भारतीय राष्ट्रीय राजमार्ग प्राधिकरण
(सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार)
National Highways Authority Of India
(Ministry of Road Transport and Highways, Govt. of India)
कार्यालय परियोजना निदेशक, परियोजना कार्यान्वयन ईकाई, बिलासपुर
Office of Project Director, Project Implementation Unit, Bilaspur
डी-61, एच.आई.जी.- I, अभिलाषा परिसर, नया बस स्टैण्ड के पीछे तिफरा, बिलासपुर (छ.ग.)
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भारतमाला
प्रगति के पथ पर अग्रसर

27011/7/2019/PD-BSP/BILASPUR-URGA/FOREST/4908 Dated 06.12.2019

To,

The Director, IA-III (Infra-1),
Ministry of Environment, Forest and Climate Change,
Indira Paryavaran Bhawan,
Jorbagh Road, New Delhi - 110 003

Sub: Development of Bilaspur-Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) start at Junction with NH-130 & NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH149B & SH-4 near Urga in the State of Chhattisgarh (approx. 70.2 km) by M/s National Highways Authority of India - **Environment Clearance regarding (F. No. 10-59/2018-IA.III)**

Sir,

The above mentioned project was appraised by EAC during its 225th meeting held on 22nd October, 2019. EAC deferred the project for want of additional information. The point wise compliance of the information sought is as follows.

Information Sought	Compliance
(i) Revised EIA/EMP following the generic structure strictly as per EIA Notification, 2006 as amended from time to time. EIA report should include the Social Impact Assessment and R&R Plan.	EIA Report has been updated and SIA & R&R Plan details are given in Section 7.4 of the EIA report.
(ii) The disclosure of Consultant section in the EIA/EMP should specifically mention that this particular EIA/EMP report has been prepared by the EIA Consultant.	Disclosure section has been updated
(iii) Submit the activities wise fund provision (calculated on slab basis) for CER as per Ministry's OM dated 1st May, 2018.	As per the OM file No. 22-65/2017-IA.III dated 1st May 2018, ~ INR 5.91 Crore i.e. 0.5% of the total project cost is earmarked for CER.
(iv) Submit the details of identified specific locations of water sources along with map of SOI toposheets.	SoI map presenting location of Water Source is enclosed with EIA report as Annexure XIII.
(v) Submit the detailed compliance report of TOR condition no. 20.	The details of Borrow and Quarry area as identified along the project highway with lead chart are presented in Annexure VI of EIA Report.
(vi) All issues raised in Public Hearing including that of provisions of noise barrier should be addressed adequately in the EIA/EMP report.	Public hearing issues have been addressed appropriately in the EIA / EMP report as per provision of NH Act.

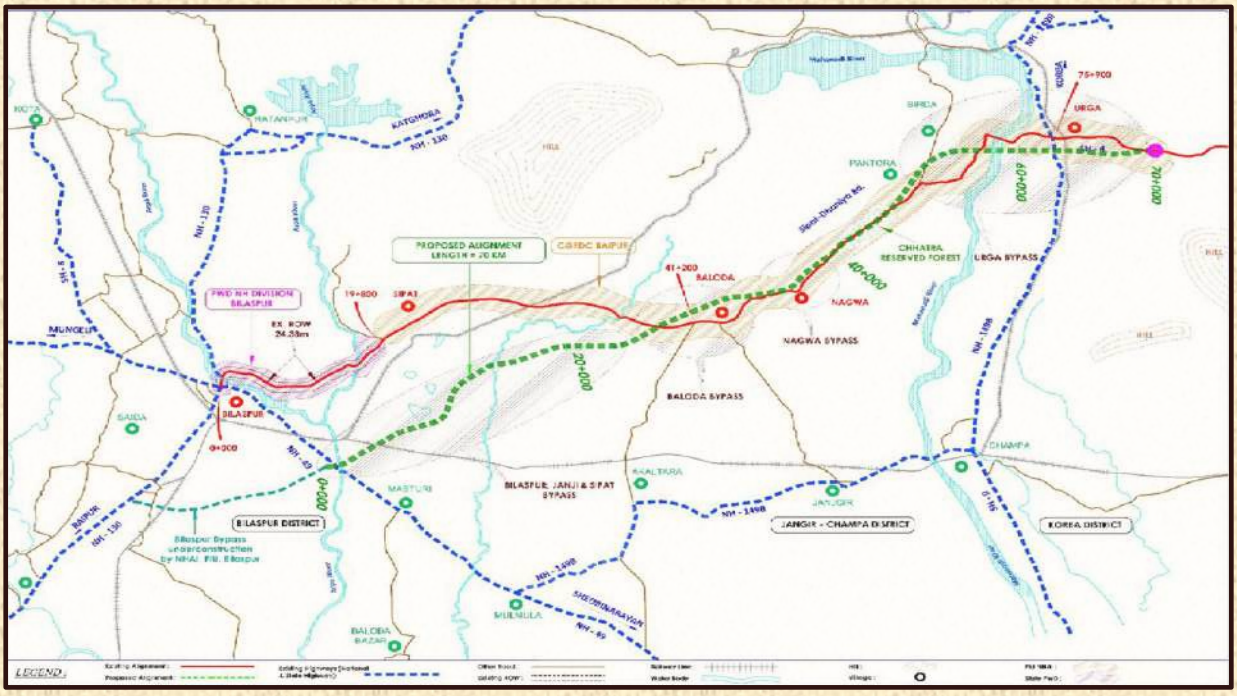
2. The soft copy of EIA / EMP report with all the information have been uploaded on PARIVESH portal. The hard copies of the documents shall be submitted to MoEF&CC after receipt of acceptance.

3. You are requested to consider the project for environment clearance on an early date.

Yours faithfully

(Narendra Singh)
Project Director,
PIU, Bilaspur

NATIONAL HIGHWAYS AUTHORITY OF INDIA



Bilaspur – Urga section of NH-130A

[Raipur – Dhanbad Economic Corridor]

Development of Economic Corridor to improve the efficiency of freight movement in India under Bharatmala Pariyojana

Total Length- 70.2 Km.

Final Environmental Impact Assessment Report

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ABBREVIATIONS

AAQ	Ambient Air Quality	MC	Monitoring Consultant
AAQMS	Ambient Air Quality Monitoring Station	MDR	Major District Roads
AIDS	Acquired Immuno Deficiency Syndrome	MPN	Most Probable Number
BGL	Below Ground Level	MoEF&CC	Ministry of Environment, Forests and Climate Change
BOD	Biochemical Oxygen Demand	NAAQS	National Ambient Air Quality Standards
BOQ	Bill of Quantities	NBWL	National Board of Wildlife
BPL	Below Poverty Line	NGO	Non-Governmental Organisations
CALINE	California Line Source Dispersion Model	NH	National Highway
CCTV	Closed-circuit television	NPV	Net Present Value
CF	Conservator of Forest	NOC	No-objection Certificate
CGWB	Central Ground Water Board	NO_X	Oxides of Nitrogen
CO	Carbon Monoxide	ODR	Other District Roads
COD	Chemical Oxygen Demand	PAF	Project Affected Family
CoI	Corridor of Impact	PAH	Project Affected Household
CPCB	Central Pollution Control Board	PAP	Project Affected Person
CPR	Community Property Resource	PD	Project Director
DFO	Divisional Forest Officer	PF	Protected Forest
DO	Dissolved Oxygen	PIU	Project Implementation Unit
EIA	Environmental Impact Assessment	PM	Particulate Matter
EMP	Environmental Management Plan	PPP	Public Private Partnership
ESMP	Environment & Social Management Plan	PUC	Pollution Under Control
FGD	Focus Group Discussions	NHAI	National Highways Authority of India
GFF	Glass Fibre Filter	R&R	Resettlement and Rehabilitation
GO	Government Order	RAP	Resettlement Action Plan
GoI	Government of India	RF	Reserved Forest
GoRJ	Government of Rajasthan	RHS	Right Hand Side
GW	Ground Water	ROW	Right of Way
HC	Hydrocarbon	SH	State Highways
IBRD	International Bank for Reconstruction and Development	SO_2	Sulphur Dioxide
IMD	Indian Meteorological Department	SPCB	State Pollution Control Board
IRC	Indian Roads Congress	SW	Surface Water
IS	Indian Standard	TDS	Total Dissolved Solids
Leq	Equivalent Continuous Noise Level	UV	Ultra Violet
LHS	Left Hand Side	USEPA	US Environment Protection Agency
LCV	Light Commercial Vehicles	MAV	Multi Axle Vehicles

1 INTRODUCTION

1.1 PURPOSE OF THE REPORT

The purpose of this EIA / EMP report is to reduce or/ minimize undesirable or negative impacts and to enhance the positive impacts due to the project activities based on the conductance of EIA study by analyzing various environmental issues related to the proposed project activities. Every anthropogenic activity has some impact on the environment. The objective of this EIA is, thus, to foresee the potential environmental problems that would arise out of a proposed development and address them in the project's planning and design stage. The EIA process shall then allow for the communication of this information to:

(a) The project proponent;

(b) The regulatory agencies; and,

(c) All stakeholders and interest groups

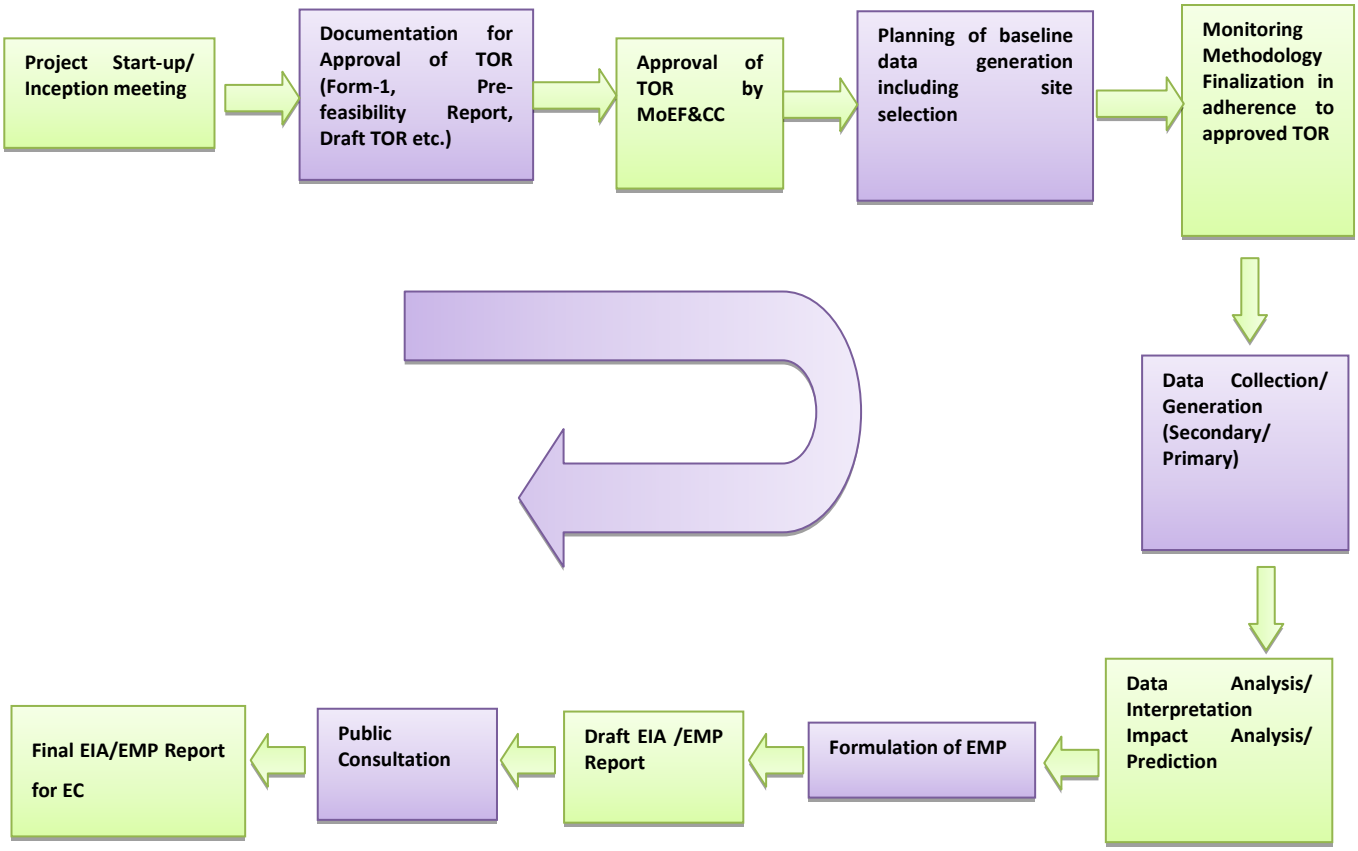


Figure 1- EIA Methodology

1.2 IDENTIFICATION OF THE PROJECT AND THE PROJECT PROPONENT

The Government of India has taken up development of Economic Corridors, Inter Corridors, Feeder Corridors and National Corridors to improve the efficiency of Freight Movements in India under Bharatmala Pariyojana.

National Highway Authority of India, PIU Bilaspur has been appointed as Nodal Agency for proposed development of Bilaspur Urga section of NH-130A which is a part of Raipur – Dhanbad Economic Corridor under Bharatmala Pariyojana, Lot 3 / Chhattisgarh / Package-1.

National Highways Authority of India (NHAI), an autonomous agency of the Government of India, is responsible for management of a network of national highways across the country. It is a nodal agency of the Ministry of Road Transport and Highways (MoRTH), Government of India.

1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION OF THE PROJECT AND ITS IMPORTANCE TO THE COUNTRY, REGION

Proposed highway starts from the end point of Bilaspur bypass, which is under construction at NH-130. It is 11 Km away from the start point along NH-130 towards south and then ends with existing road SH-04 at a distance of 7.5 km from Urga. The proposed highway is a part of Raipur – Dhanbad economic corridor and total length of the Project Road is 70.2 km.

The project road traverses through three districts of Chhattisgarh viz. Bilaspur, Janjgir-Champa and Korba. Villages located along the project corridor are Dheka, Karra, Nimtara, Gataura, Parsada, Bhilai, Ralia, Kachhar, Hardadih, Eramsai, Nawagaon, Mudpar, Sankar, Sonadulla, Changori, Amlipali, Son, Piparda, Chandniya, Dhorla, Bachhoud, Charpara, Baloda, Bhilai, Korbi, Dongari, Hardibishal, Khishora, Angarkhar, Forest, Pantora, Baksara, Birda, Chainpur, Gumiya, Katharimaal, Tarda, Junwani, Akharapali, Samipali, Urga, Masan, Bagbuda, Bhaisma and Chitapali.

The location of the project road is presented as Figure 2 below.

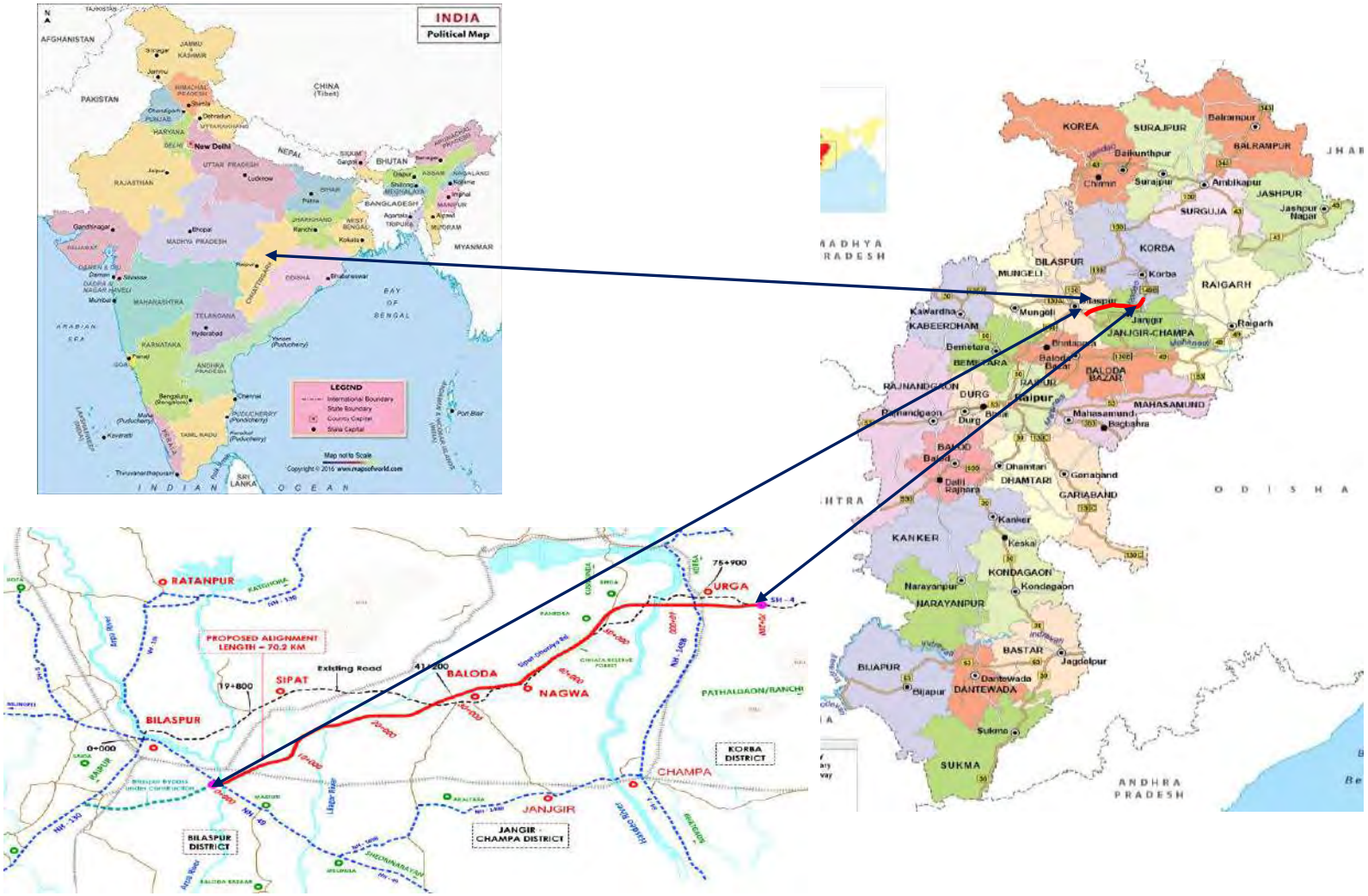


Figure 2 Location Map of the Project

1.4 SCOPE OF THE STUDY – DETAILS OF REGULATORY SCOPING CARRIED OUT (AS PER TERMS OF REFERENCE)

EIA study has been undertaken as per the legislations and guidelines levied under EIA notification by Ministry of Environment, Forest and Climate Change, Government of India to understand potential environmental impacts associated with proposed developments. The study shall also discuss about appropriate mitigation measures and management plan to prevent and minimize adverse impacts (if any). The environmental and social assessment has been carried out against the following reference frameworks:

- EIA Notification 14th Sep' 2006 and amended thereof
- Applicable Indian national, state and local regulatory requirements

The objectives of the EIA include:

- Collection and analysis of baseline environmental information on various components of the environment.
- Identification of impacts and determination of the magnitude of environmental impacts so that due consideration is given to them during design, construction & operational phases of the road project.
- Identification of areas and aspects, which are environmentally or socio-economically insignificant.
- Suggestion of mitigation measures and preparation of Environmental Management Plans for enhancing and mitigating the negative impacts and strengthening the beneficial impacts.
- Economical assessment of project from the environmental point of view and preparation of environmental budge for implementation of mitigation measures.
- Development of the road alignment in such a way that the environment and settlements are affected the least.
- Presentation of public consultation and public view on various aspects of environment and the project.

