

IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLAN & CLEAN DEVELOPMENT MECHANISM ON RING ROAD OF BELAGAVI CITY- A REVIEW

Asma Darudwale¹, Balasaheb Jamadar²

¹M.Tech Student, Dept. of Civil Engineering, Jain College of Engineering Belagavi, Karnataka, India

²Assistant Professor, Dept. of Civil Engineering, Jain College of Engineering Belagavi, Karnataka, India

Abstract – Analyzing the complexity of nature, diversification of environment and the effects of development project on the surrounding ecology is difficult thing. We need a very holistic and interesting way to attend both the issues of ecological (Nature) and development (Infrastructure) aspects. The objectives of study targets critical issues of project attribute analysis, evaluating methodology and remedial measures for the Ring Road Belagavi. For the sustainable development, an environmental management plan and clean development mechanism can be used and favorable methodology also can be developed for the present project. Making decisions on beneficial side, surveillance and implementing protective measures is possible by adhering to the EMP and CDM for the construction work which is having direct impact on the environment. Adopting the techniques like environmental management plan and clean development mechanism involves detail investigation in rigorous data collection of different features of ecosystem along the alignment, anthropogenic issues and manifest derivatives of the ecology were also be noted. The need of time is surveillance of ecological development along the alignment with the road geometry and its traffic management. The feasibility study concludes preparation of management plan and coping with environment, preparation of EMP and CDM report on the Ring Road Belagavi as per the mandates of Ministry of Environment and Forest (MoEF) of the Government of India (GOI).

Key Words: EMP, CDM, Ministry of Environment and Forest (MOEF), Anthropogenic Issues and EIA, CER credits.

1. INTRODUCTION

Road Construction is the word always stands for Civil Engineering terms and activities, which indeed means the creation or formation or it's a process or the action taken to bring engineer right-of-way or roadbed to reality. These days infrastructure industry is one among the most largely used and speedily booming industry of our country, though it is consider as the 2nd largest industry with regard to generating large amount of employment and revenue in India, it will be carrying some adverse impact on environment too and in this project we brought the methodology which in combination with Environmental Management Plan (EMP) and Clean Development Mechanism (CDM) to determine the different environmental issues,

impacts and the mitigation measures to protect the surrounding environment during and after the execution of project.

The Environmental Management Plan (EMP) and Clean Development Mechanism (CDM) are the overview of all suggested mitigation and monitoring operations, set to a period of time restricted to definite responsibility allocated and implementation actions determined. This comprises of all the data for the proponent, the contractor & the respective agencies should execute the project in accordance with the specified time limit.

1.1 ENVIRONMENTAL MANAGEMENT PLAN (EMP) & CLEAN DEVELOPMENT MECHANISM (CDM).

The Environmental Management Plan(EMP)features a batch of monitoring, mitigations and specific institutional measures that are to be implemented to reduce, avoid and reduce destructive environmental impacts & increase positive impacts. The proposal also comprises of the measures needful in the implementation of these measures.

Clean Development Mechanism (CDM) is a mechanism that is flexible and established in the "Kyoto protocol" ("IPCC, 2007") which is provided for the projects of emissions reduction that create "certified emission reduction elements" (CER's) which might be traded in certain schemes of emissions trading. In the year 2012 the market crashed and the value of credits broke down and thousands of projects were dropped with unclaimed credits. The CDM grants emission reduction projects in developing nations to attain CER credits, each equal to one ton of CO₂. These CERs may be bartered and sold, and utilized by industrialized countries to fulfill emission reduction targets according to the Kyoto protocol. This mechanism promotes emission reductions and development in sustainability, although granting industrialized countries a bit flexibility in meeting their objectives in emission reduction limitation.

1.2 OBJECTIVES OF THE CURRENT THESIS

- 1) Analyze EPM and CDM as a type of innovative instruments for achieving the mitigations.
- 2) To formulate avoidance, compensation measures and mitigation for destructive environmental impacts throughout the "construction & operation

phase”, and assure that righteous practices, environmentally safe, and sustainable practices are embraced throughout the ring road project in Belagavi.

- 3) Developing a future excellent perception for the development of city.
- 4) Framing policies/strategies for declining gap among the city development authority and stakeholders.

