

EXECUTIVE SUMMARY

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

GUWAHATI ROPEWAY PROJECT, ASSAM

Submitted to:

State Pollution Control Board, Assam

Submitted by:

Guwahati Metropolitan Development Authority
Government of Assam

Prepared by:



SENES Consultants India Pvt. Ltd.

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EXECUTIVE SUMMARY

1.0 INTRODUCTION

Guwahati is the gateway to the northeastern region. Due to its excellent connectivity and unique geographical location, this region is experiencing rapid growth of trade and commerce and it has the potential to become the hinterland for the entire northeastern region. The major growth of the city is now aimed at north Guwahati due to shortage of land at the southern part. The two banks of the river are connected through road and water transport. However, means of transportation between the two banks needs to be improved to support growth of the city along the north bank.

The Government of Assam has thus taken initiative for the development of ropeway project across Brahmaputra river to connect Guwahati city situated on the south bank to the north bank. The Government of Assam has subsequently designated Guwahati Metropolitan Development Authority (GMDA) to execute the project. The detailed project report for the proposed project has been prepared by M/s RITES Limited.

The proposed project falls under Item 7 (g) (Aerial Ropeways) and is a designated project under Schedule and falls under category B of the Environment Impact Assessment (EIA) Notification dated 14th September, 2006 and requires clearance from Ministry of Environment and Forests in the absence of State Environment Impact Assessment Authority. The EIA study has been done as per the TOR provided by MoEF vide letter No.10-119/2007-IA.III dated 2nd September, 2008.

A Rapid Environment Impact Assessment (REIA) study report has been prepared for this project based on baseline environmental quality data collected for winter season'08 for the study area. Identification and prediction of significant environmental impacts due to the proposed ropeway with an Environmental Impact Statement followed by delineation of appropriate impact mitigation measures in an Environmental Management Plan (EMP) are included in the REIA report.

M/s Guwahati Metropolitan Development Authority has retained the services of SENES Consultants India Private Limited (SENES) for carrying out Environmental Impact Assessment (EIA) study and preparation of an REIA report and Disaster Management Plan (DMP) for the proposed project. The purpose of this Environmental Impact Assessment (EIA) study is to provide information on the nature and extent of environmental impacts

arising from the construction and operation of the proposed project and related activities taking place concurrently.

2.0 SALIENT FEATURES OF PROJECT

The salient features of the project are discussed below:

- Size of the Project: 1820 m length
- Carrying capacity 250 persons per hour (PPH)
- Expected cost of the project: Rs. 28.76 Crores
- No. of towers: 5
- Source of power supply: State Electricity Board
- Power requirement: 200 KW
- Water Requirement: 15.61 m³/day (municipal supply)
- Waste water generation: 11.61 m³/day
- Solid Waste generation: 0.55 MT/day
- No. of trees to be cut: Nil

3.0 PROJECT NEED AND ADVANTAGES

The population of Guwahati city is expanding at a high rate. The substantial growth in the region is characterized by densification of the center core and ribbon development along the main transportation corridor. The situation has further deteriorated due to a limited road network and carriageway resulting in perpetual congestion on the main as well as arterial roads within the city.

Looking into these aspects, the future growth of the city is planned along the north bank. At present, the connectivity of the banks of the river is through private and state owned transport buses and ferry services operated by Department of Inland Water Transport, Assam. There is a road bridge across the river, which leads to NH – 31 and connects the north and south bank. The NH-31 and the road in the main city are quite congested and during peak hours it takes about one to two hours to cross the river. The ferries used for carrying passengers are old and inadequate and is therefore not an effective system of transportation.

The existing transportation infrastructure connecting the two banks is evidently inadequate. Considering the proposed future growth pattern of the city, it is imperative to have a reliable transport system in place and thus an aerial ropeway is proposed to provide connectivity between the two banks.

4.0 ALTERNATE SITES

Two alignments were considered for the proposed alignment:

- Ropeway between south bank and north bank via Urbashi island and Umananda island.
- Ropeway between south bank and north bank of Guwahati via Umananda island.

The first alignment passes through Urbashi Island, which is protected by the Archaeology Department and therefore the second alignment has been selected.

5.0 PROPOSED ROPEWAY

The alignment for the proposed ropeway has been considered between south bank and north bank of Brahmaputra river via Umananda island. The length of the proposed ropeway will be 1820 m. The proposed alignment will involve construction of five trestles in addition to two terminal stations. The entire alignment will pass through Brahmaputra river. The maximum depth in the southern channel is in the range of 10 to 14 m whereas the maximum depth in the northern channel ranges between 23 to 27 m. The major navigation activities take place in the northern channel whereas the southern channel is used for navigating of country boats and double decker systems. The proposed alignment for the ropeway has been attached as **Appendix I**.

