COST REDUCTION BY CONSTRUCTION WASTE MANAGEMNET

Mihir v vora
Student
U.V. Patel college of Engineering
Ganpat University, Mehasana

Ankit S. Patel
Professor
U.V. Patel college of Engineering
Ganpat University, Mehasana

Abstract: **the Indian construction industry is facing so much challenges like low productivity, lack of labour knowledge, time and cost. These are main factors are effecting on waste generation on the construction site. In upcoming years India will face huge amount of waste disposal problem in recently years.in my research work I can read and analysis of literature paper I can understand that there are so many factors affecting on the waste production and there are no rules and regulation for control it. Our government do take action about it.it is very dangerous for environment. In this paper we can give suggestion for waste reduction we can compare the actual cost of waste and compare with the permissible limit. We can use modern principle for waste reduction of material. This study aims to investigation to indicate to actual waste generate on site. There is no Indian policy document which examines the waste as part of a cycle of production consumption-recovery waste through overall examination. We can give a give a suggestion after the research work study for reduction of cost and saving a material. We can take data form interview and site visits, after the data collection we can done rate analysis of different items and compare it with actual limit vs. Permissible limit.**

Keywords: **Construction Waste, waste management, 3R, Waste reduction, Cost reduction**

1. INTRODUCTION

Cost and time is main factors for construction success .in the construction waste management there some factors affecting on it like proper supervision ,quality management ,not change in design and some others,. There are two type of waste in construction industry first is direct waste and second is indirect waste, direct waste comes from demolition activity and indirect waste comes from various construction activity like plastering, flooring work and etc.in my topic we can understand that how much waste generated from different activity and how can we reduce this waste and save the cost of project by cost reduction by construction, in urban India we can face huge amount of construction waste in coming years because the demolition of many buildings in upcoming years due the old construction buildings life is expired soon. Cost reduction is imported factors for all construction activity, in India there are no perfect method are establish for disposal of construction waste , it cause environment hazards and also effects on health and wealth's Of men's life. There are some rules and regulations for disposal of construction waste but in India rules are not followed by any company and government not take action about it. It is imported to study about it and give better solution for it.

2. Need for study

Cost is main factor for construction industry, so we can reduce cost of activity by waste management it give big advantages for the project. Importance of the study is rise knowledge's of contactor, labour, engineer, workers of the site, regarding to the waste managements. It is a big implementation for waste management into construction project, and we can also reduce bad environment effects.

3. Objective of study

To reduce and minimize the use of resources.
To focus on the major cost.
To minimize coat over run.
To decrease estimated cost.

4. Literature review

❖ Brief overview of literature paper

In all this paper I can read and analysis I can understand that how much waste generate on the project and how can we reduce it, I can understand different type of methods use for waste reduction, how to take different type of data or plans , how to analysis data and lots of other things are understand in literature paper. How to conduct different surveys for data collection, how to apply different analysis and collection methods. And there are many other things I can understand for this research work.

Sujal Patel and c.g.Patel in his paper he can study on the objective is to assess the waste minimization techniques taken from the 3R thought which is reduce, reuse and recycle technique in minimizing the waste in construction waste management.

A.a.dania and K.bala research on The learning create out that exact rule on wastes from construction sites were non-existent and that the accused considered other project goals of timely development supply, quality and cost as further significant than the impact of the project on the location. Most accused exhibited a deprived understanding of waste management and most concerns did not have a policy on Material Waste Management.

Job thos and Williams research on main object is the supervision of building waste is very significant today. The insufficiency in the availability of aggregate for the production of concrete is one of the significant glitches opposite by the construction manufacturing. Suitable use of the construction waste is a result to the fast deprivation of new materials in the construction industry.

A.R. Makegaonkar, P.S. Dange, R.R. Waghmode is to study the various strategies of the reusing and recycling of the Construction waste adopted by different countries. The paper also focusses on the recycling of the aggregate for its reutilization in the construction activities, so that by using the Recycled aggregate the cost of the project also gets down.

Minaxi rami and alisha gupta on his research work understand the methods for management and controlling of waste manager resources. Main objective of this paper is identify the sources of waste also study about the construction flattening waste. Also identify the surplus and process of decreasing the waste.

5. Data collection

Data collection done five phase:
Visit the relative site
Meet project manager and architect and get some information
Refer structure and architect plans
Refer quantity sheet
Estimate the materials before the execution of work.

6. Data analysis

In data analysis we can analysis five activity. Flooring, Reinforcement, Brick work, Concreting, Plaster work. Below the table shows the allowance limit as per IS-CODE .in our data collection one projects is commercial + residential and second project is residential. All data can be estimated through plans and quantity sheet. I can take permissible limit form IS CODE.

Material	Permissible waste (%)
Tiles	5-7
Cement	1-1.5
Sand	2-3
Reinforcement	6-8
Bricks	8-10
Concrete	3-4

FLOORING ACTIVITY DETAILS:
AREA SHOULD BE COVERD
BLOCK B
TOTAL AREA =218.827SQ.M
2BHK, 4 UNIT/FLOOR, 12 FLOOR
DRAWING ROOM, BED ROOM, KITCHEN

TOTAL QUANTITY FOR 12 FLOOR:

Material	Quantities	Price	Total price
Tiles	9120pcs	₹ 300-320 / pcs	₹28,27,200
Sand	242.8 tons	₹700-750 /ton	₹2,61,200
Cement	736 bags	₹350-360 / bag	₹1,69,960

ACTUAL WASTE QUANTITY:

Material	Quantities	Price	Total price
Tiles	1068pcs	₹ 300-320 / pcs	₹3,25,740
Sand	8 tons	₹700-750 /ton	₹5800
Cement	23 bags	₹350-360 / bag	₹8165

COMPARISON BETWEEN ACTUAL AND PERMISSIBLE WASTE:

Material	Actual waste price	Permissible waste Price	Difference
Tiles	₹3,25,740	₹ 2,20,176	₹1,05,564
Sand	₹5800	₹5200	₹600
Cement	₹8165	₹2700	₹5400

Similarly, I can calculate the others four activity. We can show the below table of cost comparison table of all activity materials.

Comparison of actual and permissible waste in percentages.

Material	Permissible waste in (%)	Actual waste on site in (%)
Tiles	**5-7**	**12-14**
Cement	**1-1.5**	**3-4**
Sand	**2-3**	**3-5**
Reinforcement	**6-8**	**18-20**
Bricks	**8-10**	**14-16**
Concrete	**3-4**	**4-5**

7. Conclusion

By the study of above literature papers and in my analysis I found that waste of material due to improper documentation, material handling, management of site and many other reason. Waste generation mostly occurred due change in design when worker already process of further work. The fact of site is most of company are not aware of its wastage percentage of their own site. Very limited company are known about their material consumption report and organization report. Analysis of the data I can know that material waste proportion is very high due to flow of activity, transportation, handling of material and etc. The cost of material is 55-60% of the total cost of project, so you can understand that if 10% wastage of material how much cost you save. The cost of wastage is decrease if we adopt some rules and regulation on the site. We can adopt a waste manager, we can make a plan about wastage, give some knowledge to labor, supervisor, and engineer, site people. Give incentive to labour for decrease the waste, make some effective plans for reduce the waste of materials.

8. Future scope:

For knowing the source of the wastage we can plan activity in that way so we can reduce the wastage of material. We give knowledge to the all team member who are handling the material department. We can adopt or make a material saving plans on the site. Provide one material engineer who can done all things about the reduce wastages.

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