by doing a case study in in progress comes. By analyzing the explanations for delay, potential recommendations square measure given. The major factors known during this case study square measure delays thanks to contractor, consumer and conjointly thanks to nature's act like rain. The most important causes were delays in contractor's payments, shortage of material in construction, change in material, the weather condition, shortage of manpower (skilled, semi-skilled and unskilled labor), frequent modification of staffs, poor web site management and improper management of the engineers. Some of the delays square measure delay in submission of drawings, house constraints, and delay in payment by consumer, delay in material offer and native issues like strikes. The major effects of delay square measure value impact, reduced labour productivity, postponement in work, change in labour allocation etc. Not all delays may be corrected; however few of them may be overcome by up management responsibilities.

Key Words: Low cost housing construction, Delay management, Delay analysis,

1. INTRODUCTION

Affordable housing could be a term won't to describe domicile units whose total housing price area unit deemed "Affordable" to a bunch of individuals among a given financial gain vary. In recent years, there has been considerable debate over the definition of low cost housing; low cost housing may be defined as a provision of housing which caters to the requirements of lots among their financial gain capabilities, while not sacrificing the strength, performance and lifetime of the structure. India

is a developing country having only 20% population of higher income group, who are able to afford normal housing units. The low-income teams in developing countries area unit usually unable to access the housing market. As the 3 basic desires of individuals area unit food, clothes and shelter so main objective is to provide one of the basic need i.e. shelter to low income earner. Low cost housing is a relative concept and has more to do with budgeting and seeks to reduce construction cost through better management, appropriate use of local materials, skills and technology however while not sacrificing the performance and structure life. Delays and disruptions area among the challenges faced in the course of executing construction projects. Delays in addition as disruptions area unit sources of potential risks that current studies area unit trying into ways that to manage. There is a general exodus of rural population to the cities with the fast manufacture in developing countries. The infrastructure to support these cities, like buildings for housing and business, mass transit for moving folks and merchandise, and facilities for handling water and sewerage would force large amounts of construction

2. LITERATURE REVIEW

Sunil Kumar (2002) studied the production of fly ash-lime- gypsum (FaL-G) bricks and hollow blocks to solve the problems of housing shortage and at the same time to build houses economically by utilizing industrial wastes and investigated the compressive strength, water absorption, density and durability of these bricks and hollow blocks. He observed that these bricks and hollow blocks have sufficient strength for their use in low cost housing development.

P K Adlakha and H C puri (2003) studied prefabrication building methodologies for low cost housing by highlighting the different prefabrication techniques, and the economical advantages achieved by its adoption.

Vivian W.Y. Tam (2011) compared the construction cost for the traditional and low cost housing technologies. He compared the construction methods of walling, roofing and lintel. Strength and durability of the structure, stability, safety and mental satisfaction are factors that assume top priority during cost reduction.

A K Jain and M C Paliwal (2012) gave an overview of the housing status in India and adoption of appropriate and cost effective technologies in the country.

Sengupta Nilanjan & Roy Souvanic (2013) studied the acceptability and adaptability potential of different Eco-friendly Construction Technologies through field survey, literature study and technical calculations and tried to find out the most appropriate one among those. From the study and analysis concluded that Rat-trap bond wall and Filler Slab roof would be the most appropriate and acceptable CECT among people belonging to Middle Income Group and below in India as they are satisfying all their guiding criteria.

Amit D Chougule et al., (2015) described the literature review studies and various results with context to embedded energy, Design and durability, Cost effective, Design optimization for filler slab. Compared to conventional in situ RC slab, this technique is economical and will result in saving of cement and steel and is an ideal step towards generation of affordable housing, for developing countries.

P PBhangale and Ajay K Mahajan (2015) examined the cost effectiveness of using low cost housing technologies in comparison with the traditional construction methods. It was found that about 26.11% and 22.68% of the construction cost, including material and labour cost, can be saved by using the low cost housing technologies in comparison with traditional construction methods for walling and roofing respectively.

Bredenoord J, (2016), Measures concerning the physical development of neighborhoods, such as urban density and connectivity are equally as important as measures concerning community development. The final comprise support for community built organizations, small housing cooperatives (or similar forms of cooperation) and individual households – or small groups – that build and increase their houses incrementally.

Frank Fugar, et al., (2010), This study investigates the causes of delay of building construction projects in Ghana to determine the most important according to the key project participants; clients, consultants, and contractors.

Haseeb, (2007), The main objective of this study is the identification of factors of delay and their effects on the success and completion of project. The most common factor of delay are natural disaster in Pakistan like flood and earthquake and some others like financial and payment problems, improper planning, poor site management, insufficient experience, shortage of materials and equipment etc. Several factors cause the overall delay in the construction project such as some within contractor's liability and some are within owner's liability. It is hard to distinguish due to overlapping nature of the events that which party or parties are responsible and what ingredients of the delay cause. It is mostly seen that delay problems are cause of dispute, negotiation, lawsuit, total desertion, litigation and abandonment.

