Review Paper on Evaluation of Cost Effective Technique In Green Building

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Abstract- *Cost effective is a new concept which deals with effective budgeting and following of techniques which help in reducing the cost of construction through the use of locally available materials along with improved skills and technology without sacrificing the strength, performance and life of the structure. There is huge misconception that low cost housing is suitable for only substandard works and they are constructed by utilizing cheap building materials of low quality. Cost effective technology allows for reduction of costs and preserve scarce resources.*

I. INTRODUCTION

Green building is a building whose construction and lifetime of operation reassure the healthiest possible environment. The green building tools are contrived from local eco-sources that offer a healthy environment assembled on the traditional and architectural heritage. Through their lifecycle, the green buildings reduce the injurious impact on the ecology, decrease the use of resources (energy and water); and provide the healthier indoor environment. Building materials and components are re-using or recycling, because they are ecologically friendly materials. For the past thirty years, the green building movement has been continuously developing. In 1970's, during the energy crisis, the idea of green building developed and peoples try to establish in their real life to get the advantage. To decrease the dependence on nonrenewable energy, peoples start using solar panel. User and investor were in doubt of the efficiency of solar panel, is it really reduce the negative impact on the environment, and lower energy bills. Now Eco building does not only use a solar panel to make the building more efficient, but also, they use harnessing sunlight, Building materials, and a good location. Green building designs also an emphasis on less water use recycling. According to Green Building Index, a building is considered green when it emphasizes on the competent use of resources

Cost-benefit analysis (CBA) is the examination of a decision in terms of its consequences or costs and benefits (Stephanie Riegg Cellini, James Edwin Kee (2010)).To identify the total benefits with the cost of a single program or a policy to society CBA is one of the best measurement scale. To identify the economic benefit of making any given investments, and select and rank the project from numerous investment options, cost benefit analysis is the best way. The analysis done is not to solve all such conflicts, or eliminate the uncertainty and hence the demand for sound judgment, but to provide a deep body of data gathered in a disciplined manner that can help decision-makers confronted with difficult investment or insurance determinations. When performing the analysis, the most crucial part is to transform estimations of benefits over costs into today's money value. Other than that, calculating net present value (NPV) is a relatively easy way to examine a stream of current and future benefits and costs .That represents the present value of an investment's future financial benefits minus any initial investment.. In order to provide a consistent measure of costs and benefits, future costs and benefits are discounted to produce Present Values (PV). These Present Values are then used in the NPV calculation.

II. STATE OF DEVELOPMENT

D.M.Wijesekara The development of formworks is parallel with the growth of concrete construction throughout past few decades. With the development and increasing of population people tend to construct high-rise buildings and construction of a tall building was not easy at the early days. With the development, the man made the tasks easy by inventing new machinery and new techniques. One such area related to high-rise Construction is the type of the formwork used in the construction. At the early days people used Conventional type formwork where the timber planks were supported on timber columns. With the Advancement of the science man used plywood instead of timber planks and pipe supports with various kinds of jacks instead of timber supports. Formwork is one of the most important factors in determining the success of a construction project in terms of speed, quality cost and safety of work as it accounts about 40% of the total project cost of the structure. To minimize the costs the contractor needs to complete the project as soon as

possible and the client wants the building to use the building as early as possible for the intended purpose. In high-rise building construction the most efficient way to speed up the work is by achieving a very short floor cycle. That directly depends on the selected form work type for the construction. This paper will present about the existing formwork types in Sri Lanka and the available new techniques in formwork erection. This paper will clearly present an analysis and comparison of costs and durations of projects when using different types of formworks. The main objective of this paper is to identify the least no. of typical story's required in a high-rise building construction project, to use aluminum panel system formwork.

RupaliKavilkar and ShwetaPatil Tall buildings throughout the world are becoming popular day by day. With the advent of modern day construction technology and computers, the basic aim has been to construct safer buildings keeping in view the overall economics of the project. A high-rise building, apartment Tower, office tower, apartment block, or block of flats, is a tall building or structure used as a residential and or office use. In some areas they may be referred to as "Multi Dwelling Unit" or "Vertical cities". They have the potential to decongest the urban sprawl on the ground level, and increase the urban density, housing higher number of families in lesser space. Benefits include they act as landmarks; create unique skyline and efficient land use High-rise structures are also called "vertical cities", having the potential to decongest urban sprawl. Indian cities are witnessing immense demographic expansion due to migration from surrounding villages, leading to urban sprawl, housing demand, rise in cost of land. Housing has developed into an economy generating industry. Given this demand, while high-rise residential structures have become a solution in the metropolitan cities, they remain eluded in tier II cities in India. Low-rise or mid-rise high-density dwelling types have developed in these cities. A study of Pune city's housing needs, demands, market, and type of structures being built, reveal that tall buildings of 11 floors are being developed on the city's urban fringe. Most of the high-rise projects remain as proposals. An investigation in this case study reveal that high rise structures are not preferred due to user perception of insecurity in case of fire and high cost of the building. The paper aims at studying the availability and use of fly ash in various proportions, which can be used in Indian high-rise residential buildings. The research paper indicates that fly ash concrete can be used to reduce the cost of construction and has the potential to minimize the damage caused due to high temperature.