1.3 STUDY AREA AND DATA COLLECTION

Belagavi previously known as Belgaum and anciently known as city of Bamboos is located at 502km from Bangalore. The moderate commercial business and small scale industries are the main source of economy.

A Ring Road along the outer periphery of Belgaum City approximately 41.530 km in length has been conceptualized which will connect Kakati on NH-04 to Sulga and then pass through Udyambagh to Majagaon cutting NH-04A and NH-04 on its way to Mutennati and then connecting back to Kakati. The Outer ring road is envisaged from the need to ease traffic flow and initiate development & direct urban growth toward the outskirts of Belgaum. The project is planned to be taken up in 2phases with Phase 1 will include 19.35 km of the western link connecting NH-04 with NH-4A and NH-04.

1.4 LAND ACQUISITION SCHEDULE

The proposed ring road has been planned to be constructed 30 meter in total width, which includes four lanes. The minimal displacement of the population and their livelihood is the primary objectives of the ring road, Most of the land coming under this road construction passes through either agricultural or open lands has a very few built up areas, this is the overall alignment. The land acquisition schedule includes in this report gives an account of the land that needs to be acquired for this project area. The acquisition schedule has been prepared for all the survey numbers of land which comes under direct impact of this ring road construction.

1.5 ENVIRONMENTAL IMPACTS ASSESSMENTS

There are certain environmental impact studies which are required to be carried out and depending upon them the risk mitigation strategies will be frame. The various elements are air, noise, vegetation land use and topography.

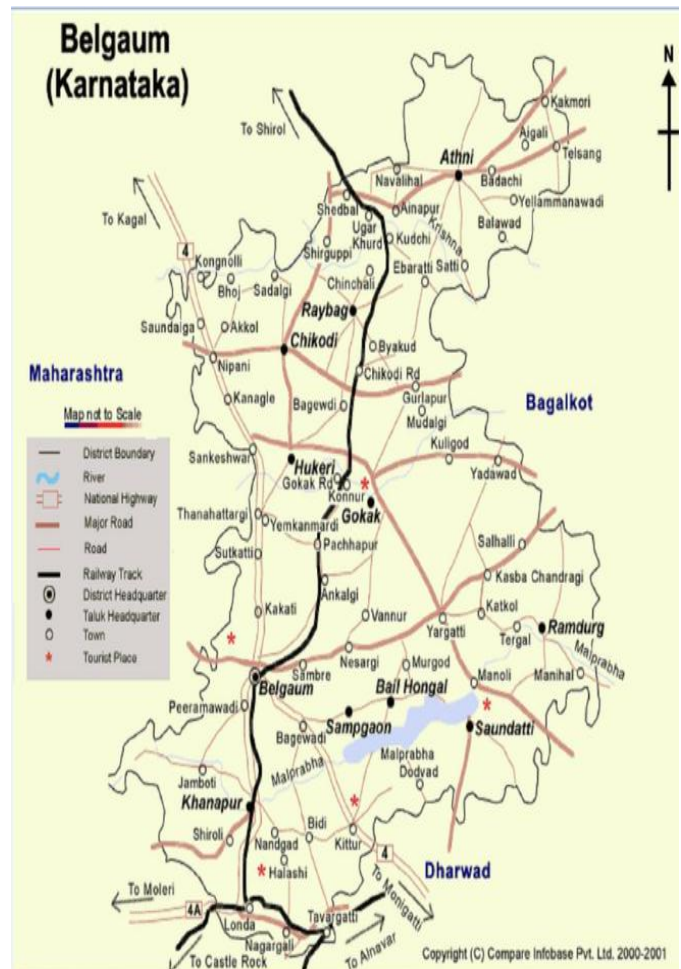


Fig-1 : Map showing Belgaum District

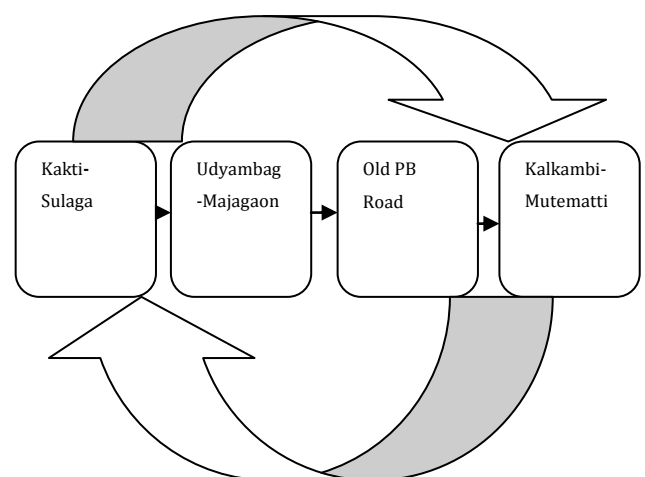


Fig- 2 : Possible alignment of Ring Road Belagavi.

