

# Environment and Social Due Diligence Report

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December 2014

## IND: Accelerating Infrastructure Investment Facility in India –Hazaribagh Ranchi Expressways Limited

Prepared by

India Infrastructure Finance Company Limited for the Asian Development Bank

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# IIFCL

## Due diligence Report on Environment and Social Safeguards

**Sub Project: Four Laning of Hazaribagh Ranchi section of NH-33 from Km. 40.500 to Km 114.000 in the state of Jharkhand under NHDP Phase III on BOT (Annuity) Basis**







**Sub-Project Developer: Hazaribagh Ranchi Expressways Project**



**December 2014**

**Sub Project: Four Laning of Hazaribagh Ranchi section of NH-33  
From Km. 40.500 to Km 114.000 in the state of Jharkhand under NHDP  
Phase III on BOT (Annuity) Basis**

**Due diligence Report on Environment and Social Safeguards**

|              |   |   |
|--------------|---|---|
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## **PROJECT BACKGROUND:**

### **1. SUB-PROJECT TITLE:**

1. The Project envisages widening to 4-laning of the Hazaribagh- Ranchi section of NH-33 from Km. 40.500 to 114.000 (existing Chainage) under NHDP, Phase III in the state of Jharkhand on a Build Operate Transfer (BOT), Annuity basis.

### **2. SUB-PROJECT DESCRIPTION:**

2. The Project Highway, a part of NH-33, commences from Hazaribagh at Km. 40.500 and extends up to Ranchi at Km. 114.000 including the Kujju and Ramgarh Bypass. The project road mainly passes through Ramgarh, Kujju, Mandu and Ormanhji towns and the entire stretch falls in the state of Jharkhand.
3. The project highway is a part of the NH-33 which is 352 km long and traverses the length of Jharkhand passing through the State Capital of Ranchi and the industrial town of Jamshedpur. The NH-33 is bound to the north by NH-2, which provides connectivity to New Delhi and Kolkata, and to the south by NH-6 which provides connectivity to Kolkata, Raipur, Nagpur and Surat. Thus, it runs across the length of Jharkhand linking the most regions of the state and connecting Jharkhand with other states.
4. The Concession Agreement envisages that after completion of the widening, , the roadway width in the main carriageway in stretch (design Chainage Km. 41.600 to Km. 116.065) will consist of 4-lane dual carriageway, 1.5m wide paved shoulder and Median strip of 4.50 mtr.
5. The proposed widening and strengthening work mainly involve: (i) widening of existing two lane road into four lane (ii) provision of major & minor bridges, culverts, pedestrian/ cattle underpasses and ROB. The salient features of the project are given below in **Table 1**.

**Table 1: Project Salient Features**

| <b>Particulars</b>     | <b>Project Road</b>                        |
|------------------------|--|
| <b>Length</b>          | 73.799 km                                  |
| <b>Terrain</b>         | Mainly plain, rolling , Mountainous, Steep |
| <b>ROW</b>             | 60 mtrs                                    |
| <b>Roadway</b>         | 2 x 7.25 m                                 |
| <b>No. of lanes</b>    | 2 X 2                                      |
| <b>Lane Width</b>      | 3.5 m                                      |
| <b>Median Width</b>    | Varies from 1.5 to 4.5 m                   |
| <b>Paved Shoulders</b> | 1.5 m                                      |
| <b>Bypass</b>          | 2  |
| <b>Major Bridges</b>   | 1 No.                                      |
| <b>Minor Bridges</b>   | 9 Nos.                                     |
| <b>Culverts</b>        | 152 Nos.                                   |

|                                    |                      |
|------------------------------------|----------------------|
| <b>Junctions/ Intersections</b>    | 15 Nos.              |
| <b>Railway crossing (ROB)</b>      | 2 nos.               |
| <b>Bus Lay byes Truck lay-byes</b> | 28 Nos.              |
| <b>Toll Plaza</b>                  | 01 Nos.              |
| <b>Service Road</b>                | 11.355 Km            |
| <b>Landscaping</b>                 | Plantation & Turfing |
| <b>Pavement</b>                    | Flexible             |

Source: LIE's Monthly Progress Report, July 2014

**Project Facilities:** Further as part of the project, various project facilities have been provided which has also put advantage to the environmental and safety safeguards of the project. While designing the improvement has been done as following:

- Horizontal and Vertical Geometry;
- Road Intersections;
- Road Signs;
- Road markings;
- Drainage System;
- Toll Plaza;
- Truck Lay Bys;
- Bus Bays;
- Pedestrian facilities/ cattle crossing;
- Highway Lighting;
- Telecom system;
- Tree plantation;
- Traffic Aid posts;
- Medical Aid Posts;
- Vehicle Rescue Posts;
- Highway Traffic Management System;
- Other road features, as required.

### 3. CONCESSIONAIRE:

6. NHAI has appointed M/s. Hazaribagh Ranchi Expressway Limited (HREL) as the concessionaire for this sub-project, which is a Special Purpose Vehicle (SPV) company promoted by IL&FS Transportation Networks Limited ("ITNL") and Punj Lloyd Limited ("PLL"). The Concession Agreement signed on 8<sup>th</sup> October 2009 between NHAI and M/s Hazaribagh Ranchi Expressway Limited. The financial closure was achieved on 9<sup>th</sup> February 2010.

**4. EPC CONTRACTORS:**

7. M/s. Hazaribagh Ranchi Expressway Limited has signed the EPC contract agreement with M/s IL&FS Transportation Network Limited.

**5. INDEPENDENT CONSULTANT:**

8. M/s Unihorn India Pvt. Ltd. has been appointed as the Independent Consultant for the project.

**6. LENDER'S ENGINEER:**

9. Mr. G.K.Bagda (Retd. Superintending Engineer, PWD Govt. of Rajasthan) has been appointed as Lender's Engineer for the project.

**7. STATUS OF SUB-PROJECT IMPLEMENTATION:**

10. The sub-project has achieved Provisional COD on 15<sup>th</sup> September 2012 and the Annuity payment has also started. As per the Lender's Engineer report of July 2014, HREL has achieved full physical progress and has already submitted application for full COD certificate with NHAI.

**8. IIFCL FINANCING:**

11. The original project cost was Rs. 869 crore which was later on revised to Rs. 1057 crores. The project was funded by Bank of India (Lead Bank), United Bank of India, Indian Overseas Bank, Andhra Bank, Union Bank of India, India Infrastructure Finance Company Limited (IIFCL), Punjab and Sind Bank, Indian Bank, Bank of Maharashtra, Oriental Bank of Commerce, State Bank of Travancore and Allahabad Bank.
12. The project has been financed by IIFCL under Takeout Finance Scheme, in which generally IIFCL can replace any lender of the consortium after one year of achieving provisional or full COD. And for projects on Annuity basis, IIFCL can replace any lender of the consortium, immediately after the provisional or full COD. Since HREL is an annuity based project so, the sub-project has been considered for funding under Takeout Finance Scheme immediately after achieving provisional COD.
13. Hazaribagh Ranchi Expressway Limited has signed the Takeout Agreement on 4<sup>th</sup> July 2014 with India Infrastructure Finance Company Ltd. (IIFCL). IIFCL has committed Rs. 210 Crores and has already disbursed the whole amount to Hazaribagh Ranchi Expressway Limited.



