

EIA & Certification Process in Major Construction Project Works

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Abstract— The construction industry is the second largest industry in India. In India around 35 cities having population more than a one million. As population of country increases the construction work also increases. The increase of construction is directly affected on surrounding environment. For evaluating the impact of construction on environment we can use environmental impact assessment techniques. Environmental Impact Assessment (EIA) is a tool used to identify the environmental, social and economic impacts of a project prior to decision making. The environmental impact assessment is an important process to identify and mitigate the adverse effect of construction projects on environment. It was found that 'Transportation Resource', 'Noise Pollution' and 'Dust Generation with Construction Machinery' are the greatest environmental impacts in India. Environmental Clearance Certification process of major project works is important parts in the Environmental impact assessment. The various activities of construction in India have been pursued without giving much attention on environmental related issues. This has been resulted in pressure on its finite natural resources, besides creating impacts on human health and living organisms. Unsustainable and Unplanned urban development has lead to severe environmental pressures. Green cover, ground water resources have been forced to give way to the rapidly developing urban centers. The Modern buildings constructed in our cities have high levels of energy consumption because of requirements of lighting and Air-conditioning. Environmental clearance is a process used to determine and plan to reduce the effect of construction of project before starting the actual project. The results of this study are useful for construction managers and other participants in construction sites to become aware of construction processes impacts on the environment.

Keywords— Certification, Clearance, Construction, Economic Environmental, Impacts, Pollution, Compliances. Introduction (Heading 1)

I. INTRODUCTION

A. Environmental impact assessment

EIA is an important management tool to identify the major environmental impacts of construction projects to improve the effectiveness of environmental management systems. Prediction of the environmental impacts of construction project before the construction work, leads to improvements in the environmental performance of construction projects and

sites. A construction project causes great impact on environment. It is necessary to provide mitigation measures to minimize the fast growing threat of environmental impacts of building construction projects. Environmental impacts of building construction activities may vary from country to country. Major environmental impacts of construction projects are such as waste disposal, pollution, resource use and habitat destruction, desertification, soil erosion and material wastage etc. EIA aims to predict the environmental impacts of the developmental activities at an early stage in project planning & designing to find ways and means to reduce their adverse impacts, shape projects to suit the local environment and present options to decision-makers.

B. Environmental Clearance Certification process

Environment Clearance- Steps

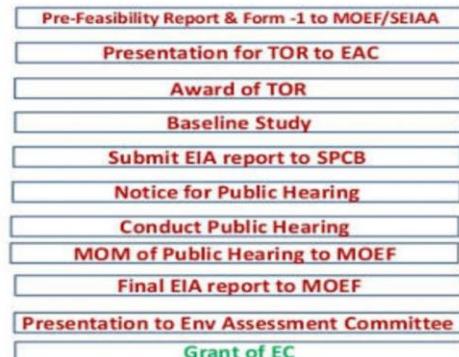


Fig. 1. Environmental Clearance-steps [3]

• Screening:

This stage will entail the scrutiny of an application seeking prior environmental clearance made in Form 1 and Form 1A by the concerned State level Expert Appraisal Committee (SEAC) for determining whether or not the project or activity requires further environmental studies for preparation of an Environmental Impact Assessment (EIA) for its appraisal prior to the grant of environmental clearance depending up on the nature and location specificity of the project.

• *Appraisal:*

Appraisal means the detailed scrutiny by the Expert Appraisal Committee or State Level Expert Appraisal Committee of the application and other documents like the Final EIA report, submitted by the applicant to the regulatory authority concerned for grant of environmental clearance. This appraisal shall be made by Expert Appraisal Committee or State Level Expert Appraisal Committee concerned in a transparent manner in a proceeding to which the applicant shall be invited for furnishing necessary clarifications in person or through an authorized representative.

• *Grant or Rejection of Prior Environmental Clearance (EC):*

The regulatory authority shall consider the recommendations of the EAC or SEAC concerned and convey its decision to the applicant within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within one hundred and five days of the receipt of the complete application with requisite documents, except as provided below 90 days? The regulatory authority shall normally accept the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned. In cases where it disagrees with the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, the regulatory authority shall request reconsideration by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned while stating the reasons for the disagreement.

II. PROBLEM STATEMENT

Enhancing the identification of the major environmental impacts of construction processes will help to improve the effectiveness of environmental management systems. Furthermore, prediction of the correlated environmental impacts of construction before the construction stage, will lead to improvements in the environmental performance of construction projects and sites. The determination of major environmental impacts will assist to consider a range of on-site measures in order to mitigate them.

A. Removal of public participation

The main delay in the EIA process occurs in the public participation and involving public which will suit and also mandatory only to big projects, this can be removed from the EIA process for projects.

B. Formation of EIA team

This is one of the major area where modification is needed, for big projects normally a team comprising of experts from various fields will be involved but it is not necessary in small

projects, an EIA team for projects can be formed with the owner of the property who sells the land for the project, managing director of the proposed project, one environmental expert having detailed exposure or various areas of EIA, resource suppliers for the proposed project, one academician if necessary. Any discussion or decision should be made only after consulting all members of this team after prior approval.

