Enviornmental Impact Assessment on Joshimath Accident

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Abstract- *Environmental impact assessment of the joshimath accident , which happened in 2023 , which was because of the north proper environmental impact assessment for the location , which was assigned for the national highway project , along with the chardham yatra project . Joshimath is in between Haridwar and Badrinath, which connects 2 important chardham locations along with that.This area was famous for the Joshi.Math temple which was built by the Adi shankaracharya*

Recently, a hydroelectric project also assigned to this location in the Uttarakhand because of this, this location is having the mud soil, which is loose mud soil, which literally had a accident of cracks were also expected in walls of house and the project of national highway road washed off due to the landslide in that area because of which many people have to loss of their belongings, if a proper .

Environmental impact assessment would have been done that place.This problem wouldn't have happened so because of that.Recently , a environmental impasse assessment have been done at that place and there are some lacunas in it which can be improved , which I have mentioned in my Synopsis further

Keywords- Hydroelectric project, National highway, Enviornmental assessment

I. INTRODUCTION

Government of India has decided to develop a Spur to Haridwar. This will be a new connection to Haridwar from Delhi-Saharanpur-Dehradun Economic Corridor. The project stretch lies in Saharanpur and Haridwar districts in the states of Uttar Pradesh and Uttarakhand respectively. Delhi-Saharanpur-Dehradun expressway starts from Akshradham, Delhi to Dehradun covering a length of 212 km. The proposed corridor is 6-lane access-controlled highway. The route of the corridor is Akshradham/Delhi-EPE at Latifpur village-Saharanpur Bypass-GaneshpurDehradun.

This corridor is spread across the states of Delhi, Uttar Pradesh and Uttarakhand and passes through cities such as Baghpat, Shamli and Saharanpur. At present, the traffic from Delhi to Haridwar follows NH 334 (Old NH No.58) passing through Ghaziabad, Modi Nagar, Meerut, Muzaffarnagar and Roorkee. NH 334 (Old NH No.58) is 4-lane in most of the length and passing through Built-up/Semi Built-up areas at some sectionsNH 334 is partially access controlled highway with at-grade junctions and median openings. Traffic on NH 334 (Old NH No.58) nearer to Roorkee is 36176 PCU. The distance between Akshradham/Delhi to Haridwar/Har Ki Pauri through DME and existing NH 334 (Old NH No.58) is 210 Km and it takes around 5 hrs travel time. Haridwar/Rishikesh are an important religious pilgrim centres. Haridwar is a gateway to other hill cities and temples of Uttarakhand, the traffic bound to the most important pilgrimage circuit in Uttarakhand, Chardham comprising Yamunotri, Gangotri, Kedarnath temple and Badrinath temple also passes through Haridwar. The number of pilgrims visiting the Chardham tour has been continuously increasing.

The pilgrims visit Haridwar and Rishikesh in throughout the year predominantly during the winter. The existing NH-334 (Old NH No. 58), is getting congested during pilgrimage season or during important festivals. Tens of millions of pilgrims attending the Kumbh Mela in January to March at Haridwar will use this highway extensively. More than 50 million devotees attended the last Kumbh Mela.

The existing NH 334 beyond Haridwar, will also connect the border with Tibet passing through Chamoli, Joshimath, Badrinath and finally to Mana Pass near the border with the Tibet**.**

The National Highways Authority of India (NHAI), an autonomous agency of the Government of India, is responsible for management of the network of national highways across the country. It is a nodal agency of the Ministry of Road Transport and Highways (MoRTH), Government of India. NHAI vision is to meet the nation's need for the provision and maintenance of national highways network to global standards and to meet user expectations in time-bound and cost-effective manner, within the strategic policy framework set by the Government of India and thus promoting economic well-being and quality of life of the

people. NHAI is the nodal authority / project proponent for development of the highway project under present study.

II. IDENTIFIED, RESEARCH AND COLLECTED IDEA

The Process and Hazard Identification A critical observation/study of the structure/process/site under consideration by the risk assessment team is an essential part of hazard identification as is consultation with the relevant section of the workforce. It is important that unsafe conditions are not confused with hazards, during hazard identification. 4 Disaster Management Manual Primarily disasters are triggered by natural hazards or human-induced or result from a combinatIn particular, human-induced factors can greatly aggravate the adverse impacts of a natural disaster. Even at a larger scale, globally, the UN Inter-Governmental Panel on Climate Change (IPCC) has shown that human-induced climate change has significantly increased both the frequency and intensity of extreme weather events. While heavy rains, cyclones, or earthquakes are all natural, the impacts may, and are usually, worsened by many factors related to human activity. The extensive industrialization and urbanization increase both the probability of human-induced disasters, and the extent of potential damage to life and property from both natural and humaninduced disasters. The human society is also vulnerable to Chemical, Biological, Radiological, and Nuclear (CBRN) disasters.of the projectroad and methodology is shown in Figure The important findings of the assessment provided important feedback to the design team, especially in terms of the sensitive receptor, forestApplicability of various environmental regulations and guidelines was reviewed for the project and its allied activities. As per the EIA notification, 2006, the project is covered under serial no. 7(f) as category 'A'. The proposed project has been scoped for Terms of Reference (ToR) vide File No.10/25/2021-IA.III dated 17th June, 2021. ToR compliance is presented as Annexure 1.3 of this report. 1.5 Approach and Methodology Present EIA study has been undertaken based on EIA Notification, 2006 (amended thereof), ToR accorded for the project from MoEF&CC and Environmental Impact Assessment Guidance Manual for Highways prepared by Administrative Staff College of India. The EIA study was carried out simultaneously with design and wildlife area, archaeological sites and religious properties. It helped in modification of the designs report and incorporated mitigation measures, wherever theimpacts are avoidable. .