**DUE DILIGENCE ON ENVIRONMENTAL SAFEGUARDS**

## 9. ENVIRONMENT SAFEGUARD COMPLIANCE REVIEW:

14. The Environmental safeguard due-diligence study was carried out for the project on the basis of site visit observations and understanding project scope based on information and documents provided by Concessionaire. The following documents were referred in order to prepare Environmental Safeguards Due-Diligence Report:
- Project Information Memorandum (PIM);
  - Brief EIA/EMP Report for project;
  - Environment Safeguards related Clearances/Permits obtained for the project;
  - Six Monthly Compliance reports submitted to MoEF;
  - HREL's Operation & Maintenance Manual;
  - Environment Management Plan for EPC Contractor-Construction Phase;
  - HREL' Emergency Preparedness and Response Plan-O&M Phase;
  - Environmental Quality Monitoring Reports;
  - Project Safety and Traffic Management Plan-O&M Phase;
  - Tree Plantation Plan-O&M Phase;
  - EMP Compliance and Safety Management including Accident/Incident Data related Monitoring Documents during Operation Phase.
15. Brief copy of the EIA/EMP report along with Short EMP document implemented by EPC Contractor during project construction phase is given in **Appendix-I**.

## 10. VISIT TO SUB-PROJECT LOCATION:

16. As part of the preparation of the ESDDR, the sub-project was visited by the Environmental and Social safeguard specialists of IIFCL during 28<sup>th</sup>-29<sup>th</sup> of August, 2014 for field verification of Environmental safeguards as reported in the EIA/EMP report and O&M Manual prepared for the project for which consultation with the O&M Team of concessionaire was also done regarding safeguards implementation. The project is currently in operation phase. The site visit photographs are given in **Photo Plate-I**. As per Concession Agreement, Concessionaire M/s. Hazaribagh Ranchi Expressway Ltd.(HREL) has developed the Section of NH-33 from Km 41.600 (Existing Chainage Km 40.500) to Km 116.065 (Existing Chainage Km 114.00) in the state of Jharkhand under NHDP Phase-III. These Roads have been entrusted to Concessionaire on BOT (Annuity) Model for 18 years Concession Period, including construction period of 2.5 years. As per Concession Agreement after completion of the widening, the roadway width in the main carriageway in stretch of Hazaribagh to Ranchi (Km 41.600 to Km 116.065)consists of 4-lane dual carriageway, 1.5 M wide paved shoulder and median strip of 4.50 mtr.
17. The Project Stretch of NH-33 from Km 41.600 to Km 116.065 has flexible pavement. The existing 2-lane carriageway has been strengthened and widened with requisite overlays. The new 2-lane pavement has been constructed beside the existing pavement. There are two bypasses one at Kujju from Km. 72.800 to Km. 76.000(existing chainage) and second at Ramgarh bypass from Km 77.743 to Km. 93.282 where new four-lane with two lane dual carriageway roads has been constructed with wide median. As per Lender's Engineer Report for the month of April to June 2014, Small portion of Ramgarh Bypass where land was handed over recently by NHAI, work was going on during June 2014. The Service roads are provided on both sides of the road in congested areas to cater for

the local traffic. Provisional Completion has been accorded for the project and toll collection has been started.

## 11. ENVIRONMENTAL SENSITIVITY AND DUE DILIGENCE:

18. The environmental sensitivity of the NH-33 section between Hazaribagh-Ranchi locations (Km 41.600 to Km 116.065) has been assessed by reviewing the Brief Environmental Assessment and Management Plan, prepared as part of the project preparation, supplemented by field visit Observation alongwith other project documents developed during O&M Phase and further consultation with the concessionaire. The environmental sensitivity assessment is given below:

- The project road passes mostly through rolling terrain, and plain, steep & hilly in some portions. Due to rolling topography of the area, a good number of cross drainage works have been constructed;
- The soil encountered is generally alluvial and red sandy with outcrops of rocks in certain area;
- There is no sanctuary or National Park or wildlife protected area situated within project stretch;
- There is no major wildlife migrant route with in the study area, which could be affected;
- There is no loss of bio-diversity as there are no known rare, threatened or endangered fauna species within the project area;
- There are no archeological monuments and sites within corridor of impact for this project;
- Forest Clearance was obtained for diversion of 102.728 Ha of Forest land for upgradation of 4/6 laning of Hazaribagh to Ranchi section and diversion of 33.05 Ha of forest land for construction of Ramgarh bypass in project stretch. Out of total 135.778 Ha of proposed forest land diversion, 67.360 Ha land falls under Scheduled Forest and 68.418 Ha belongs to Revenue Forest type. Only 129.488 Ha forest land has been diverted for proposed upgradation of HREL project for which compensatory afforestation will be raised and maintained over double the area proposed for diversion in a degraded forest land (i.e.  $129.488 \text{ Ha} \times 2 = 258.976 \text{ Ha}$  say 259 Ha).
- For the forest land falling under provisions of ST & OTFD (Recognition of Forest Rights) Act, 2006, procedure/public consultation related to settlement of rights were conducted for which Agreement/ Declaration for forest land diversion from each village sarpanch was obtained and certificate for the same were issued by Collectors of Ramgarh & Hazaribagh districts. Compliance status of Stage-I Forest clearance letter conditions and details of

all these communications/certificates has been attached under Forest Clearance permits under **Appendix-II**.

- As informed by project developer, Total 16383 no. of road side tree cutting has been done due to road widening for which under compensatory afforestation, 38030 no. of new plants has been planted under avenue plantation and 66582 no. of plants have been planted in Median area till date .No reserve or protected forest area has been affected due to this road widening project;
- Tree Plantation strategy of the road stretch as per IRC-SP-21-2009 (Guidelines on landscaping & tree plantation of the Indian Road Congress) has been prepared by NHAI.
- There are some cultural properties as well as other Government properties/facilities within the RoW which has been affected due to this project. However, the affected cultural properties have been properly relocated by District Administration and NHAI as per information shared by Developer. Service roads have been provided at habituated locations so impacts have been minimized;
- There has been construction of 1 major bridge, 9 minor bridges, 2 no. of ROB, 152 no. of culverts, 1 no. of Toll Plaza, 28 No. of Bus lay byes & Truck lay bye and 15 no. of Junctions/Intersections with 11.355 Km of Service Road along the entire length of the project stretch ;
- Project developer informed that the scope of work mentioned in schedule B of CA, four laning was proposed through Ramgarh town which would have involved acquisition of defense land and commercial establishments in Ramgarh town. In the month of January 2010, Chamber of Commerce, Ramgarh and other agencies and bodies from Ramgarh town protested against the widening of road through Ramgarh town. It was also felt that acquisition of Defense land in Ramgarh town would be time consuming. During the same time, Government of Jharkhand (through Road Construction Department, Jharkhand State) also submitted a representation for construction of a new four lane bypass for Ramgarh town. Considering these factors and given that the NH portion in Ramgarh town was passing through some heavily congested and built up regions, NHAI approved construction of Ramgarh bypass.
- Minutes of Meeting for the above -mentioned has been provided by Concessionaire which has been attached under Appendix-I of ESDDR. It should be noted that forest clearance for the diversion of 33.05 Ha. of forest land for construction of Ramgarh Bypass has already been obtained from MoEF along-with 102.728 Ha. of forest land falling in Hazaribagh to Ranchi section of NH-33. Forest clearance letter issued for the project covers both

the forest stretches falling in bypass section as well as main stretch of Hazaribagh to Ranchi Road project. Copy of Forest Clearance issued for the project has been attached under Appendix-II for approvals and permissions.