6.0 FINANCIAL VIABILITY OF THE PROJECT

The total cost for the project has been worked out to be Rs. 28.67 Crores. The charges for ferryboats for one way trip are about Rs. 5.0 per person. It is proposed to charge a fee of Rs. 25.0 for a round trip for the proposed ropeway. Based on the estimated project cost, annual recurring cost and earnings, the project yields a Financial Internal Rate of Return (FIRR) of 3.96 %. Although the FIRR for the project is less, the proposed ropeway will provide an alternative safe mode of transport compared to the boat services and the alternate road route. In addition, the future growth of the city is planned along the north bank and the proposed ropeway will become the focal point of attraction of north bank. The proposed project has been granted administrative approval for an amount of Rs. 27.72 crores

7.0 UTILITIES/AMENITIES

Water

The water demand for the proposed project has been estimated as 15.6 m³/day. The water requirements for the proposed project will be met through the municipal source. It is expected that about 11.7 m³/day of wastewater will be generated and will be discharged into the municipal sewer in the area.

Power

The total power demand for the project has been estimated as 200 KW. The power supply will be made available from the state electricity board.

Waste

Approximately 0.52 MT/day of waste will be generated during the operation phase of the project. Two set of twin bins of 200 litre capacity each will be provided at the lower terminal station along the south bank and one set will be provided at the upper terminal station along the north bank. The waste collection frequency will be daily and the waste will be handed over to the Guwahati Municipal Corporation.

Manpower

The operation of the proposed project will involve employment of about 40 skilled and semi skilled staff.

Parking

Parking facilities will be provided at the lower terminal station. An area of 1850 sq.m has been designated for parking and will accommodate about 100 cars and 80 two wheelers.

7.0 ENVIRONMENTAL SETTING OF THE STUDY AREA

The baseline environmental status was assessed based on primary and secondary data collected either through in-site field observation or obtained from agencies such as IMD, Geological Survey of India, State Ground Water Department, Central Ground Water Board, State Pollution Control Board, Census of India and Local Forest Department.

The baseline status collated from analysis of secondary and primary data is summarized in the **Table E-1** below

TABLE E-1: BASELINE ENVIRONMENTAL STATUS

| Attribute | Baseline status |
|------------------|--|
| Meteorology | A meteorological station was set up on site. The minimum temperature recorded was 12.6 °C and maximum temperature was found to be 31.2 °C during the study period (Winter season'08). The average wind speed was |

| Attribute | Baseline status |
|------------------------|--|
| | observed to be 1.22 m/s and the predominant wind direction was observed to be northeasterly |
| Ambient Air Quality | Ambient air quality was monitored at 5 locations. The observed SPM levels were in range of 89 to 265.0 µg/m ³ , while RSPM was in range of 41 to 123 µg/m ³ . The range of SO ₂ and NO _x was 5-11.0 µg/m ³ and 5 to 23 µg/m ³ respectively. Observed SPM levels exceeded NAAQS at three locations and RSPM levels at two locations whereas concentrations of SO ₂ , NO _x were well within the prescribed limits. CO levels were well within prescribed limits at project site. |
| Noise Levels | Noise monitoring was carried out at seven locations. The results of the monitoring program indicated that both the daytime and night time levels of noise exceeded the ambient noise standards at two locations and one location respectively. |
| Water Quality | 4 Groundwater samples were analyzed. Total Dissolved Solids (TDS) in groundwater samples exceeded the permissible limit as per IS: 10500 at three locations (Uluburi, Paltan bazaar and Rajadwar village). Calcium levels exceeded at two locations, Magnesium at all the four locations, Iron at three locations ,total alkalinity at two locations and total coliform levels exceeded the permissible limits at two locations Surface water samples from Brahmaputra river were analyzed at four locations. The BOD value was observed to be slightly high at three locations. Rest all parameters were within limits as per Class C standards for water quality. |
| Soil Quality | The proposed site is characterized by clayey soils. The results show that the moisture retention capacity of the soil is low. Soil of the area is slightly basic. |
| Biological Environment | The proposed site falls within the biogeographic Zone - Brahmaputra Valley of India. Reserve forests like Phatasil Reserve forest, Sila Reserve Forest Agyathuri Reserve Forest ,South Kalapahar and Dirgheshwari pahar are located at a distance of 4.4 km, 5.5 km, 7.2 km, 3.9 km and 4.5 km away Brahmaputra river is famous for fresh water dolphin that is Ganges river dolphin (Platanista gangetica) which is commonly known as Susus. It has been declared as an endangered mammal by IUCN Red List-2008. |
| Socio-economy | The proposed sit will link Guwahati and north Guwahati are the two circles. Work participation rate is 35.1 % and proportion of category of “other workers” is 96.8%. |