The study methodology for the EIA employs a simplistic approach and analyses the environmental issues identified. The sections below details out the methodology adopted for the assessment of the environment for the project.

1.4.1 REVIEW OF APPLICABLE ENVIRONMENTAL REGULATIONS

Applicability of various environmental regulations and guidelines was reviewed for the project and its allied activities. As per the requirements the EIA report is made as per the Terms of Reference issued by MoEF&CC.

As per the EIA notification, 2006 (and amendments thereof), any New National Highways; and expansion of National Highways greater than 100 Kms, involving additional right of way greater than 40m involving land acquisition and passing through more than one State shall be treated as category 'A' and shall require Environmental Clearance from MoEF&CC.

1.4.2 APPROVAL OF TERMS OF REFERENCE FROM MoEF&CC

The Experts Appraisal Committee, Ministry of Environment, Forest and Climate Change (MoEF&CC) scoped the project in its meeting held on 31st August, 2018 and recommended for the issuance of TOR for conducting the EIA study for the project. MoEF&CC issued the standard TOR vide letter No.10-59/2018-IA.III dated 09th October, 2018. **(Attached as Annexure I)**

1.4.3 ASSESSMENT OF IMPACTS

Assessment of the environmental impacts was carried out to ascertain that the direct and indirect impacts likely to be induced due to the project are being adequately identified and addressed. The general impacts are land acquisition and allied impacts on society, dust and air pollution due to removal of structures, trees and vegetation and other construction activities; noise pollution due to construction, loss of flora and its impacts on the ecology and impacts on water resources was discussed in detail in the Chapter on Impacts assessment.

1.4.4 ASSESSMENT OF ALTERNATIVES

With and without project scenarios have been assessed. The assessment of various alternatives has been studied. The chapter on Analysis of Alternatives i.e. Chapter 5 elaborates the process and selection criteria of the alternatives.

1.4.5 MITIGATIONS AND ENHANCEMENT MEASURES

All affirmative action's not only to avoid and deter but also to capitalize on the opportunities provided by the project in order to improve the environmental conditions have been deliberated. The various mitigation and enhancement measures proposed have been included the report. Based on their applicability, both general and case specific measures were discussed.

1.4.6 ENVIRONMENTAL MANAGEMENT ACTION PLANS

The EMP shall detail out the implementation of the proposed mitigation and enhancement measures. Monitoring indicators were fixed for periodic review of efficiency of mitigation measures suggested for the project.

1.4.7 STRUCTURE OF THE REPORT

The EIA report has been structured into the following chapters:

Chapter 1- Introduction: The chapter provides description of project background, objectives, scope and organization of the study and approach and methodology. Chapter also defines the structure of the report.

Chapter 2- Project Description: This chapter deals with project details i.e. type of project, need for the project, location, size and magnitude of operation, proposed schedule of approval and implementation, technology and process description, description of the project and its mitigation measures. This chapter also assesses the new and tested technology for the risk of technological failure.

Chapter 3- Description of the Environment: This chapter presents an outline of Environmental baseline status of the study area during the study period.

Chapter 4- Anticipated Environmental Impacts and Mitigation Measures: This chapter includes details of identified environmental impacts and associated risks due to the project activities, assessment and significance of impacts and presents mitigation measures to minimize adverse impacts identified.

Chapter 5- Analysis of Alternatives: This chapter presents the analysis of alternatives for the project considering no project scenario and alternate methods for development.

Chapter 6- Environmental Monitoring Plan: This Section provides recommendation for environmental and social management plan aimed at minimizing the negative environmental and social impacts and monitoring requirements of the project and the technical aspects of monitoring the effectiveness of mitigation measures.

Chapter 7- Additional Studies: This chapter illustrates Public consultation and R&R Action plan (if applicable) associated with construction of the proposed highway.

Chapter 8- Project Benefits: Project benefits including improvements in physical and social infrastructure, employment potential and other tangible benefits are illustrated in this chapter.

Chapter 9- Environment Management Plan: This chapter covers the administrative aspects of ensuring that mitigation measures are implemented and their effectiveness is monitored after approval of the EIA.

Chapter 10- Summary & Conclusion: Overall justification for implementation of the project along with a brief conclusion drawn from the impact assessment study has been presented in this chapter.

Chapter 11- Disclosure of consultants engaged: The names of the consultants engaged with their brief resume and nature of consultancy rendered.

1.5 COMPLAINCE TO TERMS OF REFERENCE

1.5.1 Standard Terms of Reference

Table 1-1: Compliance of Standard Terms of Reference

Sl.	TOR Conditions	Compliance
1.	Examine and submit a brief description of the project, project name, nature, size, its importance to the region/state and the country.	The proposed project pertains to construction of Bilaspur – Urga section of NH-130A which is a part of Raipur – Dhanbad Economic Corridor. Project starts from the end point of Bilaspur bypass, which is under construction at NH-130. Proposed project ends at the existing road SH-04 at a distance of 7.5 km from Urga. The project road is part of Raipur – Dhanbad economic corridor and total length of the Project Road is 70.2 km. The proposed project highway covers three districts of Chhattisgarh State viz. Bilaspur, Janjgir-Champa and Korba. The tehsil covered by the project stretch are Bilaspur, Masturi, Akaltara, Baloda, Kahghora, Kartala, Korba and

Sl.	TOR Conditions	Compliance
		Chitapali.
2.	In case the project involves diversion of forests land, guidelines under OM dated 20.03.2013 may be followed and necessary action taken accordingly.	The proposed project involves diversion of about 47 Hectares of forests land. Application for obtaining forest clearance has already been submitted vide MoEF&CC proposal no. FP/CG/ROAD/34338/2018 dated 22nd June, 2018.
3.	Details of any litigation(s) pending against the project and/or any directions or orders passed by any court of law/any statutory authority against the project to be detailed out.	No litigation(s) and/or any directions or orders passed by any court of law/any statutory authority against the project.
4.	Submit detailed alignment plan, with details such as nature of terrain (plain, rolling, hilly), land use pattern, habitation, cropping pattern, forest area, environmentally sensitive places, mangroves, notified industrial areas, sand dunes, sea, river, lake, details of villages, teshils, districts and states, latitude and longitude for important locations falling on the alignment by employing remote sensing techniques followed by ground truthing and also through secondary data sources.	The project site is characterized by mostly plain terrain with some parts involving undulating plain terrain. The land-use pattern of the project is mostly agricultural with patches of forest and some settlements. The land use pattern of the project area is provided as **Annexure III**. Proposed development involves diversion of 47Ha of Forest areas which includes Reserve Forest, Protected Forest and Revenue forests. No Wildlife Sanctuary / National Park / Ecologically Protected Area (under Wildlife Protection Act, 1972) is located within 10 km radius from the project road. The location details of the project along with villages, tehsils and districts are provided in section 1.3 of Chapter 1 of this report.
5.	Describe various alternatives considered, procedures and criteria adopted for selection of the final alternative with reasons.	3 alternatives were analysed for the project. Proposed alignment was found most suitable option in terms of Technical Freedom, Socio-Economic and Environment impact associated. The detailed analysis of Alternatives has been provided in Chapter 5 of this report.
6.	Submit Land use map of the study area to a scale of 1: 25,000 based on recent satellite imagery delineating the crop lands (both single and double crop), agricultural plantations, fallow lands, waste lands, water bodies, built-up areas, forest area and other surface features such as railway tracks, ports, airports, roads, and major industries etc. and submit a detailed ground surveyed map on 1:2000 scale showing the existing features falling within the right of way namely trees, structures including archeological & religious,	The Land use map of the project is provided as **Annexure III** of this report. The detailed ground surveyed map is attached as **Annexure IV** of this report.

Sl.	TOR Conditions	Compliance
	monuments etc. if any.	
7.	If the proposed route is passing through any hilly area, examine and submit the stability of slopes, if the proposed road is to pass through cutting or embankment / control of soil erosion from embankment. Landslide, rock fall protection measures to be indicated.	The proposed project doesn't pass through any hilly area. The project stretch is not prone to any kind of landslide or rock-fall.
8.	If the proposed route involves tunneling, the details of the tunnel and locations of tunneling with geological structural fraction should be provided. In case the road passes through a flood plain of the river, the details of micro drainage, flood passages and information on high levels flood periodicity at least of last 50 years in the area should be examined.	No tunneling is involved in the project. Bridges are proposed at all river crossings. Also the rivers being crossed by the road are not flood prone. Hence, no such study is required.
9.	The projects is located within 10km. of the sanctuary a map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden thereon should be furnished at the stage of EC.	No wildlife sanctuary is located within 10 Kms of the project stretch. The nearest Sanctuary is Achanakmar Wildlife Sanctuary which is about 43 km from the project road. The authentication of the same by the Chief Wildlife Warden is under process.
10.	Study regarding the Animal bypasses / underpasses etc. across the habitation areas shall be carried out. Adequate cattle passes for the movement of agriculture material shall be provided at the stretches passing through habitation areas.	VUPs, PUPs and CUPs are being provided; these passes will help in crossing of the animals in habitat areas. The details of the same have been provided as **Annexure V**.
11.	The information should be provided about the details of the trees to be cut including their species and whether it also involves any protected or endangered species. Measures taken to reduce the number of the trees to be removed should be explained in detail. Submit the details of compensatory plantation. Explore the possibilities of relocating the existing trees. Animal and wild life crossings to be provided in areas inhabited by wild life.	The number of trees to be felled in the non-forest area is about 8812. The counting of trees in forest area is in progress under the supervision of the Forest department. The details shall be furnished once finalized. 2 nos. of trees shall be planted for every tree to be felled. Detailed budgeting shall be done in coordination with Forest Dept.
12.	Necessary green belt shall be provided on both sides of the highway with proper central verge and cost provision should be made for regular maintenance.	Adequate space has been left on both sides of the road for greenbelt development apart from the plantation at median.
13.	If the proposed route is passing through a city or town, with houses and human habitation on the either side of the road, the	All requisite measures have been taken in order to avoid any settlements. Major settlements at Khapri, Bhelai, Ralia, Aramsahi, Sonadullah,

Sl.	TOR Conditions	Compliance
	necessity for provision of bypasses / diversions / under passes shall be examined and submitted. The proposal should also indicate the location of wayside amenities, which should include petrol station/service center, rest areas including public conveyance etc. Noise reduction measures should also be indicated.	Sankar, Charpara, Baloda, Nagwa, Masan, Bagbida and Bhaisama have been successfully avoided by providing necessary curvatures. All way-side amenities have been provided in the Alignment plan provided as **Annexure IV.**
14.	Submit details about measures taken for the pedestrian safety and construction of underpasses and foot-over bridges along with flyovers and interchanges. If any.	Considering access controlled provision, no pedestrian shall be allowed to enter on the main highway. Various safety measures like traffic signals, direction boards and reflectors etc. shall be provided at the underpasses, interchanges, etc.
15.	Assess whether there is a possibility that the proposed project will adversely affect road traffic in the surrounding areas (e.g. by causing increases in traffic congestion and traffic accidents). Specific care be also taken to ensure that by passes have a sufficient buffer to prevent unwanted obstructions defying the purpose of the bypass.	The proposed project is Greenfield in nature and shall reduce the traffic congestion on existing roads.
16.	Examine and submit the details of use of fly ash in the road construction, if the project road is located within the 100 km from the Thermal Power Plant.	The proposed project stretch is about 1 Km from NTPC Sipat Thermal Power Plant. In compliance to Fly Ash Notifications S.O. 763(E) dated 14th Sept 1999, its amendment notification on S.O 979(E) dated 27 Aug 2003, notification S.O 2804(E) dated 3 Nov 2009 and amendment notification dated 25th January, 2016 by MoEF&CC, Fly ash shall be utilized in proposed road. Fly Ash shall be used as:- • Embankments and backfills – Reinforced or unreinforced. • Stabilization of subgrade, sub-base and base course. • For replacing a part of OPC in Concrete pavements, paving blocks, kerb stones etc.
17.	Examine and submit the details of sand quarry, borrow area and rehabilitation.	The details of sand quarry, borrow area and other materials are provided as **Annexure VI.**
18.	Explore the possibilities of utilizing the debris/ waste materials available in and around the project area.	Possibilities shall be explored for utilization of waste material / construction debris from nearby construction sites. Debris generated from site leveling and digging shall be used for back filling of voids and stabilization of slopes.
19.	Submit the details on compliance with	Complied

Sl.	TOR Conditions	Compliance
	respect to Research Track Notification of MoRTH.	
20.	Examine and submit the details of sand quarry and borrow area as per OM no.2-30/2012-IA-III dated 18.12.2012 on 'Rationalization of procedure for Environmental Clearance for Highway Projects involving borrow areas for soil and earth" as modified vide OM of even no. dated March 19, 2013.	Contractor shall ensure all necessary clearance before undertaking any mining activities. The details of preliminary identified sand quarry, borrow area and other materials are provided as **Annexure VI.**
21.	Climate and meteorology (max and min temperature, relative humidity, rainfall, frequency of tropical cyclone and snow fall); the nearest IMD meteorological station from which climatological data have been obtained to be indicated.	The nearest IMD station from the project stretch is Raipur Observatory. Climate and meteorology of Bilaspur observatory is provided in Section 3.3 of Chapter 3 of this report.
22.	The air quality monitoring should be carried out as per the new notification issued on 16th November, 2009.	The air quality monitoring has been carried out as per the new notification issued on 16th November, 2009.
23.	Identify project activities during construction and operation phases, which will affect the noise levels and the potential for increased noise resulting from this project. Discuss the effect of noise levels on nearby habitation during the construction and operational phases of the proposed highway. Identify noise reduction measures and traffic management strategies to be deployed for reducing the negative impact if any. Prediction of noise levels should be done by using mathematical modeling at different representative locations.	**Construction phase** Operation of DG sets, dozers, trucks and batching plants. **Operation phase** Plying of vehicles The mitigation measures for reducing the effects of the above are provided in Chapter 4 of this report.
24.	Examine the impact during construction activities due to generation of fugitive dust from crusher units, air emissions from hot mix plants and vehicles used for transportation of materials and prediction of impact on ambient air quality using appropriate mathematical model, description of model, input requirement and reference of derivation, distribution of major pollutants and presentation in tabular form for easy interpretation shall be carried out.	The impacts of the construction activities due to generation of fugitive dust are provided in subsection B of section 4.3 of Chapter 4 of this report. Mathematical modeling of ambient air along with incremental load is provided in subsection A of section 4.3 of Chapter 4 of this report.
25.	Also examine and submit the details about the protection to existing habitations from dust, noise, odor etc. during construction stage. IRC guidelines to be followed for traffic	Measures for Dust and Noise controls are discussed in respective section of Chapter 4. IRC guidelines shall be followed for traffic safety while passing through the habitat.

Sl.	TOR Conditions	Compliance
	safety while passing through the habitat.	
26.	If the proposed route involves cutting of earth, the details of area to be cut, depth of cut, locations, soil type, volume and quantity of earth and other materials to be removed with location of disposal/ dump site along with necessary permission.	About 3.7 lacs cum of earth shall be generated from Leveling / Cutting activities. This soil shall be used in embankment filling for the rest of the stretch for site leveling and to maintain the topography. The materials required for construction is provided as **Annexure VIII.**
27.	If the proposed route is passing through low lying areas, details of fill materials and initial and final levels after filling above MSL, should be examined and submit.	The project route doesn't pass through any low lying area.
28.	Examine and submit the water bodies including the seasonal ones within the corridor of impacts along with their status, volumetric capacity, quality likely impacts on them due to the project.	The details of all water bodies along with dimensions of structures proposed are provided as **Annexure VII.**
29.	Examine and submit details of water quantity required and source of water including water requirement during the construction stage with supporting data and also categorization of groundwater based on the CGWB classification.	The total water demand of the project is 1508891 KL, which is inclusive of • 1466891KL for Construction purpose • 18000KL for domestic consumption and utilities requirement • 12000 KL for gardening/ green belt development • 12000 KL for Dust Suppression. Water for construction activities shall be arranged from rivers (Arpa, Hasdeo, Lilaghar, etc.). Location of water source present along the project highway is shown in Annexure XIII. The potable water requirement for labour camp may be arranged through ground water extraction after ensuring necessary permission from appropriate authority.
30.	Examine and submit the details of measures taken during constructions of bridges across river/canal/major or minor drains keeping in view the flooding of the rivers and the life span of the existing bridges. Provision of speed breakers, safety signals, service lanes and foot paths should be examined at appropriate locations throughout the proposed road to avoid the accidents.	To avoid flooding of rivers and canals, the height of the bridge has been kept significantly more than the maximum level of water flow during monsoons. IRC guidelines shall be followed for traffic safety while passing through the habitat. The locations of all wayside amenities are provided in the strip plan which is provided as **Annexure IV**.
31.	If there will be any change in the drainage pattern after the proposed activity, details of changes shall be examined and submitted.	Cross drainage structures (Bridges, Culverts, etc.) are provided based on slope assessment to maintain the natural drainage pattern of the area.