- As given in brief EIA/EMP report, Public consultations have been conducted during the environmental studies to disseminate the project information and to record the views/aspirations of the local people along this NH section ;
- Environmental management Plan and monitoring programme has been suggested for this NH section for various stages of project;
- The concessionaire has undertaken the implementation of environment management measures as per agreed EMP including physical monitoring of environmental parameters during the construction and operation stage of the project;
- EMP Budget has been proposed for Environmental Management and Monitoring plan during operation phase; and
- Periodical environmental management and monitoring during the project Operation phase is being carried out by the concessionaire.

## 12. CATEGORIZATION OF SUB-PROJECT:

19. The sub-project can be classified into Category “B” based on ADB’s EA requirements as per their Safeguard Policy Statement (2009) as the project may involve investment of ADB funds through a financial intermediary. For Category FI, if the sub-project results in adverse environmental impacts then Financial Intermediary must ensure that sub-project meets the requirements of appropriate National, local authorities and ADB’s safeguard policies and suitable environmental management plan has been applied.

## 13. STATUS OF REGULATORY CLEARANCES:

20. The statutory clearances from competent authorities were obtained during implementation of project. The detailed status of permits approval as obtained by Concessionaire/EPC Contractor is given in **Table-2** below:

**Table-2: Status of Regulatory Clearances Obtained during Project Construction Phase**

| Sl. No. | Clearances Required     | Statutory Authority                            | Current Status of Clearance  |
|---------|-------------------------|--|--|
| 1       | Environmental Clearance | Ministry of Environment and Forests, New Delhi | MoEF has granted Environmental Clearance to this project on 19 <sup>th</sup> February, 2007, Letter no. F. No. 5-6/2007-IA.III   |
| 2       | Forest Clearance        | Ministry of Environment and Forests, New Delhi | Final Forest Clearance from MoEF vide Letter No. F. No. 8-74/2010-FC, dated 8 <sup>th</sup> January, 2011 was obtained for diversion of 135.778 Ha of forest land in Hazaribagh East, Ramgarh and Ranchi |

|    |  |  |   |
|----|--|--|---|
|    |  |  | East Forest Divisions in Hazariabagh, Ramgarh and Ranchi districts of Jharkhand.  |
| 3  | Tree felling Permissions for Roadside Trees                            | Forest Department, Ramgarh & Hazariabagh Districts, Jharkhand State  | Tree cutting permissions were obtained from Forest Department for Roadside trees falling in private and Forest land along the project highway falling in Ramgarh, Hazariabagh & Ranchi forest divisions.  |
| 4  | Consent to Operate   | Jharkhand State Pollution Control Board, Ranchi  | Consents to Operate have been received from Jharkhand State Pollution Control Board for construction work of the highway under section 25 of the water (prevention and control of pollution) Act, 1974, and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 These consents were taken for establishment of plant sites related with HMP,BP,WMM, DG Set, Crushers at Bunkheta, Damodar, Morangi & Ichadag camp sites.  |
| 5. | Quarry Approval and Borrow Area Permits                                | Dept. of Mines & Geology, Govt. of Jharkhand and NOCs from Village Land Owners   | As informed by project developer, Quarrying operations were not carried by EPC Contractor or project developer itself. All the stone material was procured from Private Quarry Operators (M/s. Balaji Enterprises & M/s. Jagdamba Stone work-vendors of M/s. GRIL) for which agreement copies have been provided.<br><br>Borrow area permissions are also obtained for different locations from Dept. of Geology and Mining, Jharkhand & village land owners on short term basis. |
| 6. | Chief Controller of Explosives (CCoE) Permission for Diesel Storage    | Petroleum and Explosives Safety Organisation, Ministry of Commerce and Industry, Govt. of India, Kolkata, East Circle Office | CCoE permissions for storage of Petroleum Class B (Diesel) at locations of Bunkheta Camp site &, Morangi Camp sites, in Ramgarh & Hazariabagh Districts have been obtained from CCoE ,East Circle Office, Kolkata.  |
| 7. | Labour License under Contract Labour (Regulation & Abolition) Act,1970 | Office of Regional Labour Commissioner (Central), Ministry of Labour and Employment, Ranchi                                  | The EPC Contractor M/s. G.R. Infraprojects Ltd. had been registered under the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 and the Contract Labour (Regulation and Abolition) Central Rules, 1971 and labour license was obtained for the project under the said act from Govt. of India, Regional Labour Commissioner (Central),Ranchi   |

21. Copies of Environment Clearance, Forest Clearance and other important permissions as mentioned above are given in **Appendix-II**. Under the same appendix, Status report on contractor clearances submitted by EPC Contractor M/s. G.R. Infraprojects Ltd. to Concessionaire M/s. IL& FS Transportation Networks Ltd. (ITNL) has also been attached. Apart from this, Lender's Engineer Report of the project for the Month of April to June, 2014 also confirms about obtaining all the applicable permits required for road construction activities under section 5.1 of conditions precedent on page 29.

#### 14. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE:

22. As reported in the Chapter 8 of Public Consultation in EIA report, discussions were held with the stakeholders and their suggestions were incorporated in mitigation measures. Official consultations with stakeholders were carried out during the preparation of environmental study. Various officials consulted including the Chief Conservator of Forests, Chief Wildlife Warden, Environmental Officer from Pollution Control Board, and Statistical Officers. The issues discussed include flora and fauna in the region, environmental quality and socioeconomic scenario in the region.
23. Consultations with affected persons, local communities, village heads, and shopkeepers were carried out through structured questionnaire during the field surveys. Most of the people interviewed strongly supported the project. The people living in the entire project areas anticipate benefits from improved transport facilities, employment opportunities, and boost in economic development and thereby, provide direct, or indirect, benefits. It was envisaged from the interview survey undertaken along project roads that there is increased environmental awareness among the local people.
24. **Consultation during implementation:** Since commencement of work, public participation has been given due importance. Some of the construction activities which were not included in the concession agreement but adopted only after public demand, are given in **Table-3**:

**Table-3: Public Consultation during Implementation Stage**

| Sl. No | List of facilities                              | Chainage Km.                          | Remarks  |
|--------|---|---------------------------------------|--|
| 1      | Shifting of Service Road                        | Km 45+400 - 46+400 to 45+700 - 46+700 | Service Road Shifted due to Public Demand  |
| 2      | Construction of Ghatt and Shed at Mandu village | Km 64+500                             | Facilities like Providing Shed, stair case, Boundary wall on Village pond area constructed on Public Demand. |

Source: Discussion with the concessionaire

## 15. ALTERNATIVE ANALYSIS:

25. As per Brief EIA/EMP report provided, The positive impacts of the project include: i) the improved road will reduce travel time, fuel consumption, and emissions from base traffic volumes; ii) drainage conditions will be considerably improved because of improved side drains, culverts and causeways; iii) economic development and access will be stimulated; and iv) boost to tourism sector in the state due to better access to important tourist/religious centers. The negative and deemed 'significant' impacts identified are: (a) impacts due to loss of forest resources and impacts due to loss of roadside trees; (b) impacts due to loss of land and displacement of people, (c) occasional disturbance from noise generated during construction of project road, (d) occasional high conc. Of airborne dust during construction of project road resulting in deposition and some damage to vegetation & crops etc. The predicted negative impacts will occur mostly during the construction stage but for short term, affecting short distances and reversible. These are also manageable and almost all of these can be minimized through engineering solutions incorporated in the design and implementation of EMP and monitoring plan.
26. The positive/beneficial impacts of "With Project" scenario outweighed those of the "Without Project" scenario, which would have resulted in deterioration of the present environment, and quality of life. The capacity of the existing highway was insufficient for handling increasing volume of traffic over time. It would have impacted on traffic movements resulting in lowered traffic speed and increase in accidents due to less traffic safety. Hence, "With Project" scenario with few reversible impacts was considered a more acceptable option than the "Without Project" scenario. The project will help in implementation of road safety measures and environmental management and will improve socio-economic conditions of this developing region. The "With Project" scenario was assessed to be economically viable and helpful in alleviating the issues with existing highway.