C. Preliminary studies to be done

Unlike generic EIA the initial studies should focus much on the resource usage pattern analysis, land use pattern, material inflow and out flow studies, process control studies, waste generation and disposal pattern.

D. Timeline of EIA process

Generic EIA process is time consuming since it involves in depth study, analysis, discussions in various levels and also involves public, but its not mandatory for smaller level projects, the proposed time schedule for a full EIA is about 20 days to 1 months before commencement of the project.

E. Environmental performance studies

It's proposed to study the local area while doing the EIA and also to do social impacts studies near the proposed site, smaller projects will not get more public oppose but it's necessary for these projects also. The waste management plan is must for the smaller projects since mostly the waste management plan will not be designed for any smaller projects and almost all wastes are dumped in nearby sites.

F. Assessing alternative material usage

The prime importance is to be given to find out the alternate raw material usage both for construction, operation and maintenance of the project. This should focus to convert the project into environmentally friendly and also to optimize the resources, increase the monitory benefit.

G. Calculation of environmental components

The main components of environment to be calculated in this EIA process includes but not limited to energy usage, type of energy, alternate energy using chances, water usage, limiting water usage in various areas, noise measurement, natural resource usage.

H. Social responsibility studies

The main aim of the small and medium project in social context is employment to the nearby people, a detailed study should be incorporated in the EIA process to find out the social benefit of the project such as employment, revenue generation, social upliftment, land value modification, impact on environmental ethics and remedial measures should also be suggested if there are any issues in the findings.

III. NEED OF PROJECT

To safeguard the environment from adverse effects of developmental construction activities, has issued some mandatory regulations. As per the notification S.O. 1533 E dated 14th September, 2006, Environmental Impact Study (EIA) is mandatory for any construction projects with built-up area of more than 1,50,000 m². Only clearance has been called for from concerned authorities (SEAC) through the EIA Proposal consisting of Form 1, Form 1A and Conceptual Plan. The study would facilitate PP to obtain Environmental Clearance (EC) from the SEAC. The guidelines outlined here have been prepared to help the proponents in the preparation of documents to be submitted for environmental clearance.

The guidelines outline the following:

- Revised requirement of environmental clearance for construction projects.
- Impacts and mitigation Measures for Site, Planning & Development.
- Impacts and mitigation for Water Management.
- Impacts and Mitigation Measures for transport Management and Air Pollution Control.
- Impacts from Building materials and Constructions including Solid Waste Management.
- Energy conservation Measures including Bio-climatic Design.
- Set of mandatory and expected criteria to be followed by the developer.
- Submittals required to address questions in Form1 and 1A of the notification.

IV. SCOPE OF PROJECT

The environmental impact assessment is a process in which the impact on any construction on environment is carried out. In this study, we study the methods of environmental impacts assessment, also the drawbacks of current scenario of environmental impact assessment process. The study mainly focus on the studying the Environmental impact assessment and the environmental clearance certification process. Mostly we can see that the environmental clearance certificate process is very time consuming. It takes a long time for completing the process of certification. Mainly in this study we gather the different compliances from different sites. It helps for new construction for taking clearance of project.

V. AIM AND OBJECTIVES

- Detail study about the Environmental impact Assessment.
- Impact of Construction material and activities on the environment.
- Environmental Clearance Certification process in major projects works.
- Impact of certification process on construction works.
- Time Reduction technique for environmental clearance certification process.

VI. LITERATURE REVIEW

Title: Environmental Impacts Assessment on Construction Sites, Mehdi Nourbakhsh, Javier Irizary, Aziruddin Ressang, Masoud Gheisari, May 2012,

Since construction is considered as one of the main sources of environmental pollution in the world, the level of knowledge and awareness of project participants, especially project managers, with regards to environmental impacts of construction processes needs to be enhanced. This paper aims to assess the most common environmental impacts due to the construction process in Malaysia. To achieve this aim, a structured interview was conducted with an expert panel group in Malaysia.

Title: Environmental Clearance of Statue of Unity Project of Gujarat - A Case Study. Author : Dr K N Sheth, Environmental law refers to rules and regulations governing human conduct likely to affect the environment. It reflects the legislative measures, and the administrative and judicial structures to protect the environment. However, it is difficult to define precisely the boundaries of environmental law in the same way as we define, say the law of contract.

VII. METHODOLOGY

- It consists of introduction, history, types of EIA, advantages, salient features. Also introduce the objectives of this study.
- Literature review related to the project.
- Study of the environmental impact assessment on the construction industry.
- Study of Certification process for major construction projects works.
- Selection of 5 construction sites and study of its compliances.
- Time reduction techniques for new environmental clearance process.
- Merits and Demerits of this project.
- Conclusion and lastly discussed on future scope of this project.