Sl.	TOR Conditions	Compliance
32.	Rain water harvesting pit should be at least 3 - 5 m. above the highest ground water table. Provision shall be made for oil and grease removal from surface runoff.	Rain water harvesting pits shall be kept more than 5m above the highest ground water table.
33.	If there is a possibility that the construction/widening of road will cause impact such as destruction of forest, poaching, reductions in wetland areas, if so, examine the impact and submit details.	Project involves diversion of about 47 ha of forest land. Diversion application has already been submitted to the State Forest Dept. No poaching, reduction in wetland areas etc. are involved in the project.
34.	Submit the details of road safety, signage, service roads, vehicular under passes, accident prone zone and the mitigation measures.	The location of underpasses and other wayside amenities are provided in the section 2.7.1.2 of Chapter of this report**.** Its impacts and mitigation measures are discussed in Chapter 4 of the report.
35.	IRC guidelines shall be followed for widening & up-gradation of road.	Proposed project is a Greenfield alignment. Hence, not applicable.
36.	Submit details of social impact assessment due to the proposed construction of road.	Outcome of Social Impact Assessment is discussed in Chapter 3 & 7 of the EIA report. Separate SIA and RAP study is attached as **Annexure XI**.
37.	Examine road design standards, safety equipment specifications and Management System training to ensure that design details take account of safety concerns and submit the traffic management plan.	Details of existing and proposed traffic are discussed in Section Section 3.5 of Chapter 3 of this report. Traffic safety measures are designed as per IRC SP 55:2014.
38.	Accident data and geographic distribution should be reviewed and analyzed to predict and identify trends – in-case of expansion of the existing highway and provide Post accident emergency assistance and medical care to accident victims.	It is a new project. Hence, not required.
39.	If the proposed project involves any land reclamation, details to be provided for which activity land to reclaim and the area of land to be reclaimed.	Borrow area reclamation plan is provided as **Annexure IX** of the EIA report.
40.	Details of the properties, houses, businesses religious and social places etc. activities likely to be effected by land acquisition and their financial loses annually.	A total of 127 structures are likely to be affected by the construction of the project. The details have been discussed under Chapter and 7 of the EIA report.
41.	Detailed R&R plan with data on the existing socio-economic status of the population in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternative livelihood concerns/employment and rehabilitation of the displaced people, civil and housing amenities being offered, etc.	Greenfield project will affect 122 private properties (106 Residential, 9 commercial & 7 Residential cum commercial) and 3 Temples / Church and two government structures. Compensation shall be provided as per provision of LARR, 2013. Detailed SIA and RAP is enclosed as Annexure XI with this report.

Sl.	TOR Conditions	Compliance
	and the schedule of the implementation of the project specific	
42.	Submit details of Corporate Social Responsibilities. Necessary provisions should be made in the budget.	NHAI is abided by CSR policy of Central Govt. and provisions shall be made accordingly.
43.	Estimated cost of the project including environmental monitoring cost and funding agencies, whether governmental or on the basis of BOT etc and provide details of budget provisions (capital & recurring) for the project specific R&R Plan.	An amount of INR 17.292 Crores has been earmarked for implementation of Environmental Management and monitoring plan.
44.	Submit environmental management and monitoring plan for all phases of the project viz. constructionand operation.	Details of environmental management and monitoring plan are discussed in Chapter 10 and Chapter 6 of this report respectively.
45.	Details of blasting if any, methodology / technique adopted, applicable regulations / permissions, timing of blasting, mitigation measures proposed keeping in view mating season of wild life.	No blasting is involved in this project.
46.	In case of river / creek crossing, details of the proposed bridges connecting on either banks, the design and traffic circulation at this junction with simulation studies.	The details of the proposed bridges are provided as **Annexure VII**.
47.	Details to ensure free flow of water in case the alignment passes through water bodies/river/ streams etc.	Bridge / culvert (as the case may be) are proposed on water bodies. Hence, free flow of the water bodies shall not be affected.
48.	In case of by-passes, the details of access control from the nearby habitation/habitation which may come up after the establishment of road.	Not applicable as project is is Greenfield Highway project.
49.	Bridge design in eco sensitive area / mountains be examined keeping in view the rock classification hydrology etc.	The proposed project stretch doesn't cross any Eco-sensitive area or mountains region.
50.	In case of alignment passing through coastal zones a) HTL/LTL map prepared by authorized agencies superimposed with alignment and recommendation of Coastal Zone Management Authority b) Details of CRZ-I (I) areas, mangroves required to be removed for the project along with the compensatory afforestation, area and location with budget c) Details of road on stilt in CRZ-I areas, design details to ensure free tidal flow d) Details of Labour camps, machinery location,	The alignment doesn't pass through coastal zone.

1.5.2 Specific Terms of Reference

Table 1-2: Compliance of Specific Terms of Reference

Sl.	TOR Conditions	Compliance
1.	Cumulative Impact Assessment to be carried for the proposed project.	The proposed project is a part of Raipur Dhanbad Economic Corridor. The total approximate length of the complete Economic Corridor is 707 km. Design of the various sections is under process. Cumulative Assessment shall be submitted once final design is complete for all the sections.
2.	Water bodies along proposed alignment needs to be surveyed for their conservation and sustainability. Each water body should be clearly identified with its size, any important and threatened species associated with it, its usage by local community along with shape file of each of water body. Impact of proposed project on these water bodies to be identified along with mitigation measures. Emphasis should be given to avoid alignment passing through/over water bodies.	List of all water bodies along-with dimensions of proposed structures are provided as **Annexure VII.** Its impact and mitigation measures are discussed in Chapter 4 of the report.
3.	Certificate from the Chief Wildlife Warden of the state of Chattisgarh stating that no protected area/animal corridor are situated within the 10 km range of the proposed alignment.	Acahanakmar Wildlife Sanctuary is the nearest ecologically protected area, which is about 43 Km from the starting point of the project road. Wildlife Warden has confirmed non-availability of any wildlife protected area with 10 km of the proposed highway. The application for obtaining certificate from chief wildlife warden has already been submitted and is under progress.
4.	Source of water availability to be ascertained for construction and domestic need. Necessary permissions to be obtained from State Authority/ CGWA if any.	In compliance to the Sub-Clause 111.8.3 of MoRTH Specifications, the Contractor shall source the requirement of water preferably from surface water bodies, rivers, canals and tanks in the project area. Only at locations where surface water sources are not available, the Contractor can contemplate extraction of ground water, after intimation and consent from the CGWB. All necessary approval / NoC shall be obtained by the contractor before any water drawal.
5.	Social Indicators need to be developed for understand the socio-economic profile of the society/people living around the proposed alignment.	Status of various social indicators like health, sanitation, education, gender ration, etc. are discussed in the Chapter 3 and 7 of the report. Detailed SIA is enclosed as Annexure XI with this EIA report. The socio-economic profile has been also discussed in

Sl.	TOR Conditions	Compliance
		the above section.
6.	The proposed 4-lane alignment is passing through the coal belt region, where heavy load of traffic is quite common, therefore EAC suggested tofind out the possibilities of developing a broader highway with additional lanes (6-lanes or more) based on the projected traffic density in the region.	The current design comprising of 4 lanes has been approved and finalized after prior analysis of traffic forecast in the region. Hence, 4 lane alignment is anticipated to cater the forecasted traffic in future.
7.	Provide compilation of road kill data on existing roads (national and state highways) in the vicinity of the proposed project.	Road kill data as collected for nearby Highways is given as **Annexure X**.

2 PROJECT DESCRIPTION

This Chapter covers the description of those aspects of the project (based on project feasibility study), likely to cause environmental effects. This chapter also provides background information of the proposed project, brief description and objectives of the project and description of the area.

2.1 TYPE OF THE PROJECT

The proposed project involves construction of Economic Corridor under Bharatmala Pariyojana [Lot-3/Chhattisgarh/Package-1 (Bilaspur Urga Section)] which shall start near Dheka Village, Bilaspur and terminate at existing SH-04 near Urga.

The project road is part of Raipur – Dhanbad economic corridor and total length of the Project Road is 70.2 km.

As per the EIA notification, 2006 by MoEF&CC the proposed project is covered under any category 7 'f'.

2.2 NEED FOR THE PROJECT

The proposed project shall enhance and improve the current route between Bilaspur and Korba which is narrow and zig-zag and thus needs to be straightened and widened to mobilize the heavy traffic. Also the commuters commuting between the route shall save both time and fuel.

The Project will further have following benefits at national and regional level:

High-speed connectivity and access: The projected corridor is a proposed economic corridor. This will avoid traffic congestion and speed-up the freight movement

Aiding economic growth: The seamless connectivity will provide better access to vehicles as a link to the National Highways. The Project will reduce travel time and provide boost to trade and commerce linked to the regions connected through this economic corridor.

Growth of backward areas: The biggest strength of the alignment is that it plans to cover backward districts of Chhattisgarh. As a result of connectivity and access to other parts of the country, these backward areas will be aided to integrate with rest of the world. Further, freight and passenger traffic on the economic corridor will help promoting ancillary economy of these regions.

Decongestion of existing National and State Highways: The proposed corridor will take away traffic pressures from existing SH and NH passing through various cities. Also, long-distance traffic will shift to the proposed corridor, thereby leaving the NH and SH for regional and local usage.

Usage shift: Long-distance traffic will shift from existing roads to the proposed Economic Corridor, resulting in lesser congestion on these highways

Improved safety: Due to access control, the Roadway & Travel Safety of the traffic connecting the cities will be enhanced as there will be minimum distractions & conflict zones

Support to industry: Different types of industries like Manufacturing, Tourism etc. along the proposed corridor will be facilitated in their business operation and reachability.

The proposed project shall ensure Superior operation and maintenance enabling enhanced operational efficiency of the Project Highway;

The proposed project shall minimize the adverse impact on the local population and road users and reduction of fuel consumption shall reduce the carbon footprints of the area.

2.3 LOCATION OF THE PROJECT

Project starts from the end point of Bilaspur Bypass, which is under construction at NH-130. It is 11 Km away from the start point along NH-130 towards south and then ends with existing road SH-04 at a distance of 7.5 km from Urga. The project road is part of Raipur – Dhanbad economic corridor and total length of the Project Road is 70.2 km.

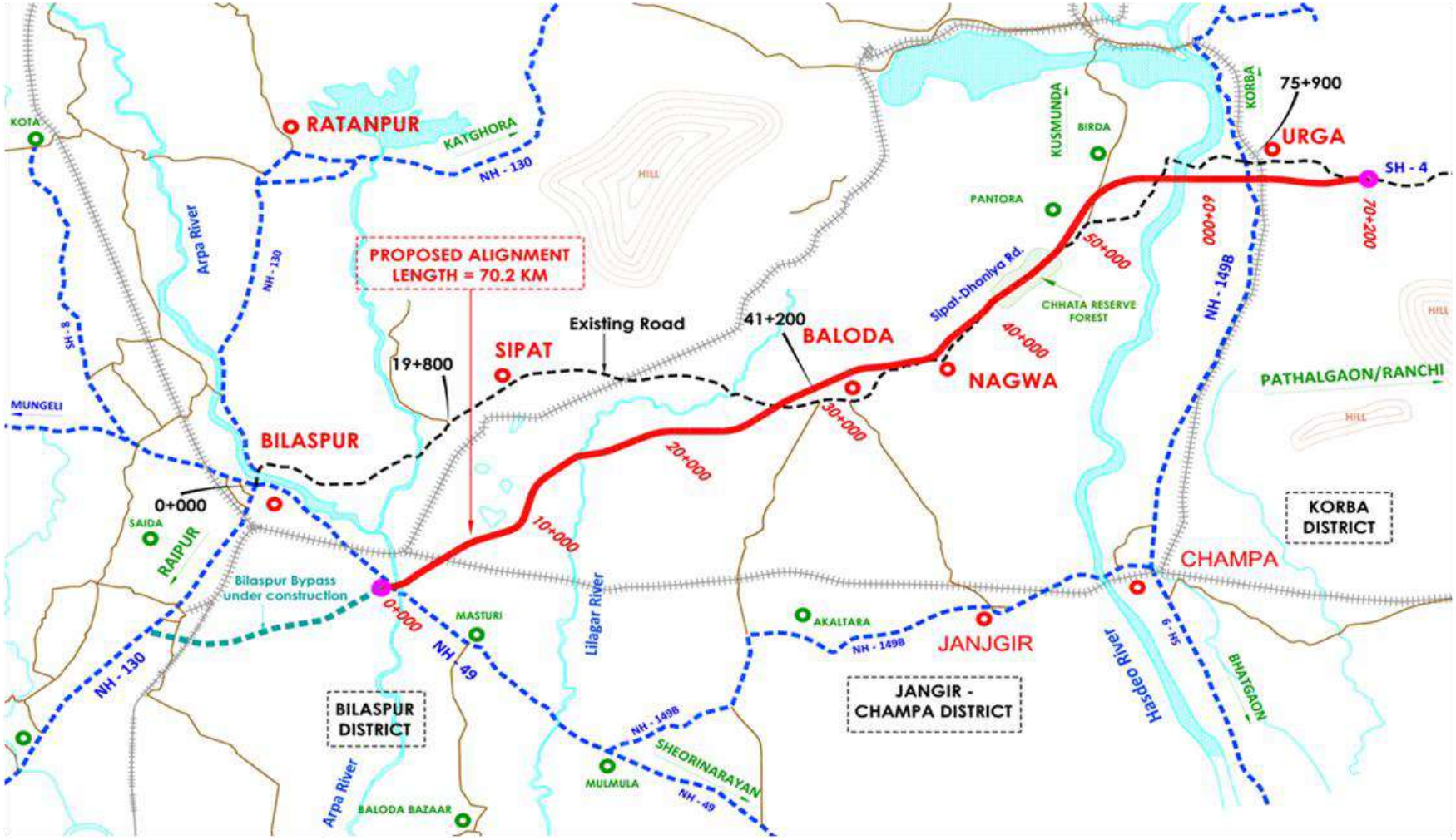


Figure 3- Key Plan of the Project

2.4 SIZE AND MAGNITUDE OF OPERATION

The total length of the proposed road is 70.2 km. The proposed RoW is 70 mtrs.

2.5 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION

The Project shall start its construction work after fulfilment of the following activities:

- Finalization and approval of Detailed Project Report
- Receipt of Environmental clearance from MoEF&CC and State Government
- Selection and on-boarding of Contractor for implementation works

Tentative schedule for approval and implementation:-

Table 2-1: Tentative Schedule for approval and implementation

Sl. No.	Approval	Expected Date of acquiring approval
1.	Terms of Reference	September, 2018
2.	Baseline Data Generation	March - May, 2018
3.	Public Hearing	July, 2019
4.	Submission of Final EIA report	September, 2019
5.	Environmental Clearance	December, 2019
6.	Consent to Establish	December, 2019
7.	Construction period	January, 2020 - December, 2021
8.	Consent to Operate	January, 2022
9.	Commencement of operation	March, 2022

The completion period of the construction is estimated to be about **24 months**.

The estimated civil cost of the project is about **INR 1181.92 Crores.**

2.6 TECHNOLOGY AND PROCESS DESCRIPTION

The planning of the proposed Highway comprises of estimation of current and future traffic volumes on the existing road networks. A team of Highway engineers predicted and analyzed all possible impacts of the existing highway systems in the proximity. Some considerations were posing adverse effects on the environment, such as noise pollution, air pollution, water pollution, and other ecological impacts.

The various process involved are as under

Geometric design-Highway geometric design primarily refers to all the visible elements of the highways. Highway engineers who design the geometry of highways considered all environmental and social effects of the design on the surrounding infrastructure. The other area of concerns involved in the process is safety, service, and performance standards when designing highways for certain site topography. Parameters such as Design speed, Design traffic volume, Number of lanes, Level of Service (LOS), Sight Distance, Alignment, super-elevation, and grades, Cross section, Lane width, Horizontal and vertical clearance etc. were also taken into considered.

Materials for construction- There are two major types of pavement surfaces - Portland cement concrete (PCC) and hot-mix asphalt (HMA). Underneath this wearing course are material layers that give structural support for the pavement system. These underlying surfaces may include either the aggregate base and sub-base layers, or treated base and sub-base layers, and additionally the underlying natural or treated sub-grade. These treated layers may be cement-treated, asphalt-treated, or lime-treated for additional support.

Pavement Design- Highway pavements are designed as all-weather, long-lasting structures to serve modern day high-speed traffic. Offering high quality riding surfaces for safe vehicular travel, they function as structural layers to distribute vehicular wheel loads in such a manner that the induced stresses transmitted to the subgrade soil are of acceptable magnitudes.

Designing Drainage System-Regardless of how well other aspects of a road are designed and constructed, adequate drainage is mandatory for a road to survive its entire service life. Excess water in the highway structure can inevitably lead to premature failure, even if the failure is not catastrophic. Determination of situations a particular design process should be applied, usually a combination of several appropriate methods and materials to direct water away from the structure.