## 16. IMPLEMENTATION OF EMP DURING OPERATION PHASE:

27. The implementation of the EMP will require financial commitments for the various mitigation / enhancement measures suggested in the Environmental Management Plan. A tentative costing including items required for implementation of the suggested mitigation measures on various environmental components during O&M Phase has been carried out. It is found that the total cost of the implementing these mitigation measures on different items will be Rs. 9.96 crores. The EMP budget during operation phase (annexed as **Appendix-III**) exclusively includes the following measures:
- Environmental Quality Monitoring;
  - Institutional arrangement for Env. Management;
  - Road side Tree plantation and maintenance;
  - Oil spills Management due to accidents;
  - Regular maintenance activities for road furniture like clearing of side drains/culverts, maintenance of turfing, pitching, side shoulders etc.;
  - Air and Noise Pollution Management;
  - Management of Safety Measures;
  - Road & Traffic Safety awareness programmes



- Rehabilitation of Camp Sites;

## 16.1. OPERATION AND MAINTAINENCECONTRACT :

28. The O&M Manual details the systems, procedures and methodologies for meeting the Concessionaire's obligation during the O&M Period of the Concession. Under Chapter 2, details of organization structure & responsibilities of key personnel of O&M team are given which consists of staff involved in Highway Operations as well as Toll Operations. In chapter 3 of O&M Manual, details of standard practices and practical procedures to be adopted are given during operation phase which involves types of inspections & frequency required. Under Chapter 4, details of Operations & Maintenance reporting have been given which informs about contents of Monthly O&M report to be generated each month. Chapter 5 details about different kinds of maintenance requirements during O& M phase including Regular and preventive maintenance. Incident management in the event of any emergency condition is also briefed under clause 5.5 of same chapter.
29. As per concession agreement, concessionaire shall establish Highway Safety Management Unit as indicated in Schedule-L. Details of safety management required for project operation are detailed out in Chapter 6 related to Safety Management which mainly includes compliance with the requirements of relevant Indian Laws on Occupational, Health and Safety, identification of Black spots, safety awareness programmes, encroachment free road, maintaining all facilities required for site security & emergency communication system etc. Chapter 7 details about Traffic Management Plan which includes details of corridor control plan, patrolling requirements, emergency services like ambulance & Medical attention etc. At the end of manual, different annexures are attached related with Organization chart of O&M Team, Emergency Response Protocol, Traffic Control Plan, Inspection formats, Summary formats for various maintenance activities etc. Copy of O&M Manual has been attached as **Appendix-IV**.

## 16.2. ENVIRONMENT MANAGEMENT FOR RESIDUAL IMPACTS DURING POST-CONSTRUCTION PHASE :

30. Project developer for HREL Project has taken efforts for environmental management of impacts caused during construction phase by implementing mitigation measures like Compensatory afforestation, Redevelopment of camp sites, Rehabilitation of Borrow Areas, soil erosion control measures, Development of drainage structures etc. so as to bring minimal impacts on local environment of project stretch due to project development. As informed by project developer, Schedule D of Concession Agreement and Clause 111 of MOSRTH Specification (Manual of specifications and standards for BOT Road projects published by Ministry of Shipping, Road Transport and Highways (India), states about Procedure for safeguarding the Environment and Concessionaire's obligations to implement the same under concession agreement. The major residual impacts during post-construction phase along-with mitigation measures are mentioned below:
31. **Compensatory Afforestation**: Total No. of 24178 trees were proposed to be cut in the project road stretch out of which only 16363 trees have been cut. Developer has taken efforts to cut only those trees which were very necessary for development of project road and tried to minimize no. of tree cutting. Out of 16480 no. of trees proposed in forest

stretch for tree cutting, only 11230 trees have been felled and trees falling in Non-forest stretch having no. of 7698, only 5133 no. of trees have been cut. For forest area diversion, CAMPA fund amount has been paid required for compensatory afforestation over the double of area proposed for diversion. And Median and avenue plantation has been carried out in project as per IRC guidelines in the available land. Plantation done in the median exceeds the requirements of IRC guidelines as informed by Concessionaire. Total no. of 38030 trees under avenue plantation and 66582 no. under Median area have been planted by project developer for which continuous maintenance is carried out. More details of plantation & its maintenance in project stretch are given under heading of 16.3.5 in subsequent section.

32. **Rehabilitation of Borrow Areas:** As informed by project developer, total 15 no. of Borrow areas were used in the project stretch and all of these are rehabilitated. Few of these areas falling near to main project road were also visited by safeguards team during site visit and it was observed that as the land is with undulating terrain in the project stretch so after borrowing earth, it became leveled and used for agriculture purpose by the land owner. Photographs for few of rehabilitated borrow areas are given under Appendix-XIV and site visit Photo plate for environment safeguards.
33. **Redevelopment of Quarry Areas:** Project developer informed that Quarries were not operated directly by Concessionaire and the job of aggregate supply was outsourced to third party contractor who had valid license to run these quarries.
34. **Soil Erosion Control and Embankment Protection Measures:** As per the details received from project developer, for restriction of the soil erosion, turfing is done on the embankment slope below 3 M height of Embankment. Above this Neoweb with turfing is installed. At critical area where exceptional soil erosion is expected, slopes are protected with Pitching and PCC. All the cross drainage works are provided with apron Pitching. In the cutting portion, care has been taken to restrict soil erosion and cutting is done by forming benching, at some locations shortcreting has also been done. Toe walls have been constructed to protect the Embankments toe from getting eroded.
35. **Restoration of Camp/plant Sites:** Out of three camp sites, restoration of two base camp sites at Damodar & Morangi village has been completed. Morangi camp site building has been utilized by local electrical company and Camp site at Bunkheta was maintained & dismantling progressed very recently as there was some incomplete work in small stretch of Ramgarh section due to delay in land handing over by NHAI. During site visit, it was observed that Bunkheta site HMP & BP machinery was dismantled and under progress for restoration to original landuse condition.
36. **Enhancement of Community Assets:** As per local people demand, pitching of the pond was done at chainage 64+500 Km in Mandu Village and shed along with staircases was also constructed in the pond area.

### 16.3. ENVIRONMENT MANAGEMENT PLAN (EMP) IMPLEMENTATION:

37. Under O&M Manual, no specific clauses on the name of Environment Management Plan has been given during operation phase but there are various kinds of maintenance activities which also directly help to implement sound environment, health and safety related system in the project like Horticultural maintenance includes landscaping, plantation & its maintenance. Regular maintenance of drains will help to improve drainage system in project area, Maintenance of road furniture will improve safety in the project corridor and accident/incident recording system will help to find out Black spots in the project stretch which is being improved by taking various types of remedial actions to reduce rate of accidents as listed under **Appendix-V**. Under the same appendix, Chainage wise photographs are also attached which have been provided by project developer regarding various kinds of safety features implemented in project.