8.0 IMPACT ASSESSMENT AND MANAGEMENT PLAN

Environmental impact due to the construction and operation stages of the project were predicted quantitatively using models such as ISCST3 for air dispersion calculations, noise

propagation equations for noise impacts. Impacts were also evaluated qualitatively using engineering judgment and best management practices.

Adequate environmental management measures will be incorporated during planning, construction and operating stages of the project to minimize any adverse environmental impact and assure sustainable development of the area. The impacts during construction phase will be temporal in nature. The summary details the pollution sources, mitigation measures for operation phase for different components.

8.1 WATER ENVIRONMENT

The major impact on the water environment during the construction phase of the project will be the impact on water quality due to introduction of construction materials in the river system and deposition of materials. Temporary barriers of GI sheets will be constructed along the construction area to contain the impacts. The navigational activities will also get slightly disrupted but the impact will be mitigated by phasing the construction activities.

During operation phase, the navigational activities will not be impacted as necessary horizontal and vertical clearances have been provided. The water demand for the project has been estimated as 15.61 m³/day and will be sourced through municipal supply. About 11.7 m³/day of wastewater will be generated and will be discharged to the municipal sewer.

8.2 LAND ENVIRONMENT

The construction activities for the proposed project will involve construction of terminal stations. No impact on the land use is expected as the areas of the terminals comprise of abandoned land. The waste generated during the construction will be effectively managed. During operation phase the proposed project will generate about 0.52 MT/day of waste. Adequate number of collection points will be provided and the waste will be handed over to the Guwahati Municipal Corporation.

8.3 ECOLOGICAL ENVIRONMENT

The proposed project will have a minor impact on the terrestrial and aquatic ecology during construction and operation phase. During construction phase, there will a minor impact due to pollution and disturbance caused. No tree cutting is involved in the project. The proposed alignment does not coincide with the route of migratory birds and thus will not have any impact. No impact on the river dolphins is expected.

8.4 SOCIO ECONOMIC ENVIRONMENT

The proposed project will not have any impact on the archaeological sites as no activity is proposed at the Urbashi Island which is protected by the Archaeology Department. The Umananda Island comprises of a temple and no impact is expected as no boarding/deboarding operations are expected. The services of ferryboat operators will continue to be used as the ropeway only targets office goers and businessmen and the villagers and fishermen will continue to avail their services.

8.5 AIR ENVIRONMENT

The construction activities for the proposed terminal stations will be of small scale and thus the particulate emissions will be minimal and short term in nature. The dust generated during the construction phase on the river bed and island will be considerably reduced due to localized meteorological conditions.

During operation phase, the project will involve operation of one DG set of 300 kVA and 10 kVA only for emergency evacuation during power failure. The predicted incremental concentrations have been estimated to be negligible. The DG set will be provided with adequate stack height of 7 m and 4 m.

8.6 NOISE ENVIRONMENT

The use of construction equipments will lead to increased sound pressure levels. It is proposed to implement job rotation and to limit the time of operation along with providing earplugs in areas of high noise exposure.

The operation of the cable car system will lead to noise emissions due to movement of cable car. The impact due to movement of cable car will be minor and short term in nature. Thus, no impact is envisaged on the noise environment.

8.0 ENVIRONMENTAL MANAGEMENT SYSTEM

For the effective implementation of the EMP, an Environmental Management System (EMS) will be established at the proposed project. The EMS will include the following:

1. An Environmental Management cell
2. Environmental Monitoring Program
3. Personnel Training
4. Regular Environmental Audits and Corrective Action

5. Documentation – Standard operating procedures Environmental Management Plans and other records.

9.0 CONCLUSION:

The proposed project is aimed at the infrastructural development of the area. The project will provide impetus to the growth of north Guwahati. The project will provide a safer means of transportation to the residents of Guwahati city.

All possible environment aspects have been adequately assessed and necessary control measures have been formulated to meet with statutory requirements, in the preparation of this EIA-EMP report. Thus implementing this project will not have any appreciable negative impacts. Thus, the proposed project is a welcome development and may be accorded environmental clearance.