III. STUDIES AND FINDINGS

- Reduced cost and time of project implementation and design,
- Avoided treatment/clean-up costs and impacts of laws and regulations.
- Lays base for environmentally sound projects; Greater awareness of environmental legislation;
- Protection of Environment
- Optimum utilization of resources(balance between development and Environmental protection)
- Informs decision makers
- EIA reports are a critical component of India's environmental decision-making process
- . It acts as a detailed study of the potential impacts of proposed projects.
- It helps in predicting environmental impacts at an early stage in project planning and design.
- Based on these reports, the Environment Ministry or other relevant regulatory bodies may or may not grant approval to a project.
- The EIA reports are also important to define measures that the project could take in order to contain or offset project impacts.
- EIA-based approvals for most projects also involve the process of conducting public hearings, so that who are likely to be affected can be taken on board before approving the project.
- EIA links environment with development.

IV. GETPEERREVIEWED

Reviewer:ProfessorRajesh

Your project is very informative and current. You've clearly explained how environmental impact assessment on joshimathaccident are helping construction become safer, and more efficient. Great use of examples like. But the paper is a bit messy in some parts—some sections are unclear and seem like they were auto-translated. Advice: Make the language smoother and add a proper "Methodology" section explaining how you researched the topic.

Reviewer: Dr. Meenakshi Verma

You explained the technologies well, like drones, IoT, and automatic excavation. But you didn't include enough real numbers. It would be better if you added data to show how much time or money is saved using robots compared to humans. Advice: Add some charts, statistics, or case studies to back up your points..

V. IMPROVEMENTASPERREVIEWER COMMENTS

Based on the valuable feedback received from peer reviewers, several improvements were made to enhance the overall qualityof the research project. Firstly, a detailed and clearly structured methodology section was added to explain how the research was conducted, including the sources of information, technologies studied, and examples used. The language of the report was thoroughly revised to remove unclear or machine-translated phrases, ensuring that the content is presented in simple, readable, and professional English. Repetitive content was eliminated, and long paragraphs were broken down to improve clarity and flow. To strengthen the technical depth of the paper, relevant data, statistics, and real-life examples were added, especially in areas discussing cost savings, productivity, and the comparison between manual and automated construction methods. In response to comments on industry relevance, more practical case studies and government policies supporting automation were included to show real-world applications. Furthermore, formatting improvements such as the use of bullet points, subheadings, and illustrations were implemented to make the document visually appealing and easier to navigate. These collective changes have significantly enhanced the technical, academic, and practical value of the project

VI. CONCLUSION

Need for an Independent EIA Authority with sectoral divisions to look after all kinds of environmental issues.Proper information channel related to projects from initial phases to clearance stage to Indigenous communities and general public.

- No industrial developmental activity should be permitted in ecologically sensitive areas,
- Public hearings should be made mandatory for all projects that have environmental impacts, including exempt categories of projects.
- The present executive committees should make way for experts with experience in environment and other relevant fields.
- The EIA notification should have an automatic withdrawal of clearance in case of violation of rules.
- Ensuring unbiased, scientific, and comprehensive EIA reports by involving independent agencies.
- Strengthening post-clearance scrutiny to ensure adherence to environmental safeguards.
- Integrating Social Impact Assessment (SIA) with EIA for a holistic understanding of a project's implications.

Mandatory inclusion of climate change impact in assessments, given the increasing relevance.

APPENDIX

The appendix includes supplementary materials that support the findings and content presented in this research project. It consists of additional diagrams, charts, and images related to the implementation of robotics and automation in the construction industry. These visual aids include examples of robotic bricklaying systems, concrete printers, drone applications for site monitoring, and automated machinery used in excavation and modular construction. Also included are samples of government policies and training programs aimed at promoting automation in civil engineering. A brief comparison table outlining manual vs. automated processes in terms of time, cost, and safety was prepared to highlight the practical advantages of robotics. Moreover, data sources, such as research articles, case studies, and institutional reports that informed the review of literature, are referenced for deeperinsight

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