#### 16.3.1. Concessionaire's EMP Compliance:

38. As part of project review and site visit, efforts has been made to track the present status of implementation of the EMP. The six monthly compliance reports for the period of September 2013 & June 2014 submitted by concessionaire to MoEF as per the conditions of Environmental Clearance letter during post-construction phase(after achieving provisional COD) has been attached as **Appendix-VI**. Project Developer has also provided copies of Monthly compliance reports for the month of July 2014 & September 2014 generated during O&M phase which are attached as **Appendix-VII**. Most of the activities related to various kinds of maintenance requirements covering routine, emergency, Safety & Traffic Management, Corridor Maintenance are in compliance with the agreed O&M Manual and compliance is being done continuously.

#### 16.3.2. Emergency Preparedness and Response Plan

39. Concessionaire has developed Emergency Preparedness and Response plan (EPRP) for this project which is being implemented during Operation Phase. Copy of EPRP document has been attached as **Appendix-VIII**. In the initial section of the manual, Contact numbers for different emergency response services in local area and project staff who will be involved in handling emergency situation have been provided. The purpose of the Emergency Preparedness and Response Plan is to familiarize all the employees with the organizational set-up to combat an emergency arising on the site. Emergency Response Protocol describes categorization of different emergency events and decision making responsibilities during each event. Detailed procedure for Emergency preparedness, Response & Recovery has been detailed out at the end of the document including Disaster situation procedure for staff members. Under the same appendix, separate sheet for key personnel involved in emergency and flow diagram for HREL's emergency response protocol has been given.

#### 16.3.3. Project's Safety and Traffic Management Plan

40. This document for project safety and traffic management plan is prepared to assist the execution team by providing the technical information and systems to be followed to

maintain a safe working environment from the start to end of project. This safety plan is prepared considering the site safety and Occupational Health requirement of Hazaribagh Ranchi Expressway Limited. In the initial section of plan document, project HSE policy has been mentioned. Copy of Project's Safety and Traffic Management Plan has been attached as **Appendix-IX**. Under Section-4 of the document, roles & responsibilities of different O&M staff has been described who will play their role in fulfilling the safety management related requirements of project.

41. Under Section 6 of Safety management system, different training requirements for the workmen & staff has been detailed out and in the second part , Traffic Management system provides different layout designs for traffic management as Site Design, Layout, Planning and procurement management are key controls for reducing the accidents caused by the vehicles. At the time of Diversion, these traffic arrangements will be followed as per IRC SP- 55. Different kinds of safety equipment have been described under Section- 7 followed by General site safety rules & regulation under Section-8. At the end of document, under Annexure-12, contingency plan for accident/ Gas leakage/Flood/ Cyclone/ Earth Quake/ Lightening has been described out.

#### **16.3.4. Accident-Incident Reporting:**

42. In the event of occurrence of any accident on the project highway involving a fatality or serious personal injury or substantial property damage, the concessionaire investigates the circumstances of such accident and submits to NHAI and Independent Consultant, a report setting out details of such accident and, to the extent, they are known, the causes of such an accident and any other additional details like any emergency help provided. These reports are very important to understand the implementation of safety measures on the highway and planning of any improvement if the need arises based on the cause of accidents. Accident-incident reports for last six months (February to July 2014) have been attached as **Appendix-X**. Various types of remedial actions taken by Concessionaire in the form of safety features to reduce rate of accidents in project stretch has already been listed under Appendix-V.

#### **16.3.5. Plantation and its Maintenance:**

43. As informed by Concessionaire, the plant species used in the stretch is conforming to IRC-SP- 21 Manual for Plantation. Maintenance of median and avenue plantation are carried out as part of the routine maintenance activities. NHAI has prepared detailed plantation plan for project stretch under which different plant species has been suggested for median plantation as well as for first row, second row and subsequent rows under avenue plantation. The plantation scheme has been classified in different categories like Tree planting along the Highway and Turfing with grasses and shrub /herb planting on medians / special landscapes/embankment slopes alongwith protection measures like fencing etc. Year-wise monitoring requirements has also been suggested under the same document. Total 16383 no. of road side tree cutting has been done due to road widening for which under compensatory afforestation, 38030 no. of new plants has been planted under avenue plantation and 66582 no. of plants have been planted in Median area till date . As informed by Concessionaire, there are six No of water tankers with well-trained

team of More than 50 Personnel have been deployed for the Maintenance of plantation. Copy of Tree Plantation Plan has been attached as **Appendix –XI**.

#### **16.3.6. Environmental Quality Monitoring:**

44. A comprehensive environment monitoring system is in place to assess the present environment scenario and to take the preventive measures. This monitoring is essential to judge the effectiveness of mitigation measures planned during construction and operation phase. The environmental monitoring is the responsibility of the Concessionaire. The Environmental Monitoring has been outsourced to an Environmental Laboratory namely M/s Scientific Research Laboratory based at Ranchi which is recognized by JSPCB. The copies of Environmental Monitoring report for March 2014 is enclosed as **Appendix-XII** for O& M Phase whereas earlier Environmental Quality Monitoring reports have been submitted to MoEF along with Six monthly compliance reports for EC letter conditions. Under the same appendix, document for environmental quality monitoring schedule during O&M Phase has also been attached. As per the monitoring report attached, levels of environmental quality parameters are within the permissible limits in project stretch.

#### **16.3.7. Overall Implementation Framework for Environment Management Plan:**

45. The project institutional framework as given in the project EMP indicates that the overall implementation responsibility of the EMP lies with the Project Implementation Unit (PIU); Project Director at PIU is supported by the Environment Officer of NHAI. NHAI has appointed the Independent Consultant(IC) for carrying out audit of the project highway in accordance with the different regulatory requirements and shall take all other actions necessary for securing compliance with these requirements. During operation, the concessionaire have taken reasonable steps to protect the environment on and off the site and avoid damage or nuisance to persons or to property of the public or other resulting from pollution, noise or other causes arising as a consequence of their method of operation. From the concessionaire end, the Chief Project Manager through his Environmental Officer and Traffic Safety Officer take care of the implementation of the Environment, Safety and labor related aspects. The monitoring of environmental aspects being implemented by the concessionaire is regularly monitored by the IC through its Environmental Specialist who visits the site to monitor the compliance of EMP implementation. The Organization Chart of the concessionaire has been attached as **Appendix-XIII**. E &S Manager, Mr. Gaurav Ravi is responsible for implementing the environment management & safety during O&M Phase who has been assigned as Environment, Health and Safety Officer for this project during operation phase.