2. METHODOLOGY

‘The aim of EPM and CDM is to assure that potential impacts are ‘determined and ‘treated at initial stage in the projects planning and ‘design. To attain this goal the assessment finding are disclosed to all the respective groups

who will make decisions about the proposed projects, the project developers and their investors as well as regulators, planners and the politicians.

By studying CDM, project planners and engineers can shape the project so that its benefits can be achieved and sustained without causing major impacts. In recent years, major projects have experienced critical difficulties because inappropriate planning and its implementation have been taken of their relationships with the surrounding environment. Few projects have been found to be unsustainable because of resource depletion and others have abandoned because of public opposition.

2.1. FOLLOWING ARE THE MAIN OBJECTIVES REPRESENTED BY THE FLOWCHARTS WHICH ARE SET TO ACHIEVE THE FRAMED METHODOLOGY:

2.1.1. ANALYSES EPM AND CDM AS A TYPE OF INNOVATIVE INSTRUMENTS FOR ACHIEVING THE MITIGATIONS:

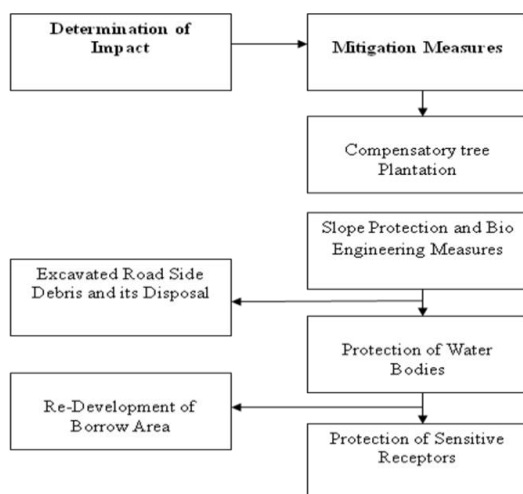


Fig-3 Flow chart showing the methodology to achieve first objective

2.1.2. FORMULATE AVOIDANCE, MITIGATION AND COMPENSATION MEASURES FOR ANTICIPATED ADVERSE ENVIRONMENTAL IMPACTS DURING CONSTRUCTION AND OPERATION, AND ENSURE THAT ENVIRONMENTALLY SOUND, SUSTAINABLE AND GOOD PRACTICES ARE ADOPTED DURING RING ROAD PROJECT IN BELAGAVI:

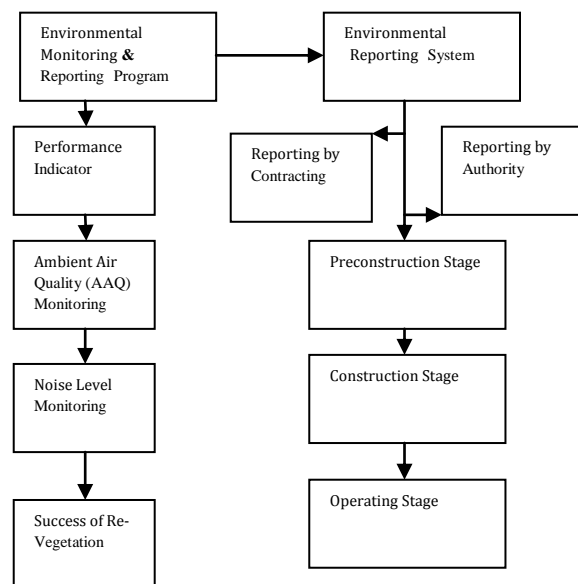


Fig-4 Flow chart showing the methodology to achieve second objective.