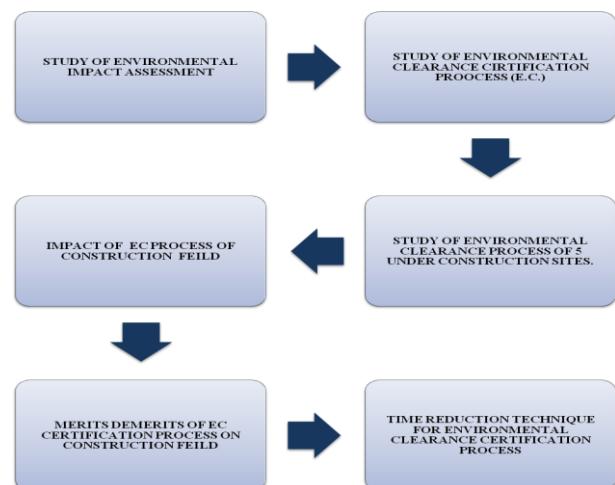


Fig. 2. Methodology Flowchart

VIII. DATA COLLECTION

The focus of our study is gathering the compliances arriving while process of the environmental clearance certification process. We have regularly visited to construction sites and collected the informations. We have gather the information of site. We gather information like type of a project, no of flats or shops, area of project, no of stories, documents submitted for the process of environmental clearance process, amount of time consumes for environmental clearance certification of project, no of and type of compliances occurs while doing the process of environmental clearance.

For this study we have selected the sites and we gather the information according to it. We summarise some site details and its compliances below.

TABLE I: SELECTED SITE DETAILS

Projects	1	2	3	4
Name of project	Sonigara Neelangan	Twin Towers	Sonigara presidency	Park Land
Location	Chikhali	Ravet	Ravet	Ghorpadi
Developer	K.K.Associates	Legacy group	Sonigara and bhosale associates	Yash Vastu developers
Total No Building	2	2	5	8
Type of project	Residential	Residential and commercial	Residential and commercial	Residential and commercial
No of stories	12	10	15	4 building 12 4 building 20
No of tenements	212 flats	180 flats, 60 Shops	410 flats, 110 shops	700 flats
Starting date of construction	April 2016	June 2018	March 2019	June 2016

TABLE II : COMPLIANCES OF EC

Project Name	Compliances
Sonigara Neelangan	PP to submit all section of across all plot at 5-6 places. PP to submit the undertaking for sustainable water supply PP to submit revised parking plan for ground level, upper level PP to submit NOC for STP and OWC. PP to be submit contour drawing of plot. PP to submit list of existing trees and undertaking for retaining the same.
Twin Towers	PP to submit Revised CER with exact description of place where activity is to be carried out. PP to obtain specific NOC from the respective authority for laying down storm water drainage line across 45m road up to final disposal point. PP to submit cross section across the plot at 7-8 places including UGT, OWC and DG set location showing clear road width. PP to submit carbon foot print details of the commercial building. PP to submit Cross section of the road which is proposed to be developed along with contours. PP to obtain and submit following NOC's : a) CFO NOC, b) Water supply NOC with quantity, c) high tension NOC, d) Drainage NOC. PP to submit separate STP for residential and commercial NOC area. PP to submit undertaking for sustainable water supply.
Sonigara Presidency	PP To inform that the entire debris of 29000 m3 will be used on site only. PP to submit cross section of cutting and filling. PP to submit revised parking plan for lower level, ground level, upper level. PP to submit plan of existing SWD and municipal sewer line connectivity up to final disposal point with chamber invert level details. PP to design storm water drain from public to private road considering the run off of adjacent plot. PP to submit CFO NOC and E waste NOC. PP to submit list of existing trees and undertaking for retaining the same. PP to submit details of CER activities in consultation with affected with in the project area as per MoEF.
Park land	PP to submit CFO NOC and E waste NOC. PP to submit NOC for drinking water connection, and connection of sewer line to project site PP has to abide by the conditions stipulated by SEAC and SEIAA. PP to submit Consent for establishment shall be from MPCB under air and water Act. PP to submit All required sanitary and hygienic measures should be in place before starting construction activities and to be maintained throughout the construction work at the site. PP to submit that the solid waste generated should be properly collected and segregated PP to submit that the disposal of musk during construction phase should not create any adverse effect on the neighboring communities PP to submit the report for all top soil excavated during the construction phase use for horticulture/landscape development within the project. PP to submit that any hazardous waste generated during construction phase, should be disposed of as per applicable rules and norms with necessary approval of SPCB.

ACKNOWLEDGMENT

We express our sincere thanks to PG co-ordinator Prof.Sumanth kulkarni, for his continuous support. We also thankful to our Head of Department Prof. Rajesh Kherde, for his support.

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IX. CONCULUSION

The review study analyzed various types of compliances occurs from different construction projects and also analyzed the same types of common compliances occurs from different construction projects. The review study also focused on how same compliances arises from the different construction project and how its increases the time duration for obtaining Environmental clearance. In the study each of common compliances gaps noted, as well as the most common reasons of their existence, can be resolved with visible management commitment and sustained effort towards achieving compliances. The study is helpful for the construction managers, engineers, consultants for doing Environmental clearance process by more better way.