### **17. SITE VISIT OBSERVATIONS:**

46. A site visit was undertaken by IIFCL's Environmental and Social Safeguard specialists during 28th-29th of August, 2014 to review the implementation of the project environmental safeguards. During the site visit, following staff was mainly consulted regarding environmental safeguards related measures implemented at the project site:

1. Mr. Vinod Tripathi, Assistant Vice President, ITNL
2. Mr. Rajesh Dwivedi, Project Manager for HREL Project ,ITNL

47. Based on the discussions with abovementioned officials, site observations are given below:

- Median and Avenue plantation has been done for this project for which Regular watering and maintenance is regularly carried out by Concessionaire. During site visit, it was observed that survival rate of avenue plantation was very good as project developer has provided & maintained the tree guards very well due to which plants growth have been sustained.
- Out of three camp sites, restoration of two base camp sites at Damodar & Morangi village has been completed. During site visit, it was observed that third camp site, i.e. Bunkheta site HMP & BP machinery was dismantled and under progress for restoration to original landuse condition;
- Project developer informed that most of Borrow area locations have been rehabilitated as per demand of land owner. As the project stretch has very few plain areas for agriculture so in most of the cases, land owners wanted the leveled land after soil is taken so that they can do agriculture onto that land. Some of the sites adjacent to road stretch were visited during site visit.
- It was observed during site visit that Traffic Measures are already in place as per the requirement of O&M Agreement and Highway Design which is monitored by operation and maintenance team Equipped with Cranes and Patrolling Van.
- Median drainage is also provided in super elevated portions for drainage of rain water. The drainage system is periodically cleaned so as to ensure adequate storm water flow.
- As informed by project developer, Spills of oil/fuel/toxic chemicals are going to be cleaned on regular basis by highway patrolling team to remove Contamination from spills due to traffic movement and accidents Spills, if any.
- Soil erosion control measures like lined drains, unlined drains & pitched drains have been taken during construction phase and embankment protection measures has been provided like Edge kerb, grass turfing, stone pitching, embankment chutes along with dissipation basins.
- Periodic Environmental quality monitoring has been carried out throughout the road stretch at selected locations during operation phase. Sample copy for the same has been provided.
- There are some cultural properties as well as other Government properties/facilities within the RoW which has been affected due to this project. However, the affected cultural properties have been properly relocated by authorized agency & district administration and service roads have been provided at habituated locations so impacts have been minimized.

- Traffic Management measures have been taken like Road studs, Road markings, Sign boards, Delineators and Hazard markers.
- Road Safety measures have been taken like Metal beam crash barriers, Blinkers, Highway Lighting, Various message sign boards, Emergency call box, Highway patrolling, Ambulance and Crane has been provided.
- SOS Phone facility has been provided at the project stretch and emergency numbers are also displayed alongside the highway.
- Pedestrian guard rails and highway lighting system has been provided. Provision of crash barriers has been given wherever road embankment is high.
- As reported by concessionaire, Regular Traffic awareness programs are being conducted at roadside schools, and Dhabas along the highway. Details for the same are already given under Appendix-V.
- As informed by concessionaire, No severance issues are being faced by local community. In fact, they are benefitted due to the project as land costs have escalated adjacent to highway.
- Under the CSR activity, project developer has provided different type of training to local youths with guaranteed placement after the training. Training like Computer training, Welder, fitter, carpenter, tailor, BPO, Catering, handicraft training has been imparted with guaranteed placement for local youth. During site visit, safeguards team visited one village school where school children were given computer training in mobile Bus with fitted computers inside and another village was visited where Medical consultations by one MBBS doctor & Nurse were being done in mobile van and free medicines were also given to local villagers.

48. The site visit photographs regarding the environmental safeguard measures implemented during operation phase are given in **Photo Plate-I**. Pictures for Camp site Restoration and Borrow Area Rehabilitation as provided by concessionaire have been given under **Appendix-XIV**.

## **18. CONCLUSIONS AND RECOMMENDATION:**

49. Based upon the available documents and site visit, it is concluded that the concessionaire has undertaken adequate environmental safeguard measures. The conclusions for the sub-project are given below:
- The sub-project has been prepared by NHAI as per its own funding requirement and not in anticipation to ADB operation.
  - The sub-project has the required national and local level environmental clearance as well as permits and approvals for project implementation. Copy of EC,FC and other important permissions are given in Appendix-II.

- With the improved road conditions, the sub project may also have a positive GHG emission reduction due to less fuel consumption for the same traffic density.
- The institutional arrangement available during O&M Phase for the implementation of EMP appears to be adequate as there is a sufficient number of staff available for implementing and monitoring the EMP and Road & Traffic safety implementation.
- Concessionaire has confirmed that all statutory environmental permissions applicable for HREL project are obtained in line with the regulatory framework of India, and are renewed in timely manner;
- Concessionaire has confirmed that continued compliance is being done by all concerned stakeholders with the terms and conditions stipulated in the statutory environmental clearances /approvals /consents and labour licenses;
- Periodical Environmental/Safety management and monitoring during the project operation phase is being carried out by the concessionaire.
- Based on the site visits and due diligence findings, it can be deduced that the sub-project has no significant environmental safeguard issues.
- The Sub-project, therefore, does not appear to involve any kind of reputational risk to ADB funding on environmental safeguards and recommended for funding.



**SOCIAL SAFEGUARDS DUE DILIGENCE STUDY**

## 19. DUE DILIGENCE OF SOCIAL IMPACTS:

50. The Social safeguard due diligence study of Hazaribagh Ranchi Expressway Limited has been done by reviewing the documents made available by the Concessionaire. The documents reviewed for the due diligence study are as below:

- Detailed Project Report (DPR)
- Project Information Memorandum (PIM)
- Chapter on EIA, EMP and RAP as provided by the concessionaire (**Appendix- I**)
- Six monthly compliance report of June 2014 as submitted to NHAI in compliance to Environment Clearance to the project
- Utility Shifting, EMP & RAP report, January 2014
- O&M Monthly Progress report, July 2014

## 20. VISIT TO PROJECT LOCATION:

51. As part of the preparation of the Environment and Social Due Diligence Report (ESDDR), the project was visited by the Environmental and Social safeguard specialists of IIFCL on 28<sup>th</sup> – 29<sup>th</sup> August 2014 for field verification of Environment & Social safeguards related aspects of project site and consultation with the O&M Team of concessionaire was also done regarding their scope of safeguards practices & implementation. The project is currently in operation phase. The site visit photographs are given in **Photo Plate-II**.

## 21. MINIMIZATION OF RESETTLEMENT IMPACTS:

52. The project involved widening of Hazaribagh- Ranchi section of NH-33 from Chainage km. 40.500 (existing Chainage) to 114.000 (existing Chainage), to four lane and the total length of the project is 74.465 km. The start of the project road is a junction of Hazaribagh Bypass and NH-33. The project road passes through plain, rolling as well as mountainous terrain. Number of towns and villages are situated on the road, the built-up activities had come up on both side of the project stretch. Important towns and townships, such as Hazaribagh, Kujju, Ramgarh and Ranchi are on/ along the road, spread on either side. To minimize the resettlement impacts and to reduce the impacts on the livelihood of the local people due to land acquisition, two bypasses has been constructed at two heavily densed settlement areas, namely Kujju and Ramgarh. The Kujju bypass is from km. 72.800 to km. 76.000 (existing Chainage) and Ramgarh bypass starts from Km. 77.743 and ends at km. 93.282. As informed by the concessionaire, two Vehicular Underpasses (VUPs) in each Bypass, has been constructed to cater to the requirement of road access by the local people. Business Establishment around the bypass has got benefit due to easy access to four lane road.

## 22. PUBLIC CONSULTATION:

53. As mentioned in the six-monthly report of June 2014, public consultations with stakeholders were carried out during the preparation of Environmental Impact Assessment (EIA) report. Consultation with affected persons, local communities, village heads and shopkeepers were carried out through structured questionnaire during the field surveys. After the consultations, it

was concluded that the local people supported the project and anticipated that with improved transport facilities, there would be a boost in employment opportunities, economic development.