2.1.3. DEVELOPING A PERSPECTIVE AND VISION FOR THE CITY DEVELOPMENT AND FORMULATING A STRATEGY FOR BRIDGING GAP BETWEEN CITY DEVELOPMENT AUTHORITY AND STAKEHOLDERS:

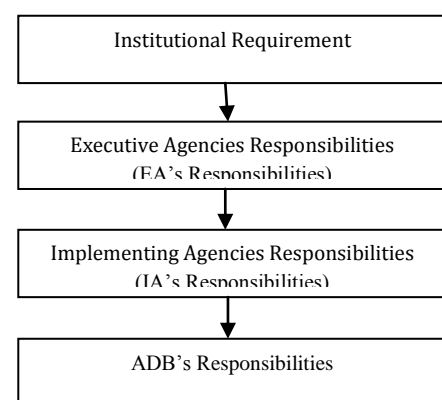


Fig-5

Flow chart showing the methodology to achieve third and fourth objective.

2.2 RESULT AND DISCUSSION

There are various environmental issues are identified and their respective mitigation measures along the institutional arrangements with respect to "implementation,

supervision and monitoring” that are given in the matrix form. It also includes information of Trees to be planted and chopped.

A reporting system is formulated for each phase of road construction, they are: “Pre-construction phase”, “Construction phase” and “Operation phase”. The responsibilities of various sectors such as ESO of Contractors, ADB’s, Executing Agencies Responsibilities, Implementing agencies. The cost of project and funding pattern for 3 scenarios have been considered.

3. CONCLUSIONS

The proposed Belagavi Ring Road Project as category “A” project by central and state government. Ring Road project involves through construction of round for about 41.53 km. The RL of Belagavi is 799m hence as per government of India environmental clearance is required, as project is going to acquire the total and of 675 hectares, it requires environmental clearance forest clearance & clearance from agriculture department. Depending on the assessment and screening of environmental impacts, the categorization can be done. Project proposed depends on how deep the impacts are. The identified attributes rate is very important based on whether they are localized temporary in nature and their way of mitigation.

Few of the adverse impacts has been grouped below:

1. Mostly the agricultural land of about 675 hectares (including some of the forest area) has to be acquired to the construction of new roads between Belagavi bypass and new NH-48.
2. The cutting of trees is having very adverse impact on surrounding area; almost 1732 trees are going to be vanished because of widening of roads.
3. There may be endangered species existing in the project area.
4. Environmental temporary impact will be there on land and air.
5. There will be sudden impact on the health of road users, quality of water and air, drainage, and safety due to construction activities & waste material disposal.

Different protection measures are suggested such as:

- [1] EFRC slope protection which minimize the impact of instability.
- [2] Bio-engineering technique which acts as remedial afforestation which measures to lessen the impact on wild life movement.
- [3] Engineering alternative which reduces the impact of forest areas which are suggested to lessen the potentiality of impact.
- [4] The combined implementation of CDM & EPM (as to follow EIA report recommendation) will to the series of

mitigation measures. There allow the implication of bio-engineering application use of spoils disposal & proper sizing of hydraulic structure.

3.1 FUTURE SCOPE

The process of EPM and CDM both can be use for all kind of civil engineering projects. The CDM will depend on the facilities we are having on the site for the surveillance and for the monitoring of the CO emission EMP can also be used specially in developing the wetland and the projects related to the environmental issues. For projects like Railway track construction, Tunneling and underground structures these techniques are quite useful.

REFERENCES

- [1] Karen Holm Olsen, the clean development mechanism’s contribution to sustainable development KH Olsen, climatic change, volume 84 (2007) 59-73.
- [2] Nitin Kamboji, Er. Sunita Kumari, Environment Impact assessment for Highway: A Review; International Journal of Innovative research in science and Engineering, Vol No-03, Issue 03, March 2017.
- [3] Mohamad Marouem Amiri, Hedi Noubbigh, Kamel Naoui, Nauha Choura, Environmental Management System(International Journal of Business and Management)Environmental impacts and productivity Volume 10(11):107, October 2015.
- [4] Ebenezer A.Sholarin, Joseph Lawange, Environmental project management, Springer International publishing Switzerland, 2015,ISSN 1863-5520.

BIOGRAPHIES



Asma Darudwale,
M.Tech Student, Dept. of Civil Engineering, Jain college of Engineering Belagavi, Karnataka, India



Prof. Balasaheb Jamadar,
M.Tech in Water and Land Management, Assistant Professor, Dept. of Civil Engineering, Jain college of Engineering Belagavi, Karnataka, India.