Balramdas1, Prakashmeher A Green Building, also known as a sustainable building, it is a structure that is designed, built, renovated, operated, or re-used in an ecological and resource efficient manner. To build a green building we have to consider the parameters such as sustainable site, water resources, energy & atmosphere, materials & resources and indoor environment quality. The key objective of this project is to develop a smart and sustainable building which will reduce our conventional energy consumption and increase renewable energy consumption. This will make our buildings eco-friendly. Now-a-days due to excessive population growth, people require more number of houses to stay within but they generally built normal building in which energy consumption is more which inefficient. But the energy source is decreasing very fast now-a-days, so by implementing green buildings throughout the world, we can reduce the conventional energy consumption and so by reducing pollution. In this paper an analysis has given to compare between Normal buildings and Green buildings and its economical analysis.

Vivian W. Y. Tam Low cost housing can be considered affordable for low- and moderate-income earners if household can acquire a housing unit (owned or rented) for an amount up to 30 percent of its household income (Miles, 2000). In developing countries such as India, only 20% of the population is high-income earners, who are able to afford normal housing units. The low-income groups in developing countries are generally unable to access the housing market. Cost effective 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 but without sacrificing the performance and structure life (Tiwari*et al.*, 1999). It should be noted that low cost housings are not houses which constructed by cheap building materials of substandard quality. A low cost house is designed and constructed as any other house with regard to foundation, structure and strength. The reduction in cost is achieved through effective utilization. Adequate shelter for all people is one of the pressing challenges faced by the developing countries. India is currently facing a shortage of about 17.6 million houses. The dream of owning a house particularly for low-income and middle-income families is becoming a difficult reality. Hence, it has become a necessity to adopt cost effective, innovative and environment-friendly housing technologies for the construction of houses and buildings for enabling the common people to construct houses at affordable cost. This paper compares construction cost for the traditional and low cost housing technologies. Case studies in India are used for the investigation. Construction methods of foundation, walling, roofing and lintel are compared. Strength and durability of the structure, stability, safety and mental satisfaction are factors that assume top priority during cost reduction. It is found that about 26.11% and 22.68% of

the construction cost can be saved by using low cost housing technologies in comparison with the traditional construction methods in the case studies for walling and roofing respectively. This proves that using low cost housing technologies is a cost effective construction approach for the industry.

HanifPourghazian Reduction of the cost of construction is a constant goal for the building industry. One way of reducing the construction cost of buildings is to develop building technologies that will give increased productivity. Reduced construction time at the building-site and waste of materials and resources contribute to further reduction of the costs. This is why the sector is developing towards more industrialized construction methods with prefabricated components. The objective of this thesis is development of industrial construction methods for cost-effective and energy-efficient construction of multi-storey buildings. It is important to highlight the difference between *cheap* or *low-cost* and *cost-effectiveproduction*. It is possible to produce buildings to a low-cost at the expense of decreased quality and design. Conversely, cost-effective buildings are buildings that are produced to a low cost while maintaining a high standard of design and comfort. While cost reduction efforts are often made based on a, relatively, fixed building process, this research is focused on reducing the costs by changing the building process with the help of innovative building technologies. The construction of a building is a very complex practice with a wide range of interacting processes. The hypothesis is that a holistic approach is advantageous in order to find effective construction methods. To achieve a holistic view, an interdisciplinary approach to the research is required. By approaching the development of construction methods from the point of view of the entire building process, it is possible to achieve optimizations with synergy effects and by that find solutions that are time-efficient, energy-efficient and cost-effective at the same time.

III. CONCLUSION

This paper focuses only on the literature review of previously published studies. The findings of this study clearly present an analysis and comparison of costs and durations of projects when using different types of formworks. paper indicates that fly ash concrete can be used to reduce the cost of construction and has the potential to minimize the damage caused due to high temperature.paper an analysis has given to compare between Normal buildings and Green buildings and its economic analysis.This proves that using low cost housing technologies is a cost effective construction approach for the industry.

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