54. The major concerns as raised during these consultations were related to Impact due to loss of forest resources and impact due to loss of roadside trees, impact due to loss of land and displacement of people, occasional disturbance due to noise generated during the construction.
55. As per the 6-monthly report as submitted to MoEF, the issue raised during these consultations were given due considered during the design finalization and also during the construction stage. The impacts on land and on the livelihood of the people were minimized by providing two bypasses at Kujju and Ramgarh. For the forest land falling under provisions of ST & OTFD (Recognition of Forest Rights) Act, 2006, procedure/public consultation related to settlement of rights were conducted for which Agreement/ Declaration for forest land diversion from each village sarpanch was obtained and certificate for the same were issued by Collectors of Ramgarh & Hazaribagh districts. Compliance status of Stage-I Forest clearance letter conditions and details of all these communications/certificates has been attached under Forest Clearance permits under **Appendix-II**.

### **23. LAND ACQUISITION IN THE SUB-PROJECT:**

56. The total length of the project road is 73.799 Km and the existing ROW varies from 28m to 60m except for the length of Kujju bypass. A uniform ROW of 60m width is proposed in the entire project length except forest land where the ROW and tree felling is restricted to only 32 mtrs (instead of 45 mtrs) except for those forest areas where the extra width is absolutely required due to curvature. The existing ROW available with NHAI was 163 Ha and an area of 242 Ha of land had to be acquired for the widening of the project road, which included 91.41 Ha of private land.
57. The land acquisition has been carried out by NHAI after the Gazette notification were published both in English and Vernacular language in national daily newspapers as per the NH Act 1956. The sample copy of the Notifications is attached as **Appendix XV** for reference.

### **24. RESETTLEMENT IMPACT IN THE SUB-PROJECT:**

#### **24.1 IMPACT ON PRIVATE PROPERTY:**

58. As per the Environment Clearance, 677 families were affected due to the land acquisition for the project road. The displaced families belonged for 46 villages, out of which 28 villages are in Hazaribagh district and 15 villages are in Ranchi district. The affected families were compensated as per the NH Act 1956 and apart from the compensation for the loss of property, an additional compensation of 12% and solatium of 30% was also paid to the affected families.

## 24.2 IMPACT ON RELIGIOUS PROPERTY:

59. As informed by the concessionaire, 26 religious structures were affected due to the project. The compensation for the loss of these religious structures were paid by the Concessioneing authority through the District Administration to the village panchayats/ concerned person or authority.

## 25. COMPENSATION AND R&R ASSISTANCE:

60. The land acquisition has been done by NHAI as per the NH Act 1956. The compensation amount has been decided by the Competent Authority as appointed by the Concessioneing Authority. As informed by the concessionaire, the affected people has been compensated for the affected land, structure, trees, wells and any other affected property. An additional compensation of 12% and a Solatium amount of 30%, of the total compensation has also been paid to the affected people. A sample copy of the compensation estimation has been attached as **Appendix XVI**.

## 26. GREIVANCE REDRESSAL:

61. As informed by the concessionaire, any grievances received by them are communicated to the Concessioneing Authority/ concerned authority and then the merit of the grievance is examined in consultation with the Concessioneing Authority/ concerned authority. Then necessary direction to the HREL's concerned department/ agency for necessary action is issued, if the grievance falls under the concessionaire obligation or otherwise NHAI/ the concerned authority is informed for taking the necessary course of action. If the matter is disputed, Concessionaire is supposed to comply as per good industrial practice or as instructed and to resolve the matter in accordance with the Concession Agreement. As informed by the concessionaire, the grievances are addressed immediately or within 24 hr., if it is within the scope of O&M project team. In case, the grievance needs to be addressed by NHAI, then the grievance is forwarded to NHAI for addressal. In such a case, after reviewing the grievance, NHAI either instructs the concessionaire to take appropriate measures to address the grievance by issuing 'change of scope' or they get it done through other agency. The process followed for addressing the grievances is attached as **Appendix XVII**.
62. The project is in operation stage and as informed by the concessionaire there are no pending litigation case related to land acquisition and compensation.
63. Regular feedback from the road commuters are also taken by the concessionaire to understand the required improvements expected by the commuters and depending upon the suggestions or complaints raised by them, adequate measures are taken to rectify the issues. A sample copy of a feedback form is attached as **Appendix XVIII**.

## 27. EMPLOYMENT GENERATION AND INCOME RESTORATION:

64. As informed by the concessionaire, local labour was employed during the various construction and operation activities. During the site visit, it was also informed by the concessionaire that since the project is in operation, only 70-80 labours are employed for various O&M activities like maintenance of median plantation, repairing of damaged road etc. Most of these labours are from the local area. Preference is also given to the local people for the jobs for guards, drivers and supervisors.

## 28. COMMUNITY DEVELOPMENT ACTIVITIES:

65. As informed by the Concessionaire, they are doing many community development activities under their Community development project and CSR initiatives named 'Parivartan', which is implemented by IL&FS Education in three districts, namely Ranchi, Hazaribagh and Ramgarh, along NH-33 since 2010. To implement the project in a more effective manner, the they have identified few deliverables, which includes:

- Offering Quality education in 42 Government Schools ( Covering approx 12000 children's) along the Hazaribagh Ranchi Express way and Ramgarh by pass, with a special focus on English, Math, Science, & Life Skills using Multimedia technology and kits.
- Develop vocational skills in youths and ensure employment in local industries
- Run health service for the community through mobile medical van and provide medicine
- Generate awareness amongst community on Health , Hygiene, and Road Safety

66. Following activities have been done under the CSR project:

- Trained 374 youths in various vocational courses to generate employment.
- Organized health awareness camps for villagers and school children on various seasonal ailments. Also organized regular diagnostic tests and distributed free medicines to the villagers.
- To enhance income of the women folks in the villages provided training to the selected women on golden grass products. Above 55 women got trained on golden grass training which was organized in two round of training.
- Multimedia kits have been also provided to 42 schools along the project road.
- Computer Education being imparted to School Children of 6 Schools through Computer mobile bus.

67. The details of the CSR initiatives as undertaken by the concessionaire is attached as **Appendix XIX A, XIX B, XIX C, XIX D**. As informed by the developer, apart from the various CSR initiatives as mentioned above, the concessionaire has also constructed few facilities which were not originally included in the concession agreement but they have constructed them on public demand. These construction activities include:

- Shifting of service road from chainage Km. 45+400 - 46+400 to 45+700 - 46+700
- Construction of Ghatt area around the village pond and also provided Shed, boundary wall and benches at Mandu village

## 29. MONITORING AND EVALUATION:

68. The project is being monitored by the Independent Consultant appointed by NHAI. An O&M Monthly Progress report is submitted by the concessionaire to the Independent Engineer and the report is submitted by the Independent Engineer to the NHAI after review. The Independent Consultant's report includes the status of land acquisition and Resettlement & Rehabilitation issues, if any.

## 30. SITE VISIT OBSERVATION:

69. A site visit was undertaken by the Environmental and Social safeguard specialists of IIFCL on 28th – 29th August 2014 for field verification of Social safeguards related aspects of project site and consultation with the O&M Team of concessionaire was also done regarding their scope of safeguards practices & implementation. During the site visit, Mr. Vinod Tripathi, Asstt. Vice President, ITNL and Mr. Rajesh Dwivedi, Project Manager for HREL Project ,ITNL, were mainly consulted regarding environmental and social safeguards related measures implemented at airport site. The observations during the site visit are given as below:

- As informed by the concessionaire, the land acquisition has been completed and there are no pending litigation cases related to land acquisition and compensation.
- The Service roads are provided on both sides of the road in congested areas to cater for the local traffic.
- The concessionaire has constructed many facilities on public demand which includes Shifting of service road from chainage Km. 45+400 - 46+400 to 45+700 - 46+700, construction of Ghatt area around the village pond and also provided Shed, boundary wall and benches at Mandu village.
- The concessionaire is providing Computer Education to School Children of 6 Schools through Computer mobile bus. The IIFCL team also visited one of the schools where children were being trained to use computer.
- The concessionaire has provided Mobile medical facility to the villages along the project road. These mobile medical vans visit these villages regularly and also provide free medicines to the patients.

