

General Overview of Strategic Cost Optimization By Using Value Engineering In Building Construction

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Abstract- Construction projects are executed in nations accompanying heavy costs and few of the projects have existed rather or certainly unsuccessful and even met accompanying irrevocable misfortunes later construction. Maybe, it is on account of complicatedness had connection with projects or additional social-financial wonder. The present study told that advantage planning can be secondhand as a advantageous form fresh of studies to the end of plotting, assembling, misusing, and upholding processes and overcome obliging designs' challenges and complexities. Value engineering is a design knowing in administration that has an organized approach. Value design has a orderly and helpful machine to analyze function and structures accompanying the aim of carrying out attractive function accompanying the least costs. This study has tried to concisely present ideas and executive process of value metallurgy in government-funded construction. Also, the study has tried to search common methods of judging projects function and equate ruling class union with profit design to develop projects. Based on the research verdicts, it maybe found that if we can anticipate to reach projects goals by giving the least cost and guarantee the efficiency of contribution in government-funded construction administration sector as a main challenge of incident plans in the undeveloped nation through utilizing manufacturing in appropriate period periods and indifferent chapters.

Keywords- Value Engineering; Construction Project; Value Index; Value Analysis; Value Management; Government-funded.

I. INTRODUCTION

Quality, adeptness, durability, and embellished depict ion across the history projects are thoughtout essential outputs in a construction project, that can be invigorated by merging 'sustainability' and Value Engineering (VE)ides.

The institution is expanding in the route of internationalization. In the building advertise, allure incident must further keeppacewith theworldwide speed. Therefore, it is inevitable to build a explanation project planning cost administration fa

cts arrangement that is agreeable accompanying the news age. Dueto the design and exercise of the news administration system, it can not only capably increase the character of whole in the building project cost phase but still admit good use of information and effective administration. Value Engineering (VE) is an arranged process to attain the essential functions at the most slightest grow thera costs certain accompanying necessary act, dependability, chance, character, and security for a particular product. Value Engineering is a function familiarize approach that depicts the percentage "what it costs" (beginning) as a writing of the profit. Accordingly, Value Engineering recognizes that all providing punishments share the alike understanding of functions given by the item.

II. VE IN CONSTRUCTION INDUSTRY

Value Engineering was imported into the creation manufacturing in the early 1960s by Dell' Isola and enhanced a current thereafter. It is an methodical and culled out process that augments the unique principles of multi corrective husbands in a building project. Customarily, VE is a profit improving device as opposite to only a method for cost-incisive.VE is a reduced, integrative fault finding thinking motion that spotlights on reinforcing the worth of the functions that are required to reach the objective, or goal of some part, process, presidency, or partnership. Value Engineering is a categorized out methods related at examining the volume of foundations, gear, centers, administrations and equipment to gain their elementary volumes at the slightest biological clock cost reliable accompanying necessary killing, kind abiliy and wellbeing. The most amazing killing in VE is skillful, particularly when the design is generally extending the profit as opposite to belittling the expenses. VE is took advantage of to determine high quality outline options for projects. Value Engineering has a important measure of weaknesses from services connected benefits, to construction the resolve of the expert group. Value Engineering will influence all human beings had connection with the project, also called colleagues. The consumer looks to manage profit for services, while the customers need an part that addresses their issues as sufficiently as hopeful prudent. The project managers search out guarantee that the endeavor act occasion

and falls inside the financial necessities, the permissible trader wishes to give an presidency that will pay for of ruling class a acceptable benefit and the planners are active to meet the desires of the client while consenting to specific standards and killing tests. Value Engineering can address the boundless adulthood of these essentialities honestly or obliquely, in this manner conveying a level of completion to everybody of the participants contained Value Engineering is not a plan/peer survey or a cost incisive action. Value Engineering is an creative, separated out attempt, which investigates the essentialities of a project to realize the elementary abilities at ultimate lowered Life Cycle Cost. Through a assemblage test, handling experienced, multicorrective groups, worth, and saving are embellished through the search of electoral plan plans, fabrics, and methods without negotiate the practical and consider aims of the consumer. VE maybe related period in an endeavor, even in development.

III. NEED OF THE STUDY

The current economic conditions have made necessary the use of rational method and techniques and research and application of new techniques by utilizing advancements in technology. Excess cost control requires to be maintained throughout the project life of building beginning from the initial stages of design up to the entire completion of project. Scrutinizing the project well and considering all possible alternatives particularly in design stage are important for achieving optimum cost. The value engineering is an intensive, interdisciplinary problem solving activity that focuses on improving the value of functions that are required to accomplish the goal or objective of any product, process, service or organization. In this study an attempt has been made to highlight the importance of value engineering in construction industry and how value engineering techniques can be applied in supervision of construction works for the successful implementation of construction projects.

IV. LITERATURE REVIEW

- [1] Surya Teja Reddy and Satyanarayana Polishetty, conducted a case study on residential building to study value engineering application. Detailed cost of existing construction was studied and effective alternatives were suggested for various materials.
- [2] Mohamed Abdelghany, Racha Rahwan, Abotaleb, Amr Fathy, presented three case studies of value engineering applications in the architectural and electromechanical disciplines in a real large-scale residential project. In these case studies, the methods and calculations of value engineering studies were presented. The overall estimated

savings which resulted from the value engineering study were between the range of 20% to 50% of the principle cost; hence a significant reduction in the overall project cost was achieved. The paper then provided a semi-generic recommendation matrix for design alternatives in various disciplines and their summarized advantages on residential projects. The provided matrix shall support designers at very premature design stages to produce economically and aesthetically efficient design segments.

