



Review Paper

Environmental Impact Assessment (EIA) and Construction

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Abstract

In order study either its beneficial or harmful effect; evaluation of any project through EIA has become a must. Indian construction industry is rapidly growing at a rate of 9.2% as against the world average of 5.5%. Undertaking EIA for construction industry and improving site management can reduce environmental impacts both on and off site. In order to appreciate the risks posed by construction activities and taking steps to reduce incidents can help reduce costs and improve business reputation. The present article reviews the various steps involved in EIA, environmental effects of construction industry and EIA with relation to construction industry.

Keywords: EIA, construction, construction industry, environmental impact.

Introduction

Environmental Impact Assessment or EIA as usually called can be considered as the appraisal of the probable impact that a proposed project may have on the natural environment¹. It can either positive or negative. EIA is implemented prior to undertaking any project or major activity in order to ensure that no short or long term harm will be faced by the environment. Any developmental venture requires not only the study as to why such a project is needed, what are the fiscal costs and gains involved but most importantly, it entails extensive and in depth evaluation of the outcome of an anticipated development on the milieu.

The EIA process was brought into play with the sole intention of categorizing the impending favourable and unfavourable impacts of developmental projects on the environment, taking into consideration ecological, communal, educational and aesthetic considerations. All of these contemplations are decisive in order to establish the viability of a project and to make a decision whether the project should be granted environmental clearance or not².

Environmental Impact Assessment gives attention to the nuisances, inconsistencies and natural resource constraints which might impinge on the feasibility of a project³. Additionally it foresees how the project can cause impairment to people, their homeland, their sources of revenue, and the other developmental activities in close proximity. After envisaging possible impacts, the EIA computes to make light of the impacts and advocates means to perk up the project viability.

EIA endeavours to make certain that budding impacts are acknowledged and attended to at a premature stage at some

point in the projects planning and design. To accomplish this aim, the assessment finding are communicated to all the pertinent factions who will formulate verdicts about the anticipated projects, the project developers and their patrons as well as regulators, planners and the policy-makers. Having read the winding ups of an environmental impact assessment, project planners and engineers can outline the project so as to achieve maximum benefits and sustainability without causing undesirable impacts.

What do you understand by the term EIA?

EIA is an orderly scrutiny of all environmental impacts cropping up out of any developmental activity. Depending on the form and enormity of impacts, alleviation measures are recommended to maintain the overall environmental eminence integral. Efforts are also made to additionally augment socio-economic and environmental aesthetics of the surrounding area.

Documentation of EIA in India: India's familiarity with Environmental Impact Assessment commenced more than 20 years back. It went underway in the year 1976-77 when the Planning Commission solicited the Department of Science and Technology to scrutinize the river-valley projects from an ecological point of view, which was subsequently extended to include those projects, which requisite the sanction of the Public Investment Board. Until 1994, environmental approval from the Central Government was an executive decision and lacked governmental support.

Under the Environmental (Protection) Act 1986, on 27th January 1994, the Union Ministry of Environment and Forests (MEF), Government of India, circulated an EIA notification which made Environmental Clearance (EC) obligatory both for

expansion or modernisation of every activity and for setting up new projects programmed in Schedule 1 of the notification⁴. Ever since there have been 12 amendments made in the EIA notification of 1994.

In September 2006, the MoEF passed a new EIA legislation making it mandatory for various projects such as mining, thermal power plants, river valley, infrastructure etc. to get environment clearance⁵. Conversely, as against the EIA Notification of 1994, this new legislation placed the responsibility of clearing projects on the state government depending on the competence of the project.

Certain activities acceptable under the Coastal Regulation Zone Act, 1991 also call for analogous clearance. Furthermore, benefactor agencies such as World Bank and ADB, which are functional in India, encompass a different set of requirements for giving environmental clearance to projects funded by them.

EIA Beneficiaries: EIA is a universally accepted observable fact for setting off impacts of a project at its preliminary phase and can be valuable to a multitude of industries, utilities, infrastructure projects, institutions, technology transfer projects, policy makers etc. It capitulate superlative results when made at preparatory stage. Nevertheless there have been few cases when a proponent does EIA for a full-fledged running plant and moreover thinks about post-closure.

Types of EIA: Different types of Impact Assessment are as listed below, though they are not limited to: Climate Impact Assessment, Demographic Impact Assessment, Development Impact Assessment, Ecological Impact Assessment, Economic and Fiscal Impact Assessment, Environmental Auditing, Environmental Impact Assessment, Environmental Management Systems, Health Impact Assessment, Project Evaluation, Public Consultation, Public Participation, Risk Assessment, Social Impact Assessment, Strategic Impact Assessment, Technology Assessment⁶.