2.7 PROJECT FEATURES

2.7.1 Salient Features

Table 2-2: Salient Features of the project

S. No.	Particular	Details
1.	Project Name	Development of Economic Corridor to improve the efficiency of freight movement in India under Bharatmala Pariyojana **Bilaspur Urga section of NH-130A (Raipur Dhanbad Economic Corridor)**
2.	Nature of Project	Economic Corridor
3.	Location of project stretch	Near Dheka Village, Bilaspur to existing SH4 near Urga.
4.	Geographical Coordinates	22° 1'23.45"N 82°12'46.50"E to 22°15'54.01"N 82°47'50.07"E
5.	Land details	Agricultural land with patches of settlements and Forest
6.	Water demand	1508891 KL
7.	Sources of water	Surface Water Source after obtaining necessary permission from appropriate authority
8.	Man power	900
9.	Power requirement	7000 kVA which shall be managed from State Electricity boards.
10.	Nearest railway station	Ghatora Railway Station, 2.3 km (approx.) in North direction from Ch. 3.5 Km. Jairamnagar Railway Station about 2.6 kms towards South from Ch. 8.8 Km. Urga Railway Station 0.3 km towards North from Ch. 63.9 Km.
11.	SH / NH Crossing / connecting	NH 49, NH 149 B and SH 4

S. No.	Particular	Details
12.	Nearest air-port	Bilaspur Airport, 10 km in South West Direction
13.	Seismic zone	Zone II (least active)

The project road is to be developed as fully access controlled highway with 4-lane configuration at present and extendable to 8-lane in future within the proposed RoW of 70m. Accordingly following typical cross sections (discussed in the next section) have been developed in accordance with the 4-lane manual and the office Memorandum no. NHAI/Planning/ EC/DPR/2016 dated 03.05.2018 issued by MORTH regarding design specifications for various categories of roads under Bharatmala Pariyojana.

2.7.1.1 Cross-Sectional Elements

Table 2-3: Cross-sectional Elements

Sl. No	Cross Section Type		Length (m)
1	TCS 1	4-lane without service road (in Embankment)	58280
2	TCS 1A	4-lane without service road (in Cutting)	360
3	TCS 2	4-lane with service road / slip road on both sides (in embankment)	4580
4	TCS 3	4-lane with service road on one side	6280
5		Toll Plaza	700
Total			**70200**

2.7.1.2 Access control measures

The project road cuts across Nationals Highways, State Highways and Major District Roads at a number of locations. In addition, there are many crossings of village roads. Since the project road in being developed as fully access controlled highway, access to project road has been provided at NH/SH crossings and any other road connecting to major built-up areas. At all other roads only crossings have been provided with suitable grade separated structures. The type and span grade separated structures have been decided based on the classification of cross road.

Rationalization of grade separated structures:

- Maintaining the existing mobility or better at cross roads, controlled access to Project Highway and minimum rise and fall along the Project Highway are the primary guiding factors while deciding the type of grade separation facility.
- At NH crossings, interchanges have been provided with Flyover / Overpass as per the terrain condition; At SH crossings Flyover/ Overpass has been provided with at-grade junction below the flyover; At all other 2-lane roads including MDR crossings 1x12x5.5m span vehicular underpass has been provided; For 1-lane village roads, if the cross road under consideration is the main connecting road to a village, 1x12x5.5m span vehicular underpass has been provided. If any other connecting road exists for the village, 1x12x4.0m span light vehicular underpass has been provided; at all cart track crossings, 1x7x4.0m span small vehicular underpass has been provided; If any road is not provided

with grade separation facility due to site condition, the same is connected through service road of same specification as that of existing cross road with the nearest grade separator.

- The details of proposed grade separated structures are given below:

Table 2-4: Proposed grade separated structures

Type of Structure		Total
Flyover	1x45x5.5	1
Flyover	1x15 + 4x30 + 1x15	1
Flyover	1x15 + 5x30	1
VUP	1x12x5.5	12
LVUP	1x12x4	2
SVUP	1x7x4	16
Total		**33**

2.7.1.3 Slip roads / Service Roads

- Slip roads have been provided to provide access to Project Highway at certain grade separated structures.
- The service roads were proposed under 2 scenarios: a) At built-up areas to facilitate the movement of local traffic. b) If any road is not provided with grade separation facility due to site condition, the same is connected through service road with the nearest grade separator.
- Total length of slip road/service road is 5.060km, 10.430km on LHS and RHS respectively. Details are given below:

Table 2-5: Details of Slip/Service Roads

	LHS				RHS			
Sl. No	**From**	**To**	**Length (m)**	**Width (m)**	**From**	**To**	**Length (m)**	**Width (m)**
Slip Road								
1	400	1280	880	7.00	400	1280	880	7.00
2	27820	29420	1600	7.00	27820	29420	1600	7.00
3	62350	63550	1200	7.00	62350	63550	1200	7.00
		Total	**3680**			**Total**	**3680**	
Service Road								
1	1800	2280	480	7.00	43150	49000	5850	7.00
2	69300	70200	900	7.00	69300	70200	900	7.00
		Total	**1380**			**Total**	**6750**	

2.7.1.4 Entry/Exit Ramps

Since the project road is being developed as fully access controlled highway, therefore, access to project road has been provided at NH/SH crossings and any other road connecting to major built-up areas. Entry/Exits have been provided at 3 locations, at Flyover with existing NH-49 (ch. 0+925), crossing of MDR road at ch. 28+714 and at flyover with existing NH-149B (ch. 62+950) Details are given below:

Table 2-6: Entry/Exit Locations

Sl. No.	Design Chainage	LHS	RHS	Remarks
1	0+400	Exit	Entry	At flyover 0+925 with NH-49,Bilaspur – Sarangarh road, Start of project highway
	1+290	Entry	Exit	
2	27+820	Exit	Entry	At Flyover 28+714 with Bilaspur-Baloda Road
	29+420	Entry	Exit	
3	62+350	Exit	Entry	At flyover 62+950 with existing NH-149B, Urga/Korba – Champa road
	63+550	Entry	Exit	

2.7.1.5 Proposed pavements

The design traffic for 20 year design period is given below:

Table 2-7: Design MSA

Sl. No.	Section	Design MSA
1	Main Road	125
2	Slip road	30
3	Service road	10

Following crust for flexible pavement and rigid pavement has been adopted:

Table 2-8: Proposed Pavement Crust

Pavement Crust layer	ML	Slip Road	Service Road
Flexible Pavement – Cement treated WMM - BC+DBM+WMM+CTWMM+GSB			
Granular Sub-base (GSB)	200	200	200
Cement Treated WMM (CTWMM)	190	190	145
Wet Mix Macadam (WMM)	100	100	100
Dense Bituminous Macadam (DBM)	50	50	50
Bituminous Concrete (BC)	50	50	30
Rigid pavement – PQC+DLC+GSB			
PQC	310	280	250
DLC	150	150	150
GSB	150	150	150

2.7.1.6 Bridges and Culverts

20 nos. of bridges are proposed along the project road consisting of 6 major bridges and 13 nos. minor bridges on main carriageway and 1 no. of minor bridge on NH-49 Bilaspur – Sarangarh road. Overall deck width of 12.5 m has been proposed as per 4-lane manual.

Table 2-9: Details of Major Bridges

Sl. No.	Design Chainage	Name of Nallah	Span (m)	Total Length (m)	Total Width of Structure (m)
1	1+540	Arpa River	10x30	300	2x16.0
2	7+080	Kurung Left Bank Canal	1x15 + 1x45 + 1x15	75	2x12.5
3	16+065	Lilaghar River	4x30	120	2x12.5
4	57+400	Hasdeo Right Bank Canal	LHS :1x23 + 1x76 + 2x30 RHS: 1x15+1x76+ 1x30+1x38	159	2x12.5
5	58+890	Hasdeo River	26x30	780	2x12.5
6	59+975	Hasdeo Left Bank Canal	1x76	76	2x12.5

Table 2-10: Details of Minor Bridges

Sl. No	Design Chainage	Name of Nallah	Span (m)	Total Width of Structure (m)
1	0+996	Nala	1x12	1x10.8
2	8+643	Nala	1x15	2x12.5
3	12+995	Nala	1x15	2x12.5
4	26+855	Nala	1x10	2x12.5
5	37+680	Nala	1x12	2x12.5
6	37+898	Nala	1x12	2x12.5
7	38+920	Nala	1x15	2x12.5
8	45+640	Nala	1x10	2x12.5 + 1x10.8
9	47+295	Nala	1x40	2x12.5 + 1x10.8
10	53+840	Nala	1x20	2x12.5
11	56+330	GangdelNala	1x40	2x12.5
12	63+556	TonhiNala	4x3x3	2x45.0
13	69+143.50	Canal	2x10	2x12.5
NH-49	0+994	Nala	1x24	2x12.5

Table 2-11: Summary of cross-drainage structures

Culverts	Total
1x2	28
1x3	65
1x4	3
1x5	29

Culverts	Total
1x6	9
Total	**134**
Minor Bridges	14
Major Bridges	6

2.7.1.7 RoB

The proposed alignment crosses railway line at 2 locations. ROB has been proposed at these locations. Details of proposed ROB are given below.

Table 2-12: Details of ROB

Sl.No	Design Chainage	Railway Section	Type of Structure	Span (m)	Total Length (m)	Width of Structure (m)
1	5+805.350	Bilaspur - Champa	ROB	1x14.17 + 1x76.08 + 1x24.2	114.45	2 x 12.5
2	63+847.5	Korba - Champa	ROB	1x15 + 1x75 + 1x70 + 1x15	175	2 x 16.0

2.7.1.8 Summary of proposed improvements

Salient features of the proposed road are given below.

Table 2-13: Summary of proposed improvements

S. No.	Description	Unit	Total
1	Length of Main Road	Km	70.20
2	Length of Slip Road	Km	7.360
3	Length of Service Road	Km	8.130
4	Lane Configuration		4-lane
5	Proposed Crust thickness		
	MSA		125
	BC	mm	50
	DBM	mm	50
	WMM	mm	100
	CTWMM	mm	190
	GSB	mm	200
6	No. of Entry/Exits	Nos.	3
7	Flyover (1x45)	Nos.	1
8	Flyover (1x15+4x30+1x15)	Nos.	1
9	Flyover (1x15+5x30)	Nos.	1
10	VUP (1x12x5.5)	Nos.	12
11	LVUP (1x12x4)	Nos.	2
12	SVUP (1x7x4)	Nos.	16
13	Total No. grade separated Structures	Nos.	33

S. No.	Description	Unit	Total
14	ROB	Nos.	2
15	Major bridges	Nos.	6
16	Minor bridges	Nos.	14
17	Box culverts	Nos.	134
18	Toll Plaza on Main road	Nos.	1
19	Toll Plaza on Entry/exit	Nos.	8
20	Bus bays	Nos.	14
21	Truck Lay Bye	Nos.	4
22	Rest Area	Nos.	4

3 DESCRIPTION OF THE ENVIRONMENT

3.1 STUDY AREA, PERIOD, COMPONENTS AND METHODOLOGY

3.1.1 The Objective

Chapter discuss about existing environment scenario in and around the project road. It identifies the environmental parameters that are consequent to the proposed development. The environmental parameter that has been covered include air quality, water quality, aquatic ecology, micrometeorology, noise levels, flora and fauna etc. in accordance with the guidelines of the Ministry of Environment and Forests, Government of India.

3.1.2 Study Area

The study was carried out in the vicinity (500-m on both sides) of the proposed alignment.

3.1.3 Study Period

Baseline data was collected during March-2018 to May-2018 (Pre-monsoon season).

3.1.4 Methodology

The Approach of consultant to undertake the baseline environment study includes sound scientific and management practices, to suit the project requirements to ensure efficiency & effectiveness. The methodology followed for assessment of baseline environment status includes following generic steps:

- Reconnaissance survey
- Secondary data collection from government, non-government & academic institutions.
- Primary data generation at various points representing study area for multi-disciplinary activities.
- Data compilation, collation & analysis.
- Data interpretation with respect to regulatory requirements.

3.1.5 Air Environment

Air quality is influenced by a number of factors, which includes natural (e.g. winds, thermal profile, humidity etc.) and anthropogenic or man-made (e.g. traffic, emissions etc.) factors. An assessment of the existing air quality status was carried out at eight (08) different locations in the vicinity of proposed development site.

The prime objective of the baseline air monitoring is to evaluate the existing air quality of the project area. This will also be useful for assessing the conformity to standards of the ambient air quality during the operation of the improvement project. This section describes the selection of sampling locations, methodology adopted for sampling, analytical techniques and frequency of sampling.

3.1.6 Selection of Sampling Locations for AAQ

The baseline status of the ambient air quality has been assessed through a scientifically designed ambient air quality monitoring network. The design of monitoring network in the air quality surveillance programme has been based on the following considerations:

- Topography / Terrain of the study area
- Human Settlements
- Health status
- Accessibility of monitoring site
- Resource Availability
- Representativeness of the region for establishing baseline status
- Representativeness with respect to likely impact areas

Eight numbers of Ambient Air Quality (AAQ) monitoring stations, as per the detail given below, were set up in the vicinity of the proposed project road.

Table 3-1: Description of AAQ monitoring stations in the project area

Location Code	Village	Coordinates
BUA1	Darrighat	22° 1'43.77"N 82°13'58.84"E
BUA2	Bhelai	22° 3'16.96"N 82°17'1.78"E
BUA3	Tendua	22° 6'6.21"N 82°19'58.07"E
BUA4	Charpara	22° 7'52.93"N 82°27'8.23"E
BUA5	Khisora	22°10'49.36"N 82°33'55.54"E
BUA6	Pantora	22°14'23.57"N 82°37'29.89"E
BUA7	Urga	22°15'59.46"N 82°43'36.68"E
BUA8	Bhaisama	22°15'46.99"N 82°46'33.08"E

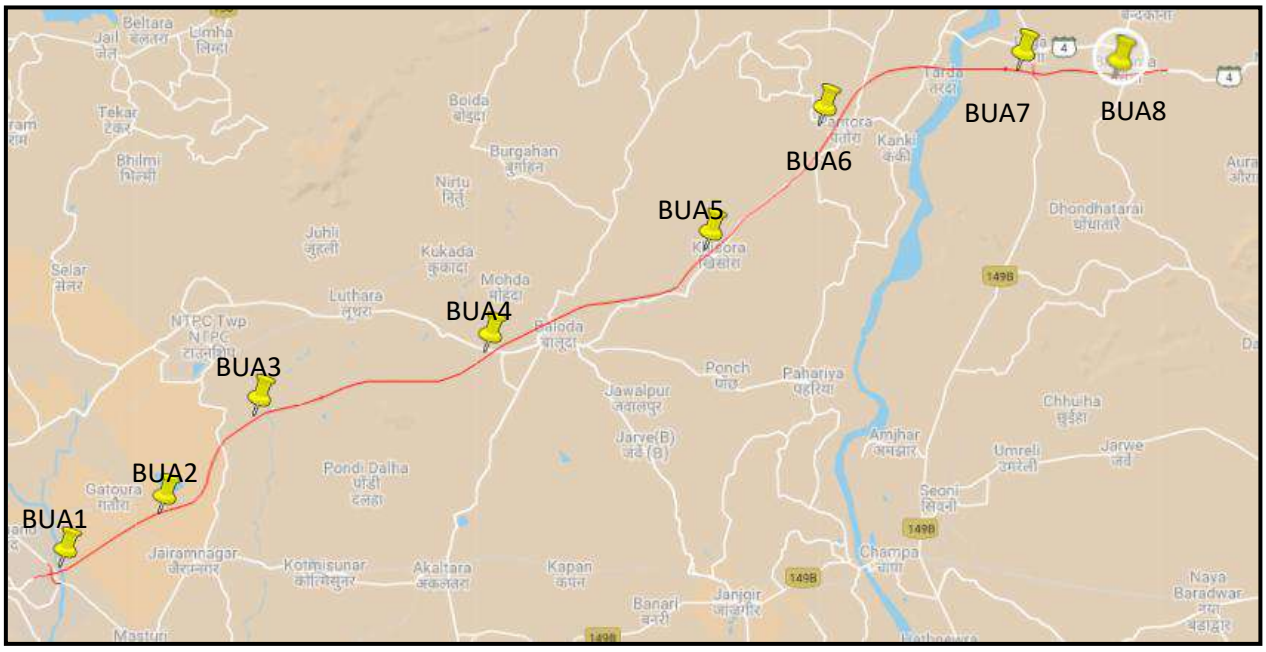


Figure 4- AAQ monitoring stations in the project area

Monitoring was carried out twice in a week for 12 weeks duration in the post monsoon season i.e. March 2018 to May 2018 as per methodology stated below:

3.1.7 AAQ monitoring Methodology

AAQ monitoring and analysis was carried out as per the guidelines of following protocols:

- CPCB (2011); Guidelines for the measurement of Ambient Air Pollutants; Volume-I & II
- Indian Standard Specification IS 5182 (Relevant Parts)
- US-EPA methods of Ambient Air Quality Monitoring
- Frequency and Parameters for Sampling

Ambient air quality monitoring was carried out at a frequency of two days per week at each location for three months. The baseline data of air environment was generated for the parameters namely Particulate Matter size less than 10 µm (PM10), Particulate Matter size less than 2.5 µm (PM2.5), Sulphur dioxide (SO2), Nitrogen dioxide (NO2) and Carbon Monoxide (CO).

3.1.8 Instrument used for Sampling

Respirable Dust Samplers APM 460 BL of Envirotech, Fine Particulate Samplers APM 550 of Envirotech & Respirable Dust Samplers with PM 2.5 attachment APM 860 of Envirotech were used for monitoring the Particulate matter PM10 & PM2.5. The Gaseous pollutant samplers APM 411 along with APM 460 Envirotech were used for sampling of gaseous parameters like SO2 and NO2. The instruments used for monitoring are periodically calibrated every year or after in case of any repair.

Presentation of Results

The summary of Air Quality Monitoring results are presented in below Tables. The results are compared with the standards prescribed by Central Pollution Control Board (CPCB) for "Rural, Residential and other areas".

