

Qualitative risk analysis in highway construction project in satara district.

Siddharth Nandkumar Mane , Prof . Sourabh. v. Joshi .

(Research scholar), (Assistant professor , Department of civil engineering .Government college of engineering, karad.) , karad ,Dis. Satara , Maharashtra ,India.

Abstract : Risk management is important part of successful completion of project . Risk management is only done after analysis of risk . Risk analysis can be done in two ways qualitative and quantitative . In this paper how qualitative risk analysis can be done is explained briefly along with qualitative risk analysis for highways construction project in satara district. It a try to analyse how badly risk affected to construction project in satara district in Maharashtra state of India

Key words : Risk analysis ,Qualitative , Quantitative ,Analysis.

Introduction : In starting of twenty first century infrastructure development is at its peak .Many developing countries assign its most percentage of its economy for infrastructure development . Highway is an important component of infrastructure development. Highway is not only important part of infrastructure but also it comprises many important needful functions in developing nation .In India highways are constructed under ministry of road transport; so development , recreation , construction ,etc . are governed by union or state government . But government gives actual work to private construction companies by tendering process .When private companies started construction there are many factor that slowdown the construction process that actually called risk .So risk analysis is important for successful completion of project ; and helps to overcome obstacles in construction process. After studying various literature the risk analysis process can be understand and on that basis qualitative risk analysis has been done .

Methods of data collection :

Data has been collected using questionnaire survey .The likert scale with five point voting method used . There are 32 questions were included in questionnaire which generally includes all aspects of risk causing factors . Five point scale gives severity values to risk.

In five point scale the severity gives following manner

- 1 . Very low risk .2.Low risk.3.Medium risk .4.High risk .5.Very high risk.

According to possibility the severity is designated. By this method the entire data were collected.

Methodology .

There are 50 questionnaire survey has been distributed to many authorised person of concerned construction company .Out of 50 the 37 surveys getting returned back after filling . Which is approx. 75% of overall surveys.

After collecting all data the data is analysed with relative importance index method . This method generally gives importance of each risk with some value that called as R|| value . Which gives weightage to risk and help to identify effect of each risk on construction of highway . After that according to risk weightage risk is arranged in descending order in which highest value risk is placed at top place and lowest value risk is at bottom .The highest value risk causes highest contribution to cause that risk .

Formula for calculating relative importance index :

$$R|| \text{ value} = \sum W / (A \times N)$$

W Weightage given by each factor by responder . A Highest weightage .

N Total number of responders .

Using this formula relative importance for each weightage has been calculated and according highest and lowest weightage risk were arranged in descending order .

Observation ;

By performing analysis we are able to know that high compensation demand has highest relative importance value and rework due to error in execution has very low relative importance index value .

Type of risk	Loading factor
1.High compensation demand	0.5737
2.Effect of covid-19 lockdown	0.5736
3.Local citizen issue	0.4947
4.Unsettled and lack of project funding	0.4684
5.Poor safety procedure	0.4369
6.Interference of local politicians	0.4105
7.Land acquisition	0.3947
8.Delay in environmental clearance	0.3894
9.Removal of structure	0.3842
10.Natural disaster	0.3736
11.Inadequate design	0.3632
12.High mineral cost	0.3631
13.Damage to equipment	0.3579
14.Pollution and safety rules	0.3578
15.Labour injuries	0.3368
16.Inadequate site investigation	0.3210
17.Improper estimate	0.3157
18.Misinterpretation of traffic data	0.3106
19.Excessive labour movement	0.3105
20.Change in material price	0.2948
21.Law and order problem	0.2947
22.Weather implications	0.2843
23.Management of construction waste	0.2895
24.Change in construction procedure	0.2842
25.Price inflation	0.2790
26.Delay in material procurement	0.2616
27.Poor performance of contractor	0.2631
28.Poor quality of material	0.2689
29.Efficiency of supervisors	0.2684
30.Insufficient fuel	0.2315
31.Lack of risk management	0.2263
32.Rework due to work	0.2157

Conclusion :In qualitative risk analysis generally assessment is generally value based .Due to that its contribution to risk is only identified .In above analysis high compensation demand contributes more and rework due to work contributes less ; and all other all factors arrange asper their weightage .

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