The Complete Process

The course of action in an EIA depends on the prerequisites of the nation or patron, though, as a rule EIA processes have a regular constitution and the implementation of these main steps is an essential criterion of first-rate preparation.

The environment impact assessment entails eight steps wherein each step is equally significant in influencing the overall performance of the project. Characteristically, the EIA progression commences with screening to certify that the time and reserves are concentrated at the proposals which matter environmentally and concludes with some kind of follow up on the execution of the verdicts and actions taken as an outcome of an EIA report. The eight steps implicated in EIA process are:

Screening: This first stage of EIA establishes whether the anticipated project, necessitates an EIA and if it does, then the intensity of assessment required.

Scoping: This step recognizes the key issues and impacts which further needs to be investigated and also delineates the periphery and time limit of the study.

Impact Analysis: The third stage of EIA identifies and envisages the likely ecological and social impact of the anticipated project and weighs upon the implication.

Mitigation: Mitigation advocates the actions to lessen and steer clear of the possible adverse environmental upshots of development activities.

Reporting: The end result of EIA is accounted in a form of a report to the decision-making body and other concerned parties.

Review of EIA: It reviews the sufficiency and efficacy of the EIA report and makes available the information essential for decision-making.

Decision-Making: It decides whether the project is cast off, accepted or needs additional alterations.

Post Monitoring: This final step of EIA comes into play once the project is bespoke. It tries to make certain that the impacts of the project does not go beyond the officially permitted standards and execution of the mitigation measures are done in the manner as stated in the EIA report.

Applicability of EIA to Small and Medium Projects

In broad, EIA process calls for assortment of resources which include personnel resources, funding, time to perform entire task, and can be done only for large sized projects which are attaining retorts from community. However there exist a few projects which may possibly have an effect on the environment unremittingly owing to their routine activities⁷. These projects have an increased need of natural resources. Furthermore they devour energy, generate solid waste and impinge on the close by land sources enduringly.

These small and medium level projects need attention considering the fact that development of a country depends on the small projects whose ratio is always more and are instigating on a regular basis.

Environmental Impacts of Construction

Erection of edifice and road and rail network affects the environment in primarily two ways – by overriding resources and by producing contaminants and throw away. The construction business accounts for approximately 45-50 percent of comprehensive power consumption, just about 50 percent of all-inclusive water usage, and more or less 60 percent of the total usage of unprocessed or raw materials.

Alternatively, the construction sector chips in 23 percent of atmospheric contamination, 50 percent of climate change gases,

40 percent of drinking water contamination, in addition to an added 50 percent of landfill wastes. It is imperative that construction companies ought to put a spotlight further on diminishing waste fabrication, capitalizing on the reuse of salvage, and crafting sustainable buildings.

With industrialization and urbanization, ensuing growth in urban solid and liquid wastes is a relatively recent development

in India⁷. Construction activities further add-on to the ever increasing solid wastes. Additionally, rising concentrations of greenhouse gases (GHGs) such as carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) from various anthropogenic activities in the atmosphere⁸ which definitely included construction have been posing threat to the environment.