Table 3-2: Presentation of Results

Location	Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)
BUA1	02.03.2018	65.6	27.8	8.4	24.3	< 1.14
	06.03.2018	67.7	32.2	9.3	19.5	< 1.14
	09.03.2018	61.4	34.7	13.5	14.5	< 1.14
	13.03.2018	71.2	41.8	14.3	19.9	< 1.14
	16.03.2018	70.4	27.8	7.8	18.9	< 1.14
	20.03.2018	61.8	32.7	8.3	19. 9	< 1.14
	23.03.2018	71.8	31.4	9.4	23.5	< 1.14
	27.03.2018	72.6	28.6	10.4	27.4	< 1.14
	30.03.2018	68.8	26.9	11.2	18.8	< 1.14
	03.04.2018	64.9	28.6	13.9	30.8	< 1.14
	06.04.2018	59.8	32.6	13.4	31.6	< 1.14
	10.04.2018	63.4	33.9	15.9	25.8	< 1.14

Location	Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)
	13.04.2018	58.5	35.8	13.3	24.7	< 1.14
	17.04.2018	65.8	40.5	12.5	26.8	< 1.14
	20.04.2018	74.9	38.6	11.0	30.6	< 1.14
	24.04.2018	78.1	39.6	9.7	27.9	< 1.14
	27.04.2018	65.9	36.6	7.8	26.8	< 1.14
	01.05.2018	71.6	32.4	8.3	27.4	< 1.14
	04.05.201	70.7	42.4	10.4	19.6	< 1.14
	08.05.2018	68.8	36.7	11.5	16.7	< 1.14
	11.05.2018	68.3	35.6	14.4	21.5	< 1.14
	15.05.2018	65.8	37.8	13.6	23.8	< 1.14
	18.05.2018	66.9	35.6	14.5	31.0	< 1.14
	22.05.2018	72.9	32.5	14.09	29.7	< 1.14
	25.05.2018	74.2	33.7	12.8	25.7	< 1.14
	29.05.2018	65.6	38.9	10.0	28.4	< 1.14
	Minimum	**58.5**	**26.9**	**7.8**	**14.5**	**< 1.14**
	Maximum	**78.1**	**42.4**	**15.9**	**31.6**	**< 1.14**
	Average	**68.0**	**34.5**	**11.5**	**24.6**	**< 1.14**
BUA2	02.03.2018	64.5	31.5	13.4	23.6	<1.14
	06.03.2018	62.5	32.5	12.6	31.6	<1.14
	09.03.2018	64.5	40.5	15.6	34.6	<1.14
	13.03.2018	55.7	34.5	13.6	26.7	<1.14
	16.03.2018	65.7	27.8	10.5	24.6	<1.14
	20.03.2018	65.6	29.0	12.5	19.5	<1.14
	23.03.2018	71.6	31.7	7.9	16.0	<1.14
	27.03.2018	76.8	34.6	7.2	18.6	<1.14
	30.03.2018	76.7	34.0	9.5	26.7	<1.14
	03.04.2018	67.5	27.8	12.7	31.8	<1.14
	06.04.2018	65.7	32.8	17.8	37.7	<1.14
	10.04.2018	74.8	43.7	16.8	31.8	<1.14
	13.04.2018	67.8	46.2	14.1	19.6	<1.14
	17.04.2018	68.9	28.8	12.0	23.,6	<1.14
	20.04.2018	65.5	32.7	12.8	35.6	<1.14
	24.04.2018	67.8	36.8	11.5	28.7	<1.14
	27.04.2018	71.5	31.9	10.6	31.6	<1.14
	01.05.2018	56.8	41.4	15.7	26.8	<1.14
	04.05.201	54.8	37.7	14.6	19.6	<1.14
	08.05.2018	54.8	27.8	9.6	24.7	<1.14
	11.05.2018	65.8	23.4	8.5	35.7	<1.14
	15.05.2018	64.3	25.7	13.5	18.7	<1.14

Location	Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)
	18.05.2018	59.7	32.4	12.5	24.8	<1.14
	22.05.2018	69.8	34.6	12.9	24.8	<1.14
	25.05.2018	71.6	41.5	15.9	31.7	<1.14
	29.05.2018	73.6	42.5	14.6	19.6	<1.14
	Minimum	54.8	23.4	7.2	16	<1.14
	Maximum	76.8	46.2	17.8	37.7	<1.14
	Average	66.3	34.0	12.6	26.6	<1.14
BUA3	02.03.2018	67.8	34.4	9.6	31.6	<1.14
	06.03.2018	65.7	35.7	10.6	23.8	<1.14
	09.03.2018	59.7	35.6	11.4	17.6	<1.14
	13.03.2018	74.6	42.8	14.6	23.5	<1.14
	16.03.2018	78.5	29.8	17.7	34.4	<1.14
	20.03.2018	71.5	32.6	9.5	23.8	<1.14
	23.03.2018	65.6	34.6	8.7	26.8	<1.14
	27.03.2018	67.4	38.8	8.8	29.6	<1.14
	30.03.2018	61.0	27.8	9.6	19.8	<1.14
	03.04.2018	65.9	34.6	12.5	18.9	<1.14
	06.04.2018	58.8	36.8	13.7	30.0	<1.14
	10.04.2018	64.4	36.7	17.7	25.7	<1.14
	13.04.2018	68.4	31.0	14.7	32.6	<1.14
	17.04.2018	71.5	27.6	16.7	35.7	<1.14
	20.04.2018	78.7	35.7	16.8	34.6	<1.14
	24.04.2018	74.5	26.7	17.9	23.9	<1.14
	27.04.2018	79.5	29.9	16.0	26.8	<1.14
	01.05.2018	67.7	35.7	17.7	23.6	<1.14
	04.05.2018	61.5	34.6	9.8	32.7	<1.14
	08.05.2018	68.6	39.8	8.6	26.8	<1.14
	11.05.2018	63.7	32.5	15.7	27.9	<1.14
	15.05.2018	67.8	35.5	14.5	32.8	<1.14
	18.05.2018	69.4	37.0	16.4	34.7	<1.14
	22.05.2018	65.4	36.7	10.9	35.7	<1.14
	25.05.2018	63.0	37.7	13.7	24.5	<1.14
	29.05.2018	64.4	32.6	16.8	21.1	<1.14
	Minimum	**58.8**	**26.7**	**8.6**	**17.6**	**<1.14**
	Maximum	**79.5**	**42.8**	**17.9**	**35.7**	**<1.14**
	Average	**67.9**	**34.3**	**13.5**	**27.7**	**<1.14**
BUA4	02.03.2018	63.3	32.5	12.3	23.4	<1.14
	06.03.2018	65.5	34.7	9.0	32.6	<1.14
	09.03.2018	67.7	34.7	9.6	25.8	<1.14

Location	Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)
	13.03.2018	59.1	41.4	12.6	28.8	<1.14
	16.03.2018	65.6	32.5	13.6	29.7	<1.14
	20.03.2018	68.9	31.5	14.7	23.7	<1.14
	23.03.2018	72.6	32.9	16.6	19.6	<1.14
	27.03.2018	71.6	35.7	13.8	19.7	<1.14
	30.03.2018	67.9	39.3	15.8	23.6	<1.14
	03.04.2018	68.8	42.5	15.8	26.8	<1.14
	06.04.2018	68.1	43.8	12.6	29.8	<1.14
	10.04.2018	63.2	45.8	12.8	23.2	<1.14
	13.04.2018	57.4	35.8	13.7	31.4	<1.14
	17.04.2018	71.4	38.6	16.8	32.5	<1.14
	20.04.2018	67.8	42.6	16.9	27.9	<1.14
	24.04.2018	72.5	44.0	19.6	24.7	<1.14
	27.04.2018	76.8	35.7	20.4	27.9	<1.14
	01.05.2018	78.6	37.8	16.7	29.0	<1.14
	04.05.201	67.5	38.4	17.7	32.9	<1.14
	08.05.2018	65.4	32.8	15.8	31.9	<1.14
	11.05.2018	68.9	43.6	13.5	26.9	<1.14
	15.05.2018	76.5	45.4	12.6	27.9	<1.14
	18.05.2018	73.5	46.7	14.9	26.0	<1.14
	22.05.2018	64.4	35.7	18.7	27.9	<1.14
	25.05.2018	56.8	31.7	12.9	29.0	<1.14
	29.05.2018	58.9	34.6	14.7	26.9	<1.14
	Minimum	**56.8**	**31.5**	**9**	**19.6**	**<1.14**
	Maximum	**78.6**	**46.7**	**20.4**	**32.9**	**<1.14**
	Average	**67.6**	**38.1**	**14.8**	**27.3**	**<1.14**
BUA5	02.03.2018	71.4	32.4	12.3	23.5	<1.14
	06.03.2018	65.7	35.6	13.4	34.7	<1.14
	09.03.2018	65.9	45.8	15.8	43.7	<1.14
	13.03.2018	71.6	34.8	18.5	23.5	<1.14
	16.03.2018	67.9	41.7	15.8	26.8	<1.14
	20.03.2018	67.3	32.7	19.7	34.7	<1.14
	23.03.2018	.78.8	38.9	17.4	26.9	<1.14
	27.03.2018	74.3	39.5	16.8	32.5	<1.14
	30.03.2018	65.6	42.6	12.5	34.5	<1.14
	03.04.2018	72.5	29.8	12.0	23.6	<1.14
	06.04.2018	76.7	32.5	13.6	26.8	<1.14
	10.04.2018	67.7	28.7	12.7	35.7	<1.14
	13.04.2018	65.9	33.0	13.7	34.9	<1.14

Location	Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)
	17.04.2018	64.4	34.7	15.7	29.8	<1.14
	20.04.2018	70.4	37.8	16.9	31.7	<1.14
	24.04.2018	67.9	42.8	12.7	34.5	<1.14
	27.04.2018	65.8	41.9	11.8	29.7	<1.14
	01.05.2018	65.0	36.8	1`2.8	41.5	<1.14
	04.05.2018	65.7	42.0	10.8	34.7	<1.14
	08.05.2018	74.6	36.7	13.9	36.7	<1.14
	11.05.2018	80.9	38.7	17.8	32.6	<1.14
	15.05.2018	81.8	29.6	17.0	24.6	<1.14
	18.05.2018	68.9	34.6	`18.9	34.7	<1.14
	22.05.2018	68.8	36.8	14.6	41.8	<1.14
	25.05.2018	73.6	37.9	21.5	32.8	<1.14
	29.05.2018	76.6	40.6	16.0	34.7	<1.14
	Minimum	**64.4**	**28.7**	**10.8**	**23.5**	**<1.14**
	Maximum	**81.8**	**45.8**	**21.5**	**43.7**	**<1.14**
	Average	**70.3**	**36.9**	**15.1**	**32.4**	**<1.14**
BUA6	02.03.2018	67.2	32.3	11.3	23.2	<1.14
	06.03.2018	65.6	35.6	18.6	24.5	<1.14
	09.03.2018	56.7	41.7	16.8	26.7	<1.14
	13.03.2018	71.5	45.6	12.7	28.5	<1.14
	16.03.2018	64.7	34.6	14.8	23.1	<1.14
	20.03.2018	61.9	37.8	`16.9	21.6	<1.14
	23.03.2018	62.0	41.7	17.9	23.8	<1.14
	27.03.2018	63.9	34.6	14.9	28.9	<1.14
	30.03.2018	73.3	36.7	12.0	29.0	<1.14
	03.04.2018	71.6	38.1	13.8	24.7	<1.14
	06.04.2018	64.7	37.9	14.7	23.7	<1.14
	10.04.2018	67.9	42.7	15.9	27.6	<1.14
	13.04.2018	63.8	45.8	18.4	26.8	<1.14
	17.04.2018	61.0	35.6	17.2	29.6	<1.14
	20.04.2018	65.8	32,.7	16.3	23.4	<1.14
	24.04.2018	67.9	36.8	18.3	25.7	<1.14
	27.04.2018	71.8	36.8	19.4	27.6	<1.14
	01.05.2018	67.9	41.4	11.4	23.7	<1.14
	04.05.2018	64.6	32.5	15.6	29.8	<1.14
	08.05.2018	72.8	37.6	17.7	23.5	<1.14
	11.05.2018	68.5	34.6	14.6	31.7	<1.14
	15.05.2018	63.7	38.0	12.5	27.7	<1.14
	18.05.2018	63.6	31.6	14.5	31.4	<1.14

Location	Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)
	22.05.2018	67.4	42.6	18.5	24.7	<1.14
	25.05.2018	65.8	37.7	14.4	26.8	<1.14
	29.05.2018	71.8	40.6	16.7	28.5	<1.14
	Minimum	**56.7**	**31.6**	**11.3**	**21.6**	**<1.14**
	Maximum	**73.3**	**45.8**	**19.4**	**31.7**	**<1.14**
	Average	**66.4**	**38.0**	**15.6**	**26.4**	**<1.14**
BUA7	02.03.2018	69.6	31.4	11.2	35.5	<1.14
	06.03.2018	65.6	34.5	12.4	32.4	<1.14
	09.03.2018	71.6	45.5	14.5	34.9	<1.14
	13.03.2018	73.5	43.4	16.7	36.8	<1.14
	16.03.2018	65.7	42.3	13.6	34.5	<1.14
	20.03.2018	67.3	35.6	12.8	27.8	<1.14
	23.03.2018	69.6	37.7	16.8	29.7	<1.14
	27.03.2018	71.4	41.5	17.9	34.6	<1.14
	30.03.2018	72.5	42.7	19.7	34.6	<1.14
	03.04.2018	67.3	36.8	15.8	24.7	<1.14
	06.04.2018	68.4	38.8	14.7	26.9	<1.14
	10.04.2018	64.4	39.6	16.8	25.8	<1.14
	13.04.2018	67.4	34.8	18.7	29.8	<1.14
	17.04.2018	65.4	34.8	14.8	34.8	<1.14
	20.04.2018	67.5	39.6	14.7	31.5	<1.14
	24.04.2018	67.0	32.7	15.0	34.9	<1.14
	27.04.2018	68.5	42.5	18.8	34.6	<1.14
	01.05.2018	61.5	43.7	13.9	32.1	<1.14
	04.05.2018	63.6	41.6	19.8	34.1	<1.14
	08.05.2018	62.5	34.7	12.7	36.1	<1.14
	11.05.2018	71.5	36.7	17.7	26.8	<1.14
	15.05.2018	64.2	38.8	15.8	24.9	<1.14
	18.05.2018	65.5	39.0	15.8	32.3	<1.14
	22.05.2018	67.4	41.5	12.8	34.5	<1.14
	25.05.2018	63.4	35.7	19.8	32.5	<1.14
	29.05.2018	64.3	37.7	13.8	36.7	<1.14
	Minimum	**61.5**	**31.4**	**11.2**	**24.7**	**<1.14**
	Maximum	**73.5**	**45.5**	**19.8**	**36.8**	**<1.14**
	Average	**67.2**	**38.6**	**15.7**	**32.1**	**<1.14**
BUA8	02.03.2018	65.5	41.5	15.7	32.8	<1.14
	06.03.2018	69.8	42.7	14.6	34.7	<1.14
	09.03.2018	57.7	36.8	9.6	35.7	<1.14
	13.03.2018	73.6	38.8	8.5	24.5	<1.14

Location	Date of Sampling	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	CO (mg/m^3)
	16.03.2018	67.7	39.6	13.5	21.1	<1.14
	20.03.2018	64.7	34.8	12.5	23.5	<1.14
	23.03.2018	62.6	34.8	12.9	34.7	<1.14
	27.03.2018	68.0	39.6	15.9	43.6	<1.14
	30.03.2018	64.4	32.7	9.6	23.5	<1.14
	03.04.2018	67.4	32.9	11.3	26.8	<1.14
	06.04.2018	65.4	35.7	14.5	31.3	<1.14
	10.04.2018	67.5	39.3	13.7	28.8	<1.14
	13.04.2018	67.0	42.5	12.5	27.0	<1.14
	17.04.2018	68.5	43.8	12.0	31.7	<1.14
	20.04.2018	61.5	45.8	13.6	27.7	<1.14
	24.04.2018	63.6	35.8	12.7	31.4	<1.14
	27.04.2018	70.4	38.6	13.7	24.7	<1.14
	01.05.2018	67.9	42.6	15.7	26.8	<1.14
	04.05.2018	65.8	44.0	16.9	28.6	<1.14
	08.05.2018	65.0	35.7	12.7	32.5	<1.14
	11.05.2018	65.7	37.8	11.8	37.5	<1.14
	15.05.2018	74.6	38.4	1`2.8	35.3	<1.14
	18.05.2018	65.5	42.2	10.8	32.4	<1.14
	22.05.2018	62.0	37.7	9.5	36.6	<1.14
	25.05.2018	58.7	40.0	13.5	37.7	<1.14
	29.05.2018	56.9	37.8	12.7	31.8	<1.14
	Minimum	**56.9**	**32.7**	**8.5**	**21.1**	**<1.14**
	Maximum	**74.6**	**45.8**	**16.9**	**43.6**	**<1.14**
	Average	**65.7**	**38.9**	**12.8**	**30.9**	**<1.14**

3.1.9 Data Interpretation

Interpretation of analytical data was carried out using the guidelines of National Ambient Air Quality Standards (NAAQS), Central Pollution Control Board, notification dt. 16th Nov, 2009.

3.1.9.1 Particulate Matter (<10 µm) / PM_{10}

PM_{10} in ambient air refers to the particulate matter less than 10 µm. As per the regulatory requirements (NAAQS), 24 hourly average value of PM_{10} in Industrial, Residential, Rural & Other areas should not exceed 100 $\mu g/m^3$. The value of PM_{10} varied from 54.8 $\mu g/m^3$ to 81.8 $\mu g/m^3$ which is well below the prescribed limit.