- [3] Ferry and Fadil and Khairulzan, stated that adoption of prefabrication construction methods, intelligent excavation works, reduce-reuse-recycle principles and simple environmentally aware on site practises can minimize waste produce and local environmental impacts emitted during project execution. Green building design shall encompass Value Engineering and Lean Construction concepts in order to achieve sustainable construction industry.
- [4] Khalid and Pandey, suggested that a lack of management support is not a primary cause of the lack of use VE as a construction management tool, senior management needs to appreciate its benefits. The decision made in early stages of project affects all its aspects, yet the industry spends the least on this stage.
- [5] K. Ilayaraja and MD. Zafar Eqyaabal, has conducted a vast study on value engineering and the application phases has been analyzed in the thesis from the study. It is observed that value engineering is a authoritative problem-solving tool that be capable of reducing the costs while preserving or improving performance and quality requirements.
- [6] Mr. A. J. Velani and Dr. A. R. Kambekar, suggested technique which can applied to reinforced cement concrete work for reinforced concrete structures. They came up with replacement of river sand to crushed sand & provided a detailed study on couplers to avoid lap length.

V. PRESENTING VALUE ENGINEERING METHODOLOGY IN CONSTRUCTION PROJECTS MANAGEMENT

Value Engineering Process in government-funded construction is acted in three stage; pre-study in government funded construction, the profit study in construction (completing studies). Each of these three chapter in government-funded construction is detached into main projects that are conferred in the following.

The purpose concerning this stage search out plan and arrange value study in government-funded construction. Some endeavors unavoidable to gain this objective contain:

- Win the authorization of senior director and advocating work plan, functions and blames in government funded construction.
- developing advantage study ranges and goals
- acquiring project dossier and facts
- deciding and prioritizing considered crucial questions
- Gathering news necessary by organization/expert/trustee concerning the project
- Inviting suppliers, clients, and benefits to take part in worth study (if necessary)
- Distributing news between group appendages for case

VI. METHODOLOGY

1. Information phase-

The aim of this phase is to recognize the constraints which would influence the decisions involved in a project. The team collects data about project scope, schedule, budget, costs, risk, strategic objectives, and logistical needs by conducting site visits. Various softwares can be used for this phase. The main outcome of this phase to the ensure that the team members have the same understanding of the project, leading to better derivation of creative alternatives in later stages with minimizing mismatches.

2. Analysis phase-

In the analysis phase, the information collected is being scrutinized evidently. All the individual elements are taken into consideration and the main activities which consume more cost are shortlisted and also the total budget for the project is generated in the form of report.

3. Creative phase-

In this phase alternative ideas for accomplishing the function of a system are made. The major work that is done in this phase is to fix the alternative materials and technologies which must be substituted with the existing materials and technologies in conventional construction. The concepts grown in this phase should be such that the quality must not be affected.

4. Evaluation phase-

The ideas engendered during creative phase are screened and evaluated by the team. The ideas which exhibit maximum potential for saving the cost and project enhancement are chosen for further studies.

5. Report/ presentation phase-

In report phase, the alternatives which are evaluated are to be implemented and a report showing differences in cost for each and every activity is generated. The variation of cost is also being presented in this phase.

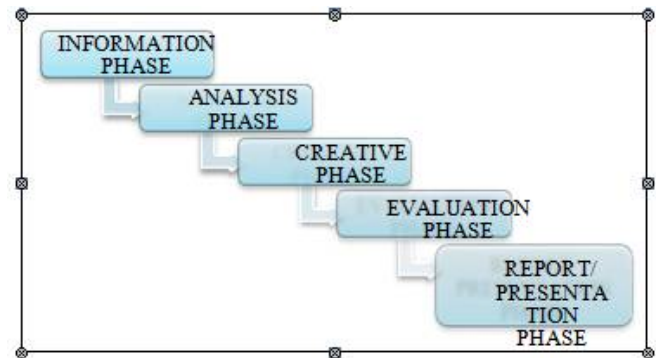


Fig. 2, Flow chart on methodology

VII. OBJECTIVES

The application of value engineering in the early stages of any project and also throughout the project has always brought tremendous benefits to both the developer as well as the consumer. Some significant benefits are listed below:

1. Only after the analysis of all the options and alternatives available, the selection of a specific technology or material is done for implementation in the project.
2. Value Engineering does not merely refer to reduction in cost, but also increasing the overall value of the project and that too without compromising with the quality of the deliverable
3. The reduction in the cost achieved can also be used to attract a large number of customer by providing lucrative prices for the deliverable.
4. The use of alternative materials will reduce the exploitation of conventional materials and technology.
5. Value engineering has unlimited applications, it can be applied even to the smallest of the elements of a project.

VIII. CONCLUSION

In this study, on the basis of site visits conducted it was observed that very few practitioners are involved in ethical practices of value engineering. So, the development of VE in the Indian construction industry should continuously research and monitored in the future to ensure its future development and to achieve maximum benefits to the construction industry. In this review paper, a detailed analysis

was carried out to find some effective alternatives focusing on masonry and reinforced cement concrete work. So further we are going to use some different materials to carry out results for the best outcome for the effective cost saving can be achieved.

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