

Towards Attaining Sustainable Development Goals in Design and Construction of Highway Bridges – A Critical Review

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Abstract

Bridges are integral part of highways. India became independent in 1947. However, development works in highway sector has been undertaken continuously since pre-independence days. The paper describes details of some of the policies and guidelines, progressively implemented for development of highways including bridges, which support activities towards attaining Sustainable Development Goals (SDGs) adopted by the United Nations in 2015, These are with regard to rationalisation of procedure of land acquisition, rehabilitation and resettlement, environment protection framework, bridge construction / reconstruction program adoption of new technologies and innovations in design and construction, use of non - conventional energy, impact of climate change on hydrology, and road safety. Besides, the Government has been receiving enhanced availability of international support and co-operation continuously, leading to faster pace of development.

Keywords: SDGs, environment, land acquisition, IRC, Environment Management Plan, GHG emissions, wild life, design and construction of bridges, international support and co-operation.

1 Introduction

There are 17 Sustainable Development Goals (SDGs) [1], also called Agenda 2030, which were formulated by United Nations in 2015 to create framework for global development during 2015 to 2030. The SDGs emphasize the interconnected environmental, social and economic aspects of development by putting sustainability at the centre.

Based on the recommendations of Jayakar Committee [2], sustainability was engrained into road development programs with the creation of the following:

- (a) Central Road Fund (CRF) was created in 1928 from taxes on petrol. The Fund still continues to exist for financing of road development works with increased taxes on petrol and diesel.

- (b) Indian Roads Congress (IRC) was set up in 1934. It is a non – governmental technical body of Highway Engineers in the country, provides for a regular forum for interaction amongst highway and bridge engineers and publishes Codes, guidelines and manuals for planning, design, construction, maintenance and operation of roads and bridges.
- (c) Central Road Research Institute (CRRI) was established in 1950 to carry out research and development work for design, construction and maintenance of roads and bridges, including usage of new materials including local materials and industry wastes in road construction.

Even before Independence in 1947, several environmental and social / resettlement related legislation existed, but the real impetus for bringing well- developed framework came after the UN Conference on Human