Statistical analysis of PM_{10} data is illustrated in following figure:

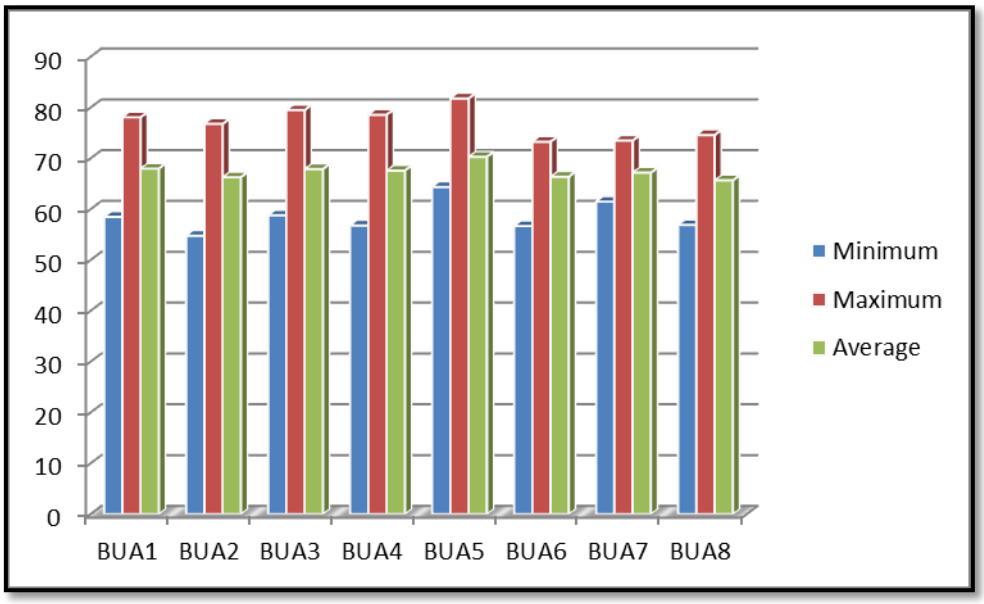


Figure 5- Statistical Analyses of PM_{10} Monitoring Data in Ambient Air

3.1.9.2 Particulate Matter (<2.5 µm)/ $PM_{2.5}$

$PM_{2.5}$ in ambient air refers to the particulate matter less than 2.5 µm. As per NAAQS, 24 hourly average value of $PM_{2.5}$ in Industrial, Residential, Rural & Other areas should not exceed 60 µg/m^3.

The value of $PM_{2.5}$ varied from 23.4 µg/m^3 to 46.7 µg/m^3 which is well below the prescribed limit.

Monitoring data suggests that, levels of PM2.5 in ambient air at all the monitoring stations in the vicinity of project site are found in varying range as described figure:

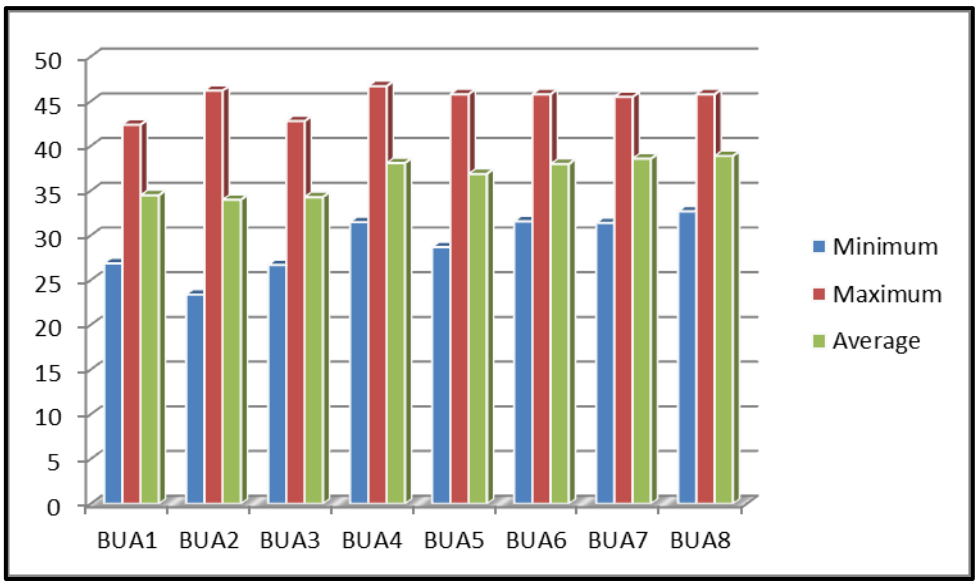


Figure 6- Statistical Analyses of $PM_{2.5}$ Monitoring Data in Ambient Air

3.1.9.3 Sulfur dioxide (SO_2)

Dissolved gas in atmosphere like $SO_2$is associated with intense industrial & human activities. As per NAAQS, 24-hourly averaging value of Sulfur Dioxide as SO_2 should not exceed 80 µg/m^3 for Industrial, Residential, Rural & Other areas.

The value of SO_2 varied from 7.2 µg/m^3 to 21.5 µg/m^3 which is well below the prescribed limit.

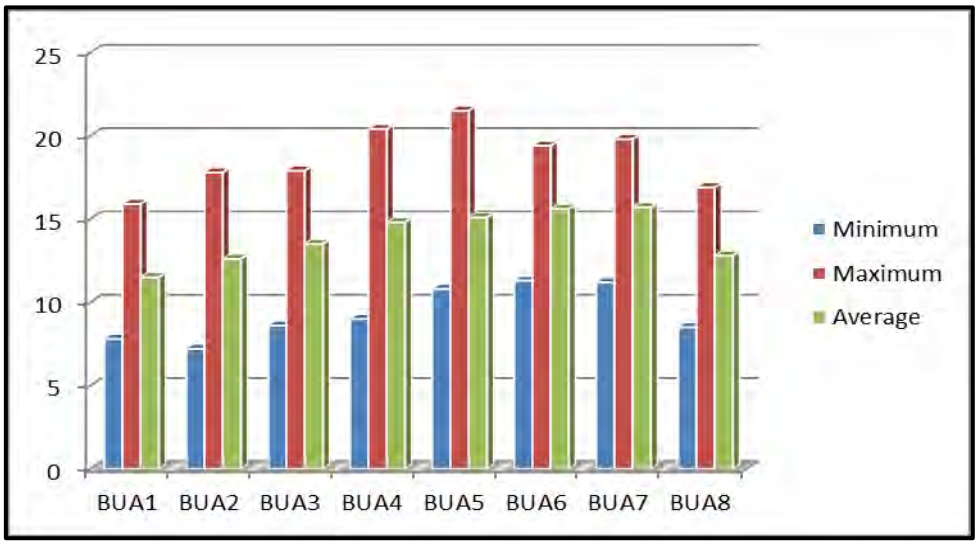


Figure 7- Statistical Analyses of SO_2 Monitoring Data in Ambient Air

3.1.9.4 Oxides of Nitrogen (NO_x)

Dissolved gas in atmosphere like NO_x is associated with intense industrial & human activities. As per NAAQS, 24-hourly averaging value of Oxides of Nitrogen as NO_2 should not exceed 80 µg/m^3 for Industrial, Residential, Rural & Other areas. The value of NO_x found varying from 14.5 µg/m^3 to 43.7 µg/m^3 which is well below the prescribed limit.

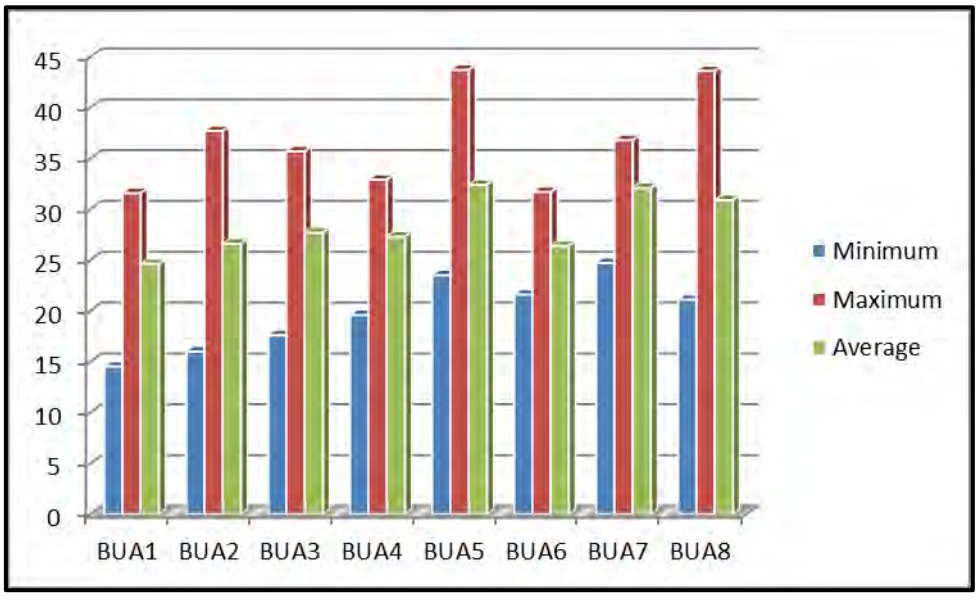


Figure 8- Statistical Analyses of NOx Monitoring Data in Ambient Air

3.2 Micro meteorology

Micro-meteorological properties of the atmosphere govern the dispersion of pollutant in the atmosphere. The climate of area around the proposed alignment is tropical. It is hot and humid because of its proximity to the Tropic of Cancer and its dependence on the monsoons for rains. Summer temperatures can reach 45°C. The monsoon season is from late June to October and is a welcome respite from the heat. Chhattisgarh receives an average of 1,292 millimetres of rain. Winter is from November to January. Winters are pleasant with low temperatures and less humidity.

Summary of micro-meteorological data as collected from the site is presented in Tables below.

Table 3-3: Micro-Meteorological Data Recorded at Bilaspur (March, 2018)

Meteorological Data For March At 12:00 Afternoon Daily					Total Rain Fall Per Day (mm)
Date	Temperature (^{0}C)	RH %	Wind Direction	Wind Speed Km/h	
01.03.2018	37	18	SSW	5	0
02.03.2018	38	16	WSW	10	0
03.03.2018	37	13	WNW	8	0
04.03.2018	38	12	SSE	7	0
05.03.2018	37	14	SW	14	0
06.03.2018	36	17	SSW	8	0
07.03.2018	36	15	S	6	0
08.03.2018	38	11	S	6	0
09.03.2018	37	17	SE	6	0.6
10.03.2018	39	11	S	5	0
11.03.2018	37	12	SW	10	0
12.03.2018	39	14	W	13	0
13.03.2018	39	14	WSW	14	0
14.03.2018	41	10	SSE	8	0
154.03.2018	38	13	WNW	10	1.8
16.03.2018	31	38	SW	20	4.1
17.03.2018	35	25	WSW	12	0
18.03.2018	38	15	ESE	4	0
19.03.2018	41	9	SE	5	0
20.03.2018	40	10	ESE	7	0
21.03.2018	38	16	ESE	8	2.4
22.03.2018	39	15	W	12	0
23.03.2018	39	8	WSW	14	0
24.03.2018	39	10	ESE	6	0
25.03.2018	39	11	SE	10	0
26.03.2018	40	7	NNW	10	0
27.03.2018	41	6	NW	7	0

Meteorological Data For March At 12:00 Afternoon Daily					Total Rain Fall Per Day (mm)
Date	Temperature (^{0}C)	RH %	Wind Direction	Wind Speed Km/h	
28.03.2018	41	7	S	10	0
29.03.2018	41	7	S	8	0
30.03.2018	42	4	WSW	13	0
31.03.2018	42	6	SW	13	0
Minimum	**31.0**	**4.0**	**…..**	**4.0**	**…..**
Maximum	**42.0**	**38.0**	**…..**	**20.0**	**…..**
Average	**38.5**	**12.9**	**…..**	**9.3**	**……**
Total Rain Fall (mm)					**8.9**

Table 3-4: Micro-Meteorological Data Recorded at Bilaspur (April, 2018)

Meteorological Data For April At 12:00 Afternoon Daily					Total Rain Fall Per Day (mm)
Date	Temperature (^{0}C)	RH %	Wind Direction	Wind Speed Km/h	
01.04.2018	36	17	W	22	3.8
02.04.2018	40	20	SW	4	0.0
03.04.2018	41	18	SSW	7	0.0
04.04.2018	41	16	W	6	0.4
05.04.2018	41	14	WSW	15	0.0
06.04.2018	40	18	SW	12	0.0
07.04.2018	41	14	W	15	1.3
08.04.2018	39	25	SW	13	0.1
09.04.2018	37	18	W	12	0.0
10.04.2018	38	18	WNW	12	0.0
11.04.2018	38	18	W	13	0.7
12.04.2018	38	18	W	12	0.0
13.04.2018	39	20	WSW	16	0.2
14.04.2018	38	22	W	14	5.9
15.04.2018	37	23	WSW	13	3.8
16.04.2018	41	19	W	13	0.0
17.04.2018	43	14	WSW	14	0.0
18.04.2018	43	9	NW	14	0.0
19.04.2018	44	9	SW	5	0.0
20.04.2018	44	10	SW	18	0.0
21.04.2018	43	9	WNW	10	0.0
22.04.2018	42	10	WNW	12	0.0
23.04.2018	43	7	SE	8	0.0
24.04.2018	42	7	S	9	0.0
25.04.2018	43	6	WSW	12	0.0
26.04.2018	43	4	WSW	13	0.0

Meteorological Data For April At 12:00 Afternoon Daily					Total Rain Fall Per Day (mm)
Date	Temperature (^{0}C)	RH %	Wind Direction	Wind Speed Km/h	
27.04.2018	43	12	WSW	14	0.0
28.04.2018	43	12	WSW	15	0.0
29.04.2018	42	15	W	18	0.0
30.04.2018	43	19	W	11	0.0
Minimum	**36.0**	**4.0**	**…..**	**4.0**	**…..**
Maximum	**44.0**	**25.0**	**…..**	**22.0**	**…..**
Average	**40.9**	**14.7**	**…..**	**12.4**	**……**
Total Rain Fall (mm)					**16.2**

Table 3-5: Micro-Meteorological Data Recorded at Bilaspur (May, 2018)

Meteorological Data For April At 12:00 Afternoon Daily					Total Rain Fall Per Day (mm)
Date	Temperature (^{0}C)	RH %	Wind Direction	Wind Speed Km/h	
01.05.2018	42	21	WSW	11	0.5
02.05.2018	42	18	W	14	1
03.05.2018	42	21	WSW	13	0
04.05.2018	40	24	WSW	16	0
05.05.2018	43	12	W	17	0
06.05.2018	43	13	W	17	0
07.05.2018	44	10	WNW	9	0
08.05.2018	45	9	WNW	16	0
09.05.2018	44	9	WSW	7	0
10.05.2018	45	16	W	13	0
11.05.2018	45	13	WSW	10	0
12.05.2018	42	14	W	18	0
13.05.2018	43	19	WSW	19	1.6
14.05.2018	42	17	SSW	13	1.2
15.05.2018	42	21	WSW	19	0
16.05.2018	42	14	WSW	14	0
17.05.2018	45	10	NW	11	0.6
18.05.2018	40	27	W	17	8.7
19.05.2018	47	18	WSW	9	0
20.05.2018	46	18	SW	14	0
21.05.2018	43	23	SW	11	0
22.05.2018	46	16	WNW	10	0
23.05.2018	43	16	W	15	0
24.05.2018	44	19	WSW	15	8.1
25.05.2018	45	16	SW	16	0.1
26.05.2018	42	21	W	13	6.1
27.05.2018	42	22	WSW	12	0.1

Meteorological Data For April At 12:00 Afternoon Daily					Total Rain Fall Per Day (mm)
Date	Temperature (^{0}C)	RH %	Wind Direction	Wind Speed Km/h	
28.05.2018	45	16	WSW	18	0
29.05.2018	47	11	WSW	13	0
30.05.2018	49	16	WSW	6	0
31.05.2018	44	20	WSW	14	0.2
Minimum	**40**	**9**	**…..**	**6**	**…..**
Maximum	**49**	**27**	**…..**	**19**	**…..**
Average	**43.7**	**16.8**	**…..**	**13.5**	**……**
Total Rain Fall (mm)					**28.2**

Project region generally experiences hot and dry climatic conditions. The region receives the rain under the influence of southeast monsoons.

3.3 Ambient Noise

Noise pollution is most often and most simply defined as unwanted sound, which interferes with speech communication, cause annoyance, distracts from work, disturbs sleep and thus adversely affects the quality of human environment.

The Noise level criteria given in the Central Pollution Control Board Standard prescribe the Maximum Noise Level for Residential, Commercial and Industrial & Silence Zones as under:

Table 3-6: Noise Level Criteria

Zones	Maximum Noise Level (dBA)	
	Day time	Night time
Residential Area	55	45
Commercial Area	65	55
Industrial Area	75	70
Silence Zone	50	40

In order to assess the existing noise level, noise monitoring was undertaken at eight (8) strategic locations in the study area. Details of the monitoring locations are given in Table below.