Zaki Kraiem & James Dietmann(1987) Compensable Delay is those which is within the control of, is the fault of, or is due to the negligence of the owner. These delays can occur under different situations. Excusable Delays are those which occur when the contractor is delayed by occurrences which are not attributable to either the Contractor or owner.

F.Paceco torgal , Said jalai, (2012) Carried out study on Earth construction and Building materials, it is observed that in this paper earth construction has a major expression in less developed countries .In order to disclosure and highlight the importance of earth construction this article reviews some environmental benefits.

Ajibade Ayodeji Aibinu,(2006), The analyzed quantitative data from completed building projects to assess the extent of delays, and data obtained from a postal questionnaire survey of construction managers to assess the extent to which 44 identified factors contributed to overall delays on a typical project they have been involved with. The factors were finally categorized into client-related; contractor-related; quantity surveyor-related; architect-related; structural engineer related; services engineer-related; supplier-related; subcontractor-related; Delays not caused by the project participants demarcated as "external factors".

3. CONCLUSION

In the present study various technologies have been studied such as Prefabrication, Economical Walling System, Rat Trap Bond and Filler Slab Technology. Mass housing targets can be achieved by replacing the conventional methods of planning and executing building operation based on special and individual needs and accepting common denominator based on surveys, population needs and rational use of materials and resources. Adoption of any alternative technology on large scale needs a guaranteed market to function and this cannot be established unless the product is effective and economical. Partial prefabrication is an approach towards the above operation under controlled conditions. List of suggestions in this study for reducing construction cost is of general nature and it varies depending upon the nature of the building to be constructed, budget of owner, geographical location where the house is to be constructed, availability of the building material, good construction management practices etc. however it is necessary that good planning and design methods shall be adopted by utilizing the services of an experienced engineer or an architect for supervising the work, thereby achieving overall cost effectiveness to the extent of 25 % in actual practice. The main causes of delay that affect construction project. The most important causes identified were: delay in payment by the head office, frequent change of staffs, poor site management, improper management of the engineers, delay in supply of material and lack of manpower. Similarly the effects of these delays are: time

overruns cost overrun, negative social impact, idling resources and disputes. An analysis of the responsibilities of delay causes suggests that a joint effort based on teamwork is required to overcome delays. In summary, this project summarized some reasons behind the delays caused in these sites and proposes some possible recommendation to overcome those delays. Further research is needed to investigate the limitations and potential improvements to causes of delays within each construction site.

REFERENCES

- [1] A.K. Jain and M.C. Paliwal, "Adoption of Appropriate and Cost Effective Technologies in Housing: Indian Experience", *World Academy of Science, Engineering and Technology*, Vol. 6, 169-171, 2012.
- [2] Ajibade Ayodeji Aibinu and Henry Agboola Odeyinka, (2006) "Construction Delays and Their Causative Factors in Nigeria", *Research Scholar, School of Design and Environment, Dept. of Building, National Univ. of Singapore*, Vol. 132
- [3] Amit D Chougule, Manoj H Mota and Ushadevi S Patil, "To Study the Filler Slab as Alternative Construction Technology - a review", *Journal Of Information, Knowledge And Research In Civil Engineering*, Vol. 2, Issue 3, 199-202, 2015.
- [4] Bredenoord J, (2016), "Sustainable Housing and Building Materials for Low-income Households", *Jr ArchitEng Tech* 5: 158.
- [5] F.Paceco torgal, Said jalai, (2012), "Construction & building materials, Construction & building materials", 29, pp-512-519.
- [6] Frank Fugar, and Adwoa Agyakwah-Baah. (2010), "Delays In Building Construction Projects In Ghana ", *Department Of Building Technology, Kwame Nkrumah University Of Science And Technology, Kumasi, Ghana*, 10 (1/2) 103-116
- [7] Haseeb, (2007), " Problems Of Projects And Effects Of Delays In The Construction Industry Of Pakistan " *College Of Public Administration, Huazhong University Of Science And Technology, Wuhan, P.R. China* Vol.1
- [8] P K Adlakha and H C Puri, "Prefabrication Building Methodologies for Low Cost Housing", *IE Journal, AR*, Vol. 84, 4-9, 2013.
- [9] P.P. Bhangale and Ajay K. Mahajan, "Cost Reduction through Cost Effective Construction Techniques", *International Journal of Science and Research*, Vol. 4, Issue 2, 2167-2169, 2015.
- [10] SenguptaNilanjan and Roy Souvanic, "Study of Appropriateness of Cost-Effective Building Construction Technologies in Housing Sector in India", *JAET*, Vol. 2, Issue 2, 2013.
- [11] Sunil Kumar, "A Perspective Study on Fly Ash-Lime-Gypsum Bricks and Hollow Blocks for Low Cost Housing Development", *ELSEVIER, Construction and Building Material* 16, 519-525, 2002.
- [12] Vivian W.Y. Tam, "Cost Effectiveness of using Low Cost Housing Technologies in Construction", *ELSEVIER, Procedia Engineering* 14, 156-160, 2011.
- [13] Zaki Kraiem and James Diekmann. (1987), "Concurrent Delays In Construction Projects", *Member Of ASCE*, Vol. 113.