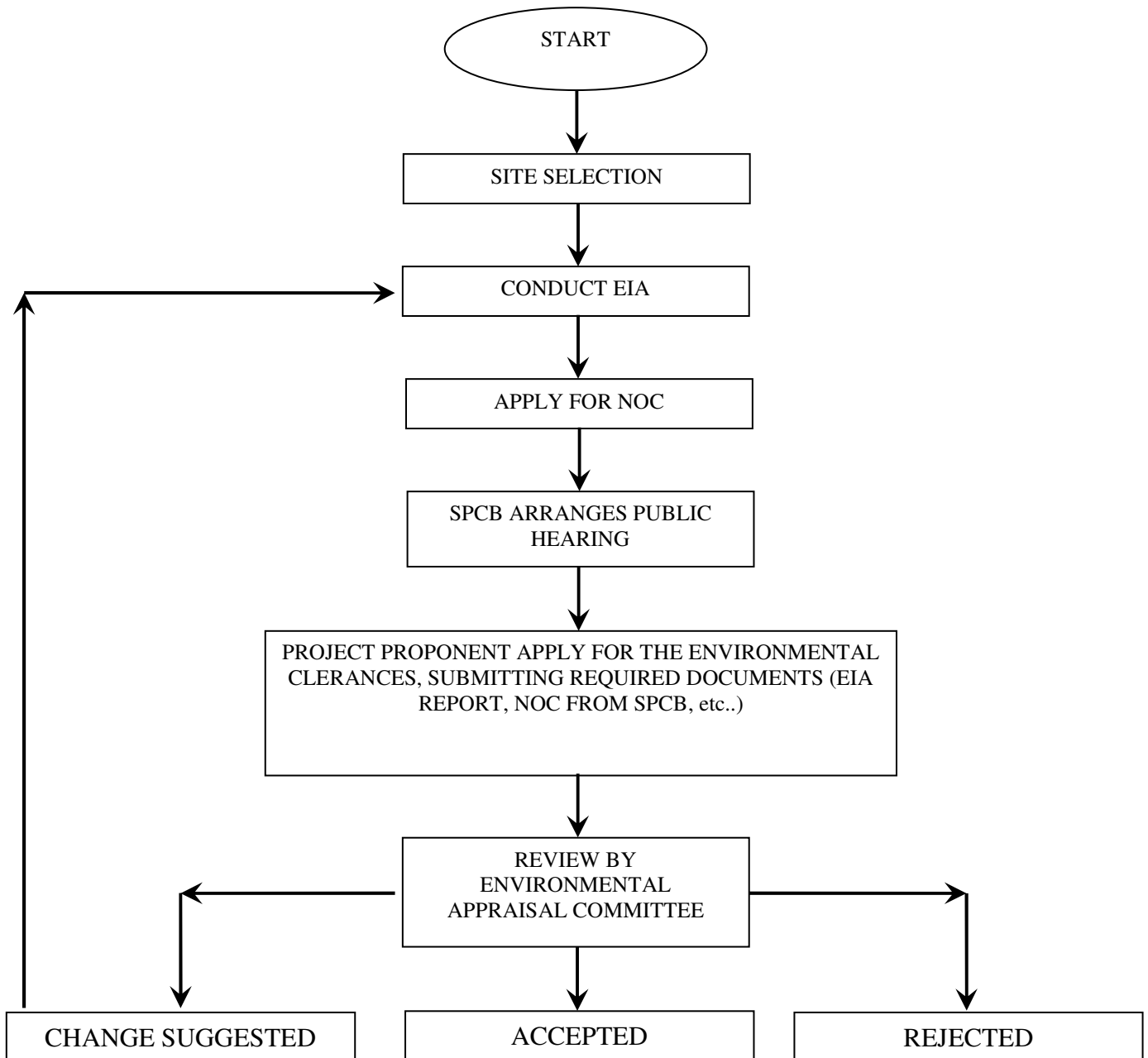


Figure-1
 Generalised Flow Sheet of the EIA Process

Also, specific cases consist of noise sources which are characterized by either intense or widespread or unavoidable nature of noise. This include building demolition and construction work which require powerful blows and large forces and are often carried out in congested urban locations⁹.

As against the global average of 5.5%, Indian construction industry is hastily budding at a pace of 9.2%. Buildings as are designed and constructed today contribute to serious environment problems. The constructions of buildings have made cities dense and their growth vertical. Though enhanced site supervision can trim down environmental impacts both on and off site, environmental clearance for building sector is for namesake, weak and ineffective¹⁰. However, appreciating the perils masqueraded by construction activities and taking actions to ease unpleasant incidents can facilitate in shrinking expenditures and pick up trade repute.

Thus the various effects of construction can be summarized as: Change in land use pattern, Re-development of active urban land from single storey structure to high-rise/high density structure, clearing of surface vegetation, rise in green house gas emissions, removal of topsoil due to excavation, change in topography, change in drainage blueprint of the region, abridged ground water revival, noise pollution owing to the use of heavy machineries, temperature rise of 1-2° C in urbanized area due to higher absorptive surfaces, disposal/reuse of construction debris, discarded electronic waste, cables etc, which are noxious to environment, added load on sewers and waste carrying pipe lines and solid waste management, mostly inorganic.

Conclusion

Environmental Impact Assessment or EIA can be considered as the appraisal of the probable impact that a proposed project may have on the natural environment. In broad, EIA process calls for assortment of resources which include personnel resources, funding, time to perform entire task, and can be done only for large sized projects which are attaining retorts from community. Putting into practice a few site control measure for the duration of construction can lessen the environmental impacts and ease the annoyance echelons to the neighboring areas from the construction site.

Human resources has caught up in construction have to rummage around for a equilibrium amid often contradictory considerations which takes into account facade, console, ease of construction, maintenance expenditures, principal costs etc. Environmental impact is a supplementary variable. Then again, it has been given away that if environmental considerations are integrated close to the commencement in the design process; it is achievable to amalgamate them exclusive of any incurring additional costs.

As a participant in the construction and development process, the success may depend on how well the environmental risks are identified, analysed and managed. Simply being oblivious of the environmental obligations does not relieve one of their liabilities.

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