Table 3-7: Monitoring locations for Ambient Noise Level

Location Code	Village	Coordinates
BUN1	Darrighat	22°01'43.77"N 82°13'58.84"E
BUN2	Bhelai	22°03'16.96"N 82°17'01.78"E
BUN3	Tendua	22°06'06.21"N 82°19'58.07"E
BUN4	Charpara	22°07'52.93"N 82°27'08.23"E
BUN5	Khisora	22°10'49.36"N 82°33'55.54"E
BUN6	Pantora	22°14'23.57"N 82°37'29.89"E
BUN7	Urga	22°15'59.46"N 82°43'36.68"E
BUN8	Bhaisama	22°15'46.99"N 82°46'33.08"E

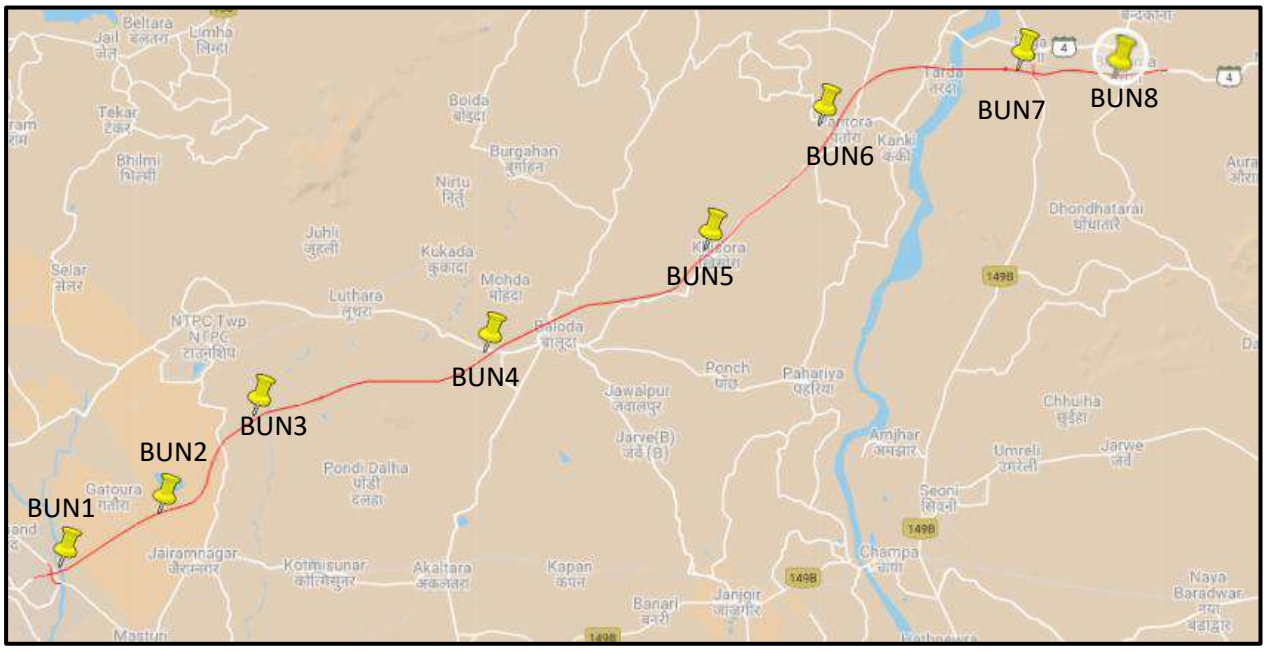


Figure 9- Location of Noise monitoring stations in the project area

3.3.1 Monitoring Methodology

Sound Pressure Level in dB (A) was measured using Sound Pressure Level Meter. Monitoring data of each strategic location was processed statistically to estimate

- L_{eq} day
- L_{eq} night

3.3.2 Data Interpretation (Ambient Noise Level)

Observations noticed from the monitoring results summarized in following tables:

Table 3-8: Ambient Noise monitoring results

Reading Hour No.	R1	R2	R3	R4	R5	R6	L_{10}	L_{50}	L_{90}	L_{min}	L_{max}	L_{eq}
BUN1												
Day Time (06:00AM - 10:00PM)												
06:00 - 07:00	51.9	45.5	53.5	49.7	42.5	50.8	52.7	50.3	44.0	42.5	53.5	50.3
07:00 - 08:00	51.4	45.4	53.2	51.5	47.2	42.3	52.4	49.3	43.9	42.3	53.2	49.9
08:00 - 09:00	55.2	49.4	57.1	48.1	48.5	44.0	56.2	49.0	46.1	44.0	57.1	52.6
09:00 - 10:00	46.1	40.6	48.2	39.2	39.6	43.9	47.2	42.3	39.4	39.2	48.2	44.3
10:00 - 11:00	46.3	41.0	48.5	46.7	42.6	43.8	47.6	45.1	41.8	41.0	48.5	45.5
11:00 - 12:00	47.7	39.4	48.3	45.4	41.2	45.0	48.0	45.2	40.3	39.4	48.3	45.5
12:00 - 01:00	46.9	38.4	47.5	48.1	41.0	47.2	47.8	47.1	39.7	38.4	48.1	46.1
01:00 - 02:00	45.2	38.5	46.6	39.5	38.8	52.7	49.7	42.4	38.7	38.5	52.7	46.8
02:00 - 03:00	46.4	41.0	48.5	41.0	41.0	52.4	50.5	43.7	41.0	41.0	52.4	47.4

Reading Hour No.	R1	R2	R3	R4	R5	R6	L_{10}	L_{50}	L_{90}	L_{min}	L_{max}	L_{eq}
03:00 - 04:00	47.2	39.9	48.3	39.4	39.6	56.2	52.3	43.6	39.5	39.4	56.2	49.7
04:00 - 05:00	47.5	39.1	48.1	38.4	38.6	47.2	47.8	43.2	38.5	38.4	48.1	45.1
05:00 - 06:00	47.7	41.0	49.1	38.5	39.3	47.6	48.4	44.3	38.9	38.5	49.1	45.8
06:00 - 07:00	51.1	42.3	51.5	41.0	41.4	48.0	51.3	45.2	41.2	41.0	51.5	48.0
07:00 - 08:00	50.2	41.0	50.5	39.9	40.2	47.8	50.3	44.4	40.1	39.9	50.5	47.1
08:00 - 09:00	49.7	40.7	50.1	39.1	39.6	46.0	49.9	43.4	39.4	39.1	50.1	46.4
09:00 - 10:00	49.3	40.4	49.7	42.1	40.9	47.7	49.5	44.9	40.7	40.4	49.7	46.6
Night Time (10:00PM - 06:00AM)												
10:00 - 11:00	37.6	41.2	40.0	39.2	35.4	32.8	40.6	38.4	33.8	32.8	41.2	38.9
11:00 - 12:00	38.1	37.6	33.5	37.0	36.9	35.4	37.9	37.0	33.9	33.5	38.1	36.1
12:00 - 01:00	38.9	35.9	34.9	42.5	38.0	37.8	40.7	37.9	34.0	34.9	42.5	38.1
01:00 - 02:00	37.6	36.6	37.0	41.6	34.9	33.9	39.6	36.8	33.8	33.9	41.6	37.4
02:00 - 03:00	41.2	35.3	36.9	41.9	35.4	34.0	41.6	36.2	33.2	34.0	41.9	38.3
03:00 - 04:00	35.4	36.8	37.0	43.4	36.1	37.6	40.5	36.6	32.9	35.4	43.4	37.8
04:00 - 05:00	36.1	31.9	34.5	44.8	37.0	39.2	42.0	36.6	33.1	31.9	44.8	38.6
05:00 - 06:00	39.0	32.9	37.8	47.6	35.9	40.0	43.8	38.4	34.4	32.9	47.6	41.1
BUN2												
Day Time (06:00AM - 10:00PM)												
06:00 - 07:00	49.8	39.4	49.6	42.2	38.8	45.6	49.7	43.9	39.1	38.8	49.8	46.3
07:00 - 08:00	54.6	51.1	57.9	55.3	53.0	59.5	58.7	55.0	52.1	51.1	59.5	56.1
08:00 - 09:00	47.7	41.0	49.1	47.8	41.5	50.2	49.6	47.8	41.3	41.0	50.2	47.4
09:00 - 10:00	45.2	39.4	47.1	44.2	39.7	46.9	47.0	44.7	39.6	39.4	47.1	44.7
10:00 - 11:00	48.4	40.9	49.4	47.8	41.8	49.6	49.5	48.1	41.4	40.9	49.6	47.5
11:00 - 12:00	45.1	37.4	46.0	43.1	37.4	45.0	45.6	44.1	37.4	37.4	46.0	43.5
12:00 - 01:00	46.5	38.2	47.1	46.9	38.1	47.3	47.2	46.7	38.2	38.1	47.3	45.5
01:00 - 02:00	47.3	39.0	47.9	46.5	38.0	47.1	47.6	46.8	38.5	38.0	47.9	45.8
02:00 - 03:00	46.3	39.1	47.4	47.6	38.3	47.8	47.7	46.9	38.7	38.3	47.8	45.9
03:00 - 04:00	45.8	37.9	46.6	46.7	38.2	47.3	47.0	46.2	38.1	37.9	47.3	45.2
04:00 - 05:00	47.1	39.3	48.0	46.0	38.5	47.0	47.5	46.5	38.9	38.5	48.0	45.6
05:00 - 06:00	46.1	39.1	47.3	43.3	39.0	46.1	46.7	44.7	39.1	39.0	47.3	44.6
06:00 - 07:00	57.6	48.1	57.8	48	41.5	49.5	57.7	48.8	44.8	41.5	57.8	53.7
07:00 - 08:00	52.9	51.5	57.8	45.6	38.1	46.6	55.3	49.1	41.9	38.1	57.8	52.3
08:00 - 09:00	46.5	40.2	48.1	45.9	38.1	46.8	47.4	46.2	39.2	38.1	48.1	45.5
09:00 - 10:00	44.8	38.9	46.6	46.8	38.5	47.4	47.1	45.7	38.7	38.5	47.4	45.1
Night Time (10:00PM - 06:00AM)												
10:00 - 11:00	39.1	38.3	37.3	37.7	40.6	41.3	41.0	38.7	34.9	37.3	41.3	38.6
11:00 - 12:00	43.7	38.2	37.4	38.5	39.5	37.1	41.6	38.4	34.9	37.1	43.7	39.3
12:00 - 01:00	41.8	40.7	39.8	38.1	37.6	34.6	41.3	39.0	34.8	34.6	41.8	39.1

Reading Hour No.	R1	R2	R3	R4	R5	R6	L_{10}	L_{50}	L_{90}	L_{min}	L_{max}	L_{eq}
01:00 - 02:00	41.7	38.7	40.1	38.4	35.9	37.2	40.9	38.6	34.8	35.9	41.7	38.6
02:00 - 03:00	39.1	35.6	38.8	43.1	34.9	39.7	41.4	39.0	34.2	34.9	43.1	38.5
03:00 - 04:00	37.1	37.5	39.1	39.3	33.8	35.4	39.2	37.3	33.9	33.8	39.3	37.0
04:00 - 05:00	38.6	39.0	34.9	34.9	38.2	37.9	38.8	38.1	34.0	34.9	39.0	36.7
05:00 - 06:00	38.9	33.9	37.6	33.8	36.9	39.4	39.2	37.3	33.9	33.8	39.4	35.9
BUN3												
Day Time (06:00AM - 10:00PM)												
06:00 - 07:00	52.6	46.4	54.3	48.1	40.3	43.2	53.4	47.3	41.8	40.3	54.3	49.9
07:00 - 08:00	51.9	45.6	53.5	59.7	49.8	46.0	56.6	50.9	45.8	45.6	59.7	53.9
08:00 - 09:00	47.5	43.1	50.2	48.7	40.5	43.9	49.5	45.7	41.8	40.5	50.2	46.9
09:00 - 10:00	47.2	39.4	48.1	48.3	40.0	47.0	48.2	47.1	39.7	39.4	48.3	46.2
10:00 - 11:00	44.5	39.6	46.9	53.8	46.1	54.7	54.3	46.5	42.1	39.6	54.7	50.4
11:00 - 12:00	45.3	38.3	46.5	49.7	41.4	50.3	50.0	45.9	39.9	38.3	50.3	47.0
12:00 - 01:00	45.4	37.6	46.3	48.9	43.5	50.2	49.6	45.8	40.6	37.6	50.2	46.8
01:00 - 02:00	46.5	39.6	47.8	47.3	38.5	47.7	47.8	46.9	39.1	38.5	47.8	45.9
02:00 - 03:00	46.3	38.0	46.9	45.8	39.1	47.2	47.1	46.1	38.6	38.0	47.2	45.2
03:00 - 04:00	47.1	39.3	48.0	45.1	38.6	46.6	47.5	45.9	39.0	38.6	48.0	45.4
04:00 - 05:00	45.4	38.8	46.8	45.9	37.6	46.5	46.7	45.7	38.2	37.6	46.8	44.8
05:00 - 06:00	46.3	38.9	47.3	46.3	38.1	47.0	47.2	46.3	38.5	38.1	47.3	45.3
06:00 - 07:00	51.2	49.3	42.2	49.8	41.6	50.5	50.8	49.6	41.9	41.6	51.2	48.8
07:00 - 08:00	50.4	59.8	49.7	46.3	38.3	47.1	55.1	48.4	42.3	38.3	59.8	53.2
08:00 - 09:00	47.6	47.9	48.8	43.6	39.1	46.3	48.4	46.9	41.4	39.1	48.8	46.5
09:00 - 10:00	48.2	58.1	44.6	46.5	40.7	48.4	53.2	47.4	42.7	40.7	58.1	51.6
Night Time (10:00PM - 06:00AM)												
10:00 - 11:00	41.7	37.8	40.1	39.4	42.1	35.4	41.9	39.8	36.6	35.4	42.1	40.0
11:00 - 12:00	43.9	37.8	38.8	40.0	43.1	38.1	43.5	39.4	38.0	37.8	43.9	41.0
12:00 - 01:00	42.2	38.7	38.3	41.5	37.9	32.6	41.9	38.5	35.3	32.6	42.2	39.5
01:00 - 02:00	40.1	38.3	39.0	40.4	35.9	35.8	40.3	38.7	35.9	35.8	40.4	38.6
02:00 - 03:00	38.1	40.5	39.8	41.2	36.7	36.0	40.9	39.0	36.4	36.0	41.2	39.1
03:00 - 04:00	38.1	37.9	42.1	37.6	35.8	33.9	40.1	37.8	33.4	33.9	42.1	38.1
04:00 - 05:00	37.1	38.5	39.5	35.0	36.4	37.1	39.0	37.1	34.2	35.0	39.5	37.2
05:00 - 06:00	37.6	38.6	38.7	36.1	35.4	35.4	38.7	36.9	35.4	35.4	38.7	37.2
BUN4												
Day Time (06:00AM - 10:00PM)												
06:00 - 07:00	49.8	39.4	41.5	42.2	38.8	39.0	46.0	40.4	38.9	38.8	49.8	44.0
07:00 - 08:00	54.6	51.1	42.8	55.3	53.0	46.1	55.0	52.1	44.5	42.8	55.3	52.3
08:00 - 09:00	47.7	41.0	43.4	47.8	41.5	41.2	47.8	42.5	41.1	41.0	47.8	44.8
09:00 - 10:00	45.2	39.4	41.9	44.2	39.7	39.5	44.7	40.8	39.5	39.4	45.2	42.3

Reading Hour No.	R1	R2	R3	R4	R5	R6	L_{10}	L_{50}	L_{90}	L_{min}	L_{max}	L_{eq}
10:00 - 11:00	48.4	40.9	42.7	47.8	41.8	41.3	48.1	42.3	41.1	40.9	48.4	45.0
11:00 - 12:00	45.1	37.4	41.6	43.1	37.4	37.4	44.1	39.5	37.4	37.4	45.1	41.4
12:00 - 01:00	46.5	38.2	46.8	46.9	38.1	38.1	46.9	42.4	38.1	38.1	46.9	44.3
01:00 - 02:00	47.3	39.0	47.6	46.5	38.0	38.4	47.5	42.8	38.2	38.0	47.6	44.7
02:00 - 03:00	46.3	39.1	42.8	47.6	38.3	38.6	47.0	41.0	38.5	38.3	47.6	43.7
03:00 - 04:00	45.8	37.9	43.1	46.7	38.2	38.2	46.3	40.7	38.0	37.9	46.7	43.2
04:00 - 05:00	47.1	39.3	49.0	46.0	38.5	38.8	48.1	42.7	38.7	38.5	49.0	45.1
05:00 - 06:00	46.1	39.1	51.2	43.3	39.0	39.3	48.7	41.2	39.0	39.0	51.2	45.6
06:00 - 07:00	57.6	48.1	50.0	48.3	41.5	44.1	53.8	48.0	42.8	41.5	57.6	51.5
07:00 - 08:00	52.9	51.5	50.7	45.6	38.1	41.1	52.2	48.2	39.6	38.1	52.9	49.3
08:00 - 09:00	46.5	40.2	51.9	45.9	38.1	38.9	49.2	43.1	38.5	38.1	51.9	46.4
09:00 - 10:00	44.8	38.9	52.0	46.8	38.5	38.7	49.4	41.9	38.6	38.5	52.0	46.3
Night Time (10:00PM - 06:00AM)												
10:00 - 11:00	38.3	40.0	42.1	37.6	41.2	35.7	41.7	39.2	35.1	35.7	42.1	39.7
11:00 - 12:00	38.2	33.5	35.4	38.1	37.9	35.3	38.2	36.7	34.9	33.5	38.2	36.7
12:00 - 01:00	37.6	34.9	37.8	38.9	39.3	36.2	39.1	37.7	34.8	34.9	39.3	37.7
01:00 - 02:00	38.7	37.0	33.9	37.6	38.2	35.1	38.5	37.3	34.6	33.9	38.7	37.1
02:00 - 03:00	35.6	36.9	34.0	34.9	35.9	35.4	36.4	35.5	34.4	34.0	36.9	35.5
03:00 - 04:00	37.5	37.0	37.6	35.4	41.0	35.6	39.3	37.3	34.6	35.4	41.0	37.8
04:00 - 05:00	39.0	34.5	39.2	36.1	39.5	36.9	39.4	38.0	34.4	34.5	39.5	37.9
05:00 - 06:00	33.9	37.8	40.0	39.0	41.1	36.6	40.6	38.4	33.9	33.9	41.1	38.6
BUN5												
Day Time (06:00AM - 10:00PM)												
06:00 - 07:00	46.4	43.2	42.2	51.9	50.8	50.3	51.4	48.4	38.0	42.2	51.9	48.9
07:00 - 08:00	45.6	46.0	55.3	51.4	42.3	49.9	53.4	48.0	38.0	42.3	55.3	50.5
08:00 - 09:00	43.1	43.9	47.8	55.2	44.0	52.6	53.9	45.9	38.0	43.1	55.2	50.3
09:00 - 10:00	39.4	47.0	44.2	46.1	43.9	44.3	46.6	44.3	38.0	39.4	47.0	44.7
10:00 - 11:00	39.6	54.7	47.8	46.3	43.8	45.5	51.3	45.9	38.0	39.6	54.7	48.9
11:00 - 12:00	38.3	50.3	43.1	47.7	45.0	45.5	49.0	45.3	38.0	38.3	50.3	46.4
12:00 - 01:00	37.6	50.2	46.9	46.9	47.2	46.1	48.7	46.9	38.0	37.6	50.2	47.0
01:00 - 02:00	39.6	47.7	46.5	45.2	52.7	46.8	50.2	46.7	38.7	39.6	52.7	48.0
02:00 - 03:00	38.0	47.2	47.6	46.4	52.4	47.4	50.0	47.3	37.8	38.0	52.4	48.1
03:00 - 04:00	39.3	46.6	46.7	47.2	56.2	49.7	53.0	47.0	37.9	39.3	56.2	50.4
04:00 - 05:00	38.8	46.5	46.0	47.5	47.2	45.1	47.4	46.3	37.3	38.8	47.5	45.9
05:00 - 06:00	38.9	47.0	43.3	47.7	47.6	45.8	47.7	46.4	37.3	38.9	47.7	45.9
06:00 - 07:00	49.3	50.5	48.0	51.1	48.0	48.0	50.8	48.7	37.3	48.0	51.1	49.3
07:00 - 08:00	59.8	47.1	45.6	50.2	47.8	47.1	55.0	47.5	37.3	45.6	59.8	53.2