70. The site visit photographs are given in **Photoplate-II**.

## 31. CONCLUSION AND RECOMMENDATIONS:

71. Based upon the available documents, observations and discussion during the site visit, it is concluded that the concessionaire has undertaken adequate social safeguard measures during the operation of the project. The conclusions for the sub-project is given below:

- The sub-project has been prepared by the NHAI as per the national and state government requirement and not in anticipation to ADB operation.
- The land acquisition for the project has been done by NHAI as per the NH Act 1956 and the compensation has been paid to the affected families before handing over the land to the concessionaire. Apart from payment of compensation for the loss of structure, land, trees and any other immovable property, An additional compensation of 12% and a Solatium amount of 30%, of the total compensation has also been paid to the affected people.
- The project is in operation stage and there are no pending litigation cases related to land acquisition and compensation
- Adequate measures have been adopted for the minimization of social impacts during the planning stage of the sub-project. Two bypasses has been provided, namely Kujju and Ramgarh bypasses, to minimize the impact on the structures.
- Employment opportunities have been provided to the local people both during the construction and operation stage.
- Concessionaire has undertaken various community development activities to benefit the local people.

72. The Sub-project, therefore does not appear to involve reputational risk to Asian Development Bank funding on social safeguards and is thus recommended for funding.

## **CHAPTER– XII** **ENVIRONMENTAL IMPACT ASSESSMENT AND** **RESETTLEMENT ACTION PLAN**

### **12.1 INTRODUCTION & PROJECT DESCRIPTION**

National Highways Authority of India (NHAI) has been entrusted the mandate of developing quality highways of national importance through implementation of Built Operation and Transfer Basis (BOT). The project corridor Hazaribagh - Ranchi stretch of NH-33 is part of Highway development, which has been taken-up by NHAI under Built Operation and Transfer Basis (BOT).

### **12.2 BACKGROUND**

Any development work has some impacts on Environmental and Socio-economic status of the surrounding areas. Therefore, before undertaking any development works the need for its impact identification on environmental and socio-economic factors have to be studied. The proposed Highway widening with capacity augmentation has both positive and negative on socio-economic characteristics of environment. Environmental and Social assessment study was undertaken for the proposed project. As there is a growing awareness that road development has major environmental impacts, such projects need comprehensive environmental and social assessment. An integrated approach between ‘development’ and ‘environment’ – an art of maintaining the balance between the two – is what is expected in Environmental and Social Assessment reports. Emphasis has been given for the present study to mitigate such effects.

### **12.3 OBJECTIVES & SCOPE OF THE STUDY**

- Collection of baseline data on various components of the environment.
- Determination of the magnitude of environmental impacts so that due consideration is given to them during planning, construction and operational phases of the project implementation.
- Assessment of the socio-economic conditions of the project affected persons and suggestions for their improvement.



- Identification of areas and aspects, which are environmentally or socio-economically insignificant.
- Submission of environmental enhancement plan and environmental management plans for enhancing and mitigating the negative impacts.
- Development of the road alignment in such a way that the impact on environment and settlements are to be minimum.
- Presentation of public view on various aspects of environment.

**12.4** In view of the above objectives and scope of work, the Environmental Assessment Plans and Resettlement Action Plans has been prepared and presented in Vol. – IV (EIA & RAP) of the DPR. A report has been prepared and divided into 11 chapters as mentioned below.

|         |   |
|---------|---|
| Chapter | – 1 : Introduction & Project Description                        |
| Chapter | – 2 : Policy, Legal And Administrative Framework                |
| Chapter | – 3 : Approach And Methodology                                  |
| Chapter | – 4 : Existing Environmental Scenario                           |
| Chapter | – 5 : Assessment Of Potential Environmental Impacts             |
| Chapter | – 6 : Mitigation Measures                                       |
| Chapter | – 7 : Environmental Enhancement                                 |
| Chapter | – 8 : The Environmental Management Plan (EMP)                   |
| Chapter | – 9: Public Consultations                                       |
| Chapter | – 10: Social Impact And Design Options                          |
| Chapter | – 11: Resettlement Action Plan And Policies And Legal Framework |

**Chapter 1:** deals with the project background, objectives and scope of work, project description, policy context for environmental assessment, methodology for public consultation, census data of study corridor and other issues of the project dealing with environmental engineering.

**Chapter 2:** deals with policy, legal framework, institutional setting, acts and regulations, gaps and deficiencies, institutional strengthening and arrangement, environmental training, environmental monitoring and list of acts with implementation agencies.

- Chapter 3:** deals with approach and methodology for the assessment of environmental impacts, questionnaire for environmental parameters, field observation on questionnaire, screening, testing & monitoring of trees, impacts on settlements, ambient air quality, water quality, soil quality, noise level, review of secondary data available, opinion surveys, socio-economic surveys, and preparation of strip plans.
- Chapter 4:** deals with review of existing environmental scenario, meteorological conditions, atmospheric pressure and winds, geographical features, topography, physiography, drainage/water resources, surface water resources, ground water quality, geology, soil, biological, flora, forest, fauna, animal, birds, reptiles, fish, tree inventorization, land environment, agriculture, industries, housing development, wet land, earth quakes, seismic hazard, significant earthquakes in hazari bagh-ranchi region,
- Chapter 5:** deals with assessment of potential environmental impacts soil, erosion, water, air, noise, flora, fauna and ecosystem, trees, removal of herbal cover, protected monuments and cultural heritage sites, impacts on social environment, impacts on road safety and human health.
- Chapter 6:** with mitigation measures for reinstatement of topography and soil characteristics, water resources, ambient air quality , noise level, human health and safety, biological characteristics and land use.
- Chapter 7:** deals with environmental enhancement, plantation of trees, shrubs and herbs along the road, water bodies, natural cross-drainage channels, physical environment, enhancement of bus/tempo stops, developing truck stoppage complex, enhancement of major road intersection, and enhancement of cultural properties.
- Chapter 8:** deals with Environmental Management Plan (EMP), supportive information on management of environment, the environmental monitoring programme and suggested tree plantation scheme.

**Chapter 9:** deals with public consultations, methodological framework, social issues, consultant's approach to social issues, mitigation measures for social issues, design considerations and consultations with NGO's.

**Chapter 10:** deals with social impact and design options for widening, by-passes and junction improvements.

**Chapter 11:** deals with resettlement policies and legal framework, details of project affected people, details of proposed project impact, detailed ownership-wise affected families and extent of impact, cost estimation for resettlement.

## 12.5 CONCLUSIONS:

12.5.1 The proposed 4/6 lanning project requires resettlement of 1131 families, 26 religious structures and 67 bore wells/hand pumps. The land acquisition has been presented in table below.

| Sr. No. | Project Road Section | Area in Hectares |
|---------|----------------------|------------------|
| 1       | I                    | 192.0            |

12.5.2 Total cost of land acquisition has been estimates as Rs. 30 crores. The proposed 4/6 lanning and strengthening of the study corridor required the minimum land acquisition and other environmental measures for minimisation of negative impacts on the project area surroundings. In view of significant social and economic benefits from the project implementation, government will implement the project after land acquisition. The land acquisition cost has been included in the project cost.