

ENVIRONMENTAL IMPACT ASSESSMENT OF ROADS AND HIGHWAY PROJECTS

The roads and highways are lifeline of any country. Road connectivity in the urban and rural areas is essential for socio-economic growth of the country. Roads are very important for building the nation and are mirror of country's development. The total length of Indian Road network is about 3.34 million kilometers of road network and is the second largest in the world. Indian roads carry almost 81 percent of the country's passenger traffic and 61 percent of its freight. Indian Government aims to modernize, expand, and integrate the country's transport services. It also seeks to mobilize resources for this purpose and to gradually shift the role of government from that of a producer to an enabler. In recent years, the Government has made substantial efforts to tackle the road and highways sector's shortcomings and to reform its transport institutions. The Indian government plans a quantum jump in fund allocations for the road sector at both national and state levels. Apart from government-financed construction activities, there is now a policy to encourage private-sector financing in roads through Public Private Partnership (PPP) mode.

The road authorities are facing challenges to deliver a safe and efficient network of roads within the framework of sustainable development. The authorities are conscious of the potential environmental impacts that can arise due to individual road project and also for the delivery of the national roads programme in general and is committed to implementing the programme in co-operation with local authorities and other relevant stakeholders in a manner that avoids or mitigates adverse effects on the environment taking account of relevant statutory requirements. Although there are costs associated with undertaking Environmental Impact Assessment (EIA), experience has shown that the potential savings over the life of a project can repay the investment many times over. The savings can be economic (e.g. identification of least cost alternative) as well as environmental (e.g. impact reduction, maintaining other resource use opportunities). Generally, the earlier EIA process is introduced in the

project cycle, the greater the potential returns. When EIA is integrated into the project preparation phase, environmental design considerations can be introduced in the first place rather than the proposal having to be modified later.

EIA has emerged as the most famous tool in recent times as it focuses on the amalgamation of the environmental management into the decision making process for sustainable development. However, most of these road and highway projects on account of their location, route alignment and associated activities are invariably accompanied by significant environmental and social impacts during different phases (viz., Pre-construction, Construction and Operational phase) of the project. The nature of these impacts could be either positive or negative depending upon their potential to favorably or adversely affect the surrounding environment and also the resident community. The main objective of EIA is assessment of action required to prevent, reduce and offset significant negative impacts on the environment. Through the application of Environmental Impact Assessment it is possible to provide better information to the decision-maker on the environmental consequences of proposed actions. EIA is defined as "the process of examining the environmental effects of the development – from consideration of the environmental aspects at design stage, through to the preparation of an Environmental Management System (EMS). In particular EMS is now widely used by industry and business to manage the impact of their activities on the environment. The ISO 14000 series provides a framework of EMS principles, guidance and procedure, including environmental auditing, performance review and life cycle assessment or analysis. EIA generates huge benefits in selection of project location, process, design, development actions, and decision-making, in general the benefits of EIA include;

- Better environmental planning and design of a proposal result in the selection of an improved technology, which lowers waste outputs or an environmentally optimum location for a project. A well-designed project can minimize risks

and impacts on the environment and people, and thereby avoid associated costs of remedial treatment or compensation for damage.

- Ensuring compliance with environmental standards -Compliance with environmental standards reduces damage to the environment and disruption to communities. It also avoids the likelihood of penalties, fines and loss of trust and credibility.
- Savings in capital and operating costs-EIA can avoid the undue costs of unanticipated impacts. These can escalate if environmental problems have not been considered from the start of proposal design and require rectification later.
- Reduced time and costs of approvals of development applications-If all environmental concerns have been taken into account properly before submission for project approval, then it is unlikely that delays will occur as a result of decision-makers asking for additional information or alterations to mitigation measures. Increased project acceptance by the public.

Environmental Impact is a global concern. Environmental Impact Assessment (EIA) is a planning and decision making tool first enshrined in the United States in the National Environmental Policy Act of 1969. EIA is a formal study process used to predict the environmental consequences of any development project. EIA thus ensures that the potential problems are foreseen and addressed at an early stage in project planning and design. Environmental Assessment is taken up in this exercise as a rapid assessment technique for determining the current status of the environment and identifying impact of critical activities on environmental parameters. The Ministry of Environment and Forests, Government of India have taken great effort for Environmental Impact Assessment in India. The main laws in nation are Indian Wildlife (Protection) Act (1972), Water Act (1974), Forest (Conservation) Act 1980, Forest Conservation Rules, 1981, Air (Prevention and Control of Pollution) Act (1981), Environment (Protection) Act (1986), Coastal Regulation Zone Notification 1991, National Environment Tribunal Act, 1995, Municipal Solid Waste (Management And Handling) Rules 2000, Biodiversity Act, 2002, Hazardous Waste (Management And Handling) Rules 2008, Disposal of Flyash Notification 2008, etc. The responsible bodies for this are Ministry of Environment and Forests, Central Pollution Control Board, State Pollution Control Boards,

Coastal Zone Management Authority, National Board for Wild Life, Indian Board for Wildlife and Archaeological Survey of India.

Environmental Impact Assessment (EIA) studies need a significant amount of primary and secondary environmental data. In the current practice of EIA, there are a number of flaws, shortcomings and deficiencies like time consuming procedure, costly affair, unavailability of reliable data, need compliance monitoring, etc. The EIA experience in India indicates that the lack of timely availability of reliable and authentic environmental data has been a major bottle neck in achieving the full benefits of EIA. The environment being a multi-disciplinary subject, a multitude of agencies is involved in collection of environmental data. However, there is no single organization in India which tracks the data available amongst these agencies and makes it available in one place, in a form and manner required by practitioners in the field of environmental impact assessment in India. This in turn adversely affects the time and efforts required for conducting the environmental impact assessments (EIAs) by project proponents and also timely environmental clearances by the regulators.

IRC has taken initiatives in publication of Codes and Guidelines on environmental impact assessments. IRC: 104 "Guidelines for Assessments of Highways Projects" was published by IRC in 1998. Further IRC is in the process of publishing a Special Publication on "Guidelines on Requirements for Environment Clearance for Road Projects" that will serve as informative guide containing detailed information pertaining to all aspects of Environment Clearance necessary for road projects. However, in addition to these IRC Standards and Codes one significant factor that could improve the EIA process is good education and training. Currently, very few educational and training courses exist in the countries that properly consider various EIA methodologies available in depth. Education and training process are important since the fundamental factors behind all EIA predictions are still the best professional judgment and/or experiences with similar projects implemented elsewhere.

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