Reading Hour No.	R1	R2	R3	R4	R5	R6	L_{10}	L_{50}	L_{90}	L_{min}	L_{max}	L_{eq}
08:00 - 09:00	47.9	46.3	45.9	49.7	46.0	46.4	48.8	46.4	37.3	45.9	49.7	47.3
09:00 - 10:00	58.1	48.4	46.8	49.3	47.7	46.6	53.7	48.1	37.1	46.6	58.1	52.0
Night Time (10:00PM - 06:00AM)												
10:00 - 11:00	38.9	40.0	38.7	39.7	38.9	34.8	39.9	38.9	37.0	34.8	40.0	38.8
11:00 - 12:00	36.1	33.5	38.4	36.2	36.1	34.7	37.3	36.1	36.9	33.5	38.4	36.1
12:00 - 01:00	38.1	34.9	39.0	37.7	38.1	35.5	38.6	37.9	37.6	34.9	39.0	37.5
01:00 - 02:00	37.4	37.0	38.6	37.1	37.4	34.5	38.0	37.3	37.6	34.5	38.6	37.2
02:00 - 03:00	38.3	36.9	39.0	35.5	38.3	34.9	38.7	37.6	38.0	34.9	39.0	37.4
03:00 - 04:00	37.8	37.0	37.3	37.8	37.8	35.0	37.8	37.6	38.0	35.0	37.8	37.2
04:00 - 05:00	38.6	34.5	38.1	37.9	38.6	36.1	38.6	38.0	38.9	34.5	38.6	37.5
05:00 - 06:00	41.1	37.8	37.3	38.6	41.1	35.7	41.1	38.2	41.1	35.7	41.1	39.0
BUN6												
Day Time (06:00AM - 10:00PM)												
06:00 - 07:00	44.0	39.4	47.3	39.1	46.3	44.0	46.8	44.0	42.2	39.1	47.3	44.4
07:00 - 08:00	52.3	51.1	50.9	52.1	56.1	43.9	54.2	51.6	42.2	43.9	56.1	52.3
08:00 - 09:00	44.8	41.0	45.7	41.3	47.4	46.1	46.8	45.3	42.2	41.0	47.4	45.0
09:00 - 10:00	42.3	39.4	47.1	39.6	44.7	39.4	45.9	41.0	42.2	39.4	47.1	43.2
10:00 - 11:00	45.0	40.9	46.5	41.4	47.5	41.8	47.0	43.4	43.0	40.9	47.5	44.6
11:00 - 12:00	41.4	37.4	45.9	37.4	43.5	40.3	44.7	40.9	43.0	37.4	45.9	42.1
12:00 - 01:00	44.3	38.2	45.8	38.2	45.5	39.7	45.7	42.0	43.7	38.2	45.8	43.1
01:00 - 02:00	44.7	39.0	46.9	38.5	45.8	38.7	46.4	41.9	43.6	38.5	46.9	43.6
02:00 - 03:00	43.7	39.1	46.1	38.7	45.9	41.0	46.0	42.4	43.6	38.7	46.1	43.4
03:00 - 04:00	43.2	37.9	45.9	38.1	45.2	39.5	45.6	41.4	44.3	37.9	45.9	42.8
04:00 - 05:00	45.1	39.3	45.7	38.9	45.6	38.5	45.7	42.2	45.4	38.5	45.7	43.3
05:00 - 06:00	45.6	39.1	46.3	39.1	44.6	38.9	46.0	41.9	45.9	38.9	46.3	43.4
06:00 - 07:00	51.5	48.1	49.6	44.8	53.7	41.2	52.6	48.9	46.3	41.2	53.7	49.8
07:00 - 08:00	49.3	51.5	48.4	41.9	52.3	40.1	51.9	48.9	46.3	40.1	52.3	49.1
08:00 - 09:00	46.4	40.2	46.9	39.2	45.5	39.4	46.7	42.9	46.3	39.2	46.9	44.1
09:00 - 10:00	46.3	38.9	47.4	38.7	45.1	40.7	46.9	42.9	46.3	38.7	47.4	44.2
Night Time (10:00PM - 06:00AM)												
10:00 - 11:00	37.5	36.3	37.5	38.9	34.5	32.8	38.2	36.9	37.0	32.8	38.9	36.7
11:00 - 12:00	37.0	35.7	35.6	39.4	34.6	35.4	38.2	35.7	37.0	34.6	39.4	36.6
12:00 - 01:00	38.2	36.6	36.1	40.1	35.5	37.8	39.2	37.2	37.0	35.5	40.1	37.7
01:00 - 02:00	37.0	35.5	34.2	38.6	34.4	33.9	37.8	35.0	36.9	33.9	38.6	36.0
02:00 - 03:00	36.9	35.8	34.5	37.6	34.7	34.0	37.3	35.3	37.1	34.0	37.6	35.8
03:00 - 04:00	37.4	36.0	35.7	37.1	34.7	37.6	37.5	36.6	37.5	34.7	37.6	36.5
04:00 - 05:00	38.2	37.1	38.2	39.3	35.9	39.2	39.3	38.2	37.8	35.9	39.3	38.1
05:00 - 06:00	37.8	36.7	35.4	40.2	35.3	40.0	40.1	37.3	37.8	35.3	40.2	38.0

Reading Hour No.	R1	R2	R3	R4	R5	R6	L_{10}	L_{50}	L_{90}	L_{min}	L_{max}	L_{eq}
BUN7												
Day Time (06:00AM - 10:00PM)												
06:00 - 07:00	44.4	48.9	44.0	49.9	46.3	50.3	50.1	47.6	42.7	44.0	50.3	48.0
07:00 - 08:00	52.3	50.5	52.3	53.9	56.1	49.9	55.0	52.3	42.7	49.9	56.1	53.0
08:00 - 09:00	45.0	50.3	44.8	46.9	47.4	52.6	51.5	47.2	42.7	44.8	52.6	48.8
09:00 - 10:00	43.2	44.7	42.3	46.2	44.7	44.3	45.5	44.5	42.7	42.3	46.2	44.4
10:00 - 11:00	44.6	48.9	45.0	50.4	47.5	45.5	49.7	46.5	42.7	44.6	50.4	47.5
11:00 - 12:00	42.1	46.4	41.4	47.0	43.5	45.5	46.7	44.5	42.7	41.4	47.0	44.8
12:00 - 01:00	43.1	47.0	44.3	46.8	45.5	46.1	46.9	45.8	43.1	43.1	47.0	45.7
01:00 - 02:00	43.6	48.0	44.7	45.9	45.8	46.8	47.4	45.9	43.2	43.6	48.0	46.0
02:00 - 03:00	43.4	48.1	43.7	45.2	45.9	47.4	47.8	45.6	43.2	43.4	48.1	46.0
03:00 - 04:00	42.8	50.4	43.2	45.4	45.2	49.7	50.1	45.3	43.1	42.8	50.4	47.1
04:00 - 05:00	43.3	45.9	45.1	44.8	45.6	45.1	45.8	45.1	43.4	43.3	45.9	45.0
05:00 - 06:00	43.4	45.9	45.6	45.3	44.6	45.8	45.9	45.5	43.7	43.4	45.9	45.2
06:00 - 07:00	49.8	49.3	51.5	48.8	53.7	48.0	52.6	49.6	44.1	48.0	53.7	50.6
07:00 - 08:00	49.1	53.2	49.3	53.2	52.3	47.1	53.2	50.8	44.1	47.1	53.2	51.3
08:00 - 09:00	44.1	47.3	46.4	46.5	45.5	46.4	46.9	46.4	44.1	44.1	47.3	46.1
09:00 - 10:00	44.2	52.0	46.3	51.6	45.1	46.6	51.8	46.5	44.2	44.2	52.0	48.8
Night Time (10:00PM - 06:00AM)												
10:00 - 11:00	38.9	36.7	38.7	39.7	38.9	37.0	39.3	38.8	37.6	36.7	39.7	38.4
11:00 - 12:00	39.4	36.6	38.4	36.2	36.1	36.9	38.9	36.8	37.6	36.1	39.4	37.4
12:00 - 01:00	40.1	37.7	39.0	37.7	37.9	37.6	39.6	37.8	37.6	37.6	40.1	38.4
01:00 - 02:00	38.6	36.0	38.6	37.1	37.3	37.6	38.6	37.5	37.6	36.0	38.6	37.6
02:00 - 03:00	37.6	35.8	39.0	35.5	37.6	38.0	38.5	37.6	37.6	35.5	39.0	37.4
03:00 - 04:00	37.6	36.5	37.3	37.8	37.6	38.0	37.9	37.6	37.9	36.5	38.0	37.5
04:00 - 05:00	39.3	38.1	38.1	37.9	38.0	38.9	39.1	38.1	39.4	37.9	39.3	38.4
05:00 - 06:00	40.2	38.0	37.3	38.6	38.2	41.1	40.7	38.4	40.2	37.3	41.1	39.1
BUN8												
Day Time (06:00AM - 10:00PM)												
06:00 - 07:00	50.3	50.1	47.6	46.3	44.0	46.8	50.2	47.2	45.4	44.0	50.3	48.0
07:00 - 08:00	49.9	55.0	52.3	56.1	43.9	54.2	55.6	53.3	45.0	43.9	56.1	53.3
08:00 - 09:00	52.6	51.5	47.2	47.4	46.1	46.8	52.1	47.3	45.0	46.1	52.6	49.4
09:00 - 10:00	44.3	45.5	44.5	44.7	39.4	45.9	45.7	44.6	45.0	39.4	45.9	44.5
10:00 - 11:00	45.5	49.7	46.5	47.5	41.8	47.0	48.6	46.8	45.5	41.8	49.7	46.9
11:00 - 12:00	45.5	46.7	44.5	43.5	40.3	44.7	46.1	44.6	45.5	40.3	46.7	44.6
12:00 - 01:00	46.1	46.9	45.8	45.5	39.7	45.7	46.5	45.8	45.7	39.7	46.9	45.4
01:00 - 02:00	46.8	47.4	45.9	45.8	38.7	46.4	47.1	46.2	45.7	38.7	47.4	45.9

Reading Hour No.	R1	R2	R3	R4	R5	R6	L_{10}	L_{50}	L_{90}	L_{min}	L_{max}	L_{eq}
02:00 - 03:00	47.4	47.8	45.6	45.9	41.0	46.0	47.6	46.0	45.6	41.0	47.8	46.1
03:00 - 04:00	49.7	50.1	45.3	45.2	39.5	45.6	49.9	45.5	45.5	39.5	50.1	47.1
04:00 - 05:00	45.1	45.8	45.1	45.6	38.5	45.7	45.8	45.4	45.5	38.5	45.8	44.8
05:00 - 06:00	45.8	45.9	45.5	44.6	38.9	46.0	46.0	45.7	46.0	38.9	46.0	45.0
06:00 - 07:00	48.0	52.6	49.6	53.7	41.2	52.6	53.2	51.1	46.5	41.2	53.7	51.1
07:00 - 08:00	47.1	53.2	50.8	52.3	40.1	51.9	52.8	51.4	46.4	40.1	53.2	50.8
08:00 - 09:00	46.4	46.9	46.4	45.5	39.4	46.7	46.8	46.4	46.4	39.4	46.9	45.8
09:00 - 10:00	46.6	51.8	46.5	45.1	40.7	46.9	49.4	46.6	46.6	40.7	51.8	47.5
Night Time (10:00 PM - 06:00 AM)												
10:00 - 11:00	37.6	41.2	35.7	41.7	39.2	40.0	41.5	39.6	35.3	35.7	41.7	39.7
11:00 - 12:00	38.1	37.9	35.3	38.2	36.7	41.0	39.6	38.0	35.2	35.3	41.0	38.2
12:00 - 01:00	38.9	39.3	36.2	35.1	37.7	39.5	39.4	38.3	35.2	35.1	39.5	38.1
01:00 - 02:00	37.6	38.2	35.1	38.5	37.3	38.6	38.6	37.9	35.1	35.1	38.6	37.7
02:00 - 03:00	34.9	35.9	35.4	36.4	35.5	39.1	37.8	35.7	35.1	34.9	39.1	36.4
03:00 - 04:00	35.4	41.0	35.6	39.3	37.3	38.1	40.2	37.7	35.5	35.4	41.0	38.2
04:00 - 05:00	36.1	39.5	36.9	39.4	38.0	37.2	39.5	37.6	36.4	36.1	39.5	38.0
05:00 - 06:00	39.0	41.1	36.6	40.6	38.4	37.2	40.9	38.7	39.0	36.6	41.1	39.1

3.3.3 Interpretation of Data

L_{eq} day- The measured value for L_{eq} day has been found well within the prescribed limit.

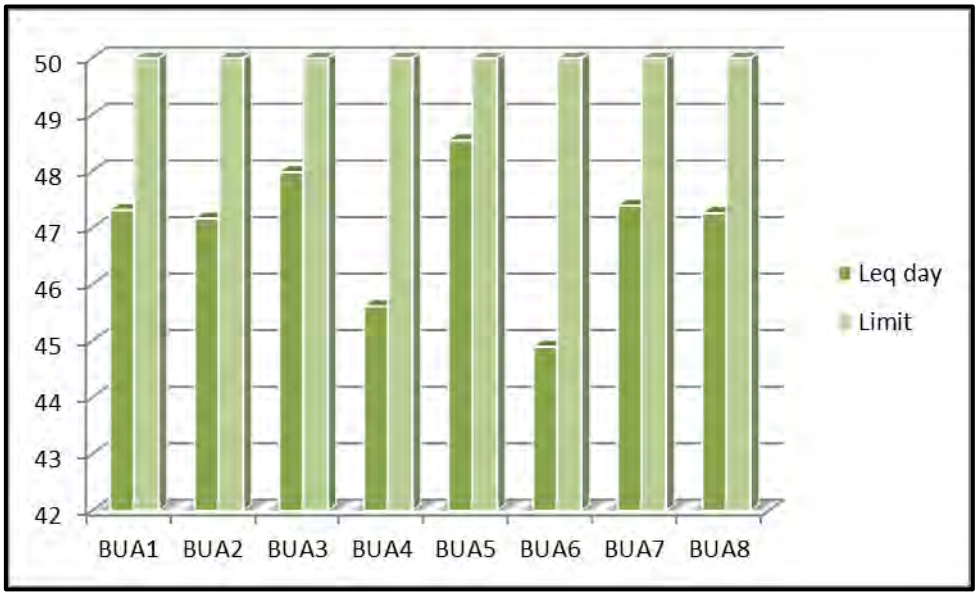


Figure 10- Interpretation of Leq Day values

L_{eq} night- The measured value for L_{eq} night has been found well within the prescribed limit.

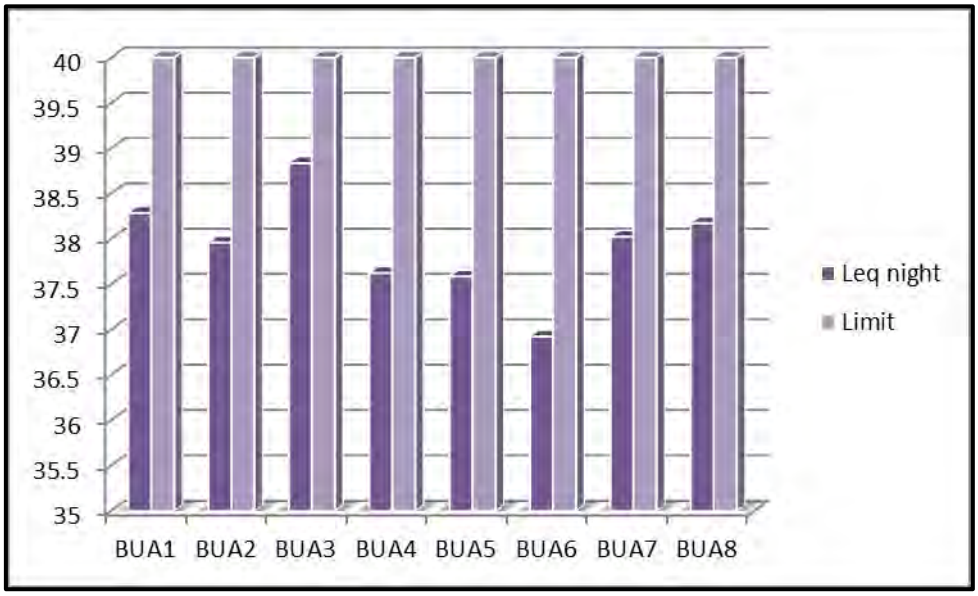


Figure 11- Interpretation of Leq Night values

3.4 Traffic study

Traffic density is a major development indicator and hence is a critical parameter of environmental impact assessment. Developmental project activity essentially results in increase in vehicular traffic. Hence, it is important to collect data on existing status of traffic composition and volume in the vicinity of proposed project site, so that the change in traffic composition and volume can be assessed. Traffic volume count is an important tool for decision-makers to understand adequacy of prevailing road infrastructure to handle the increased vehicular movement after the proposed project comes up.

Korba, which is located at approx. 9km from Urga is an industrial area. It is famous for coal fields and power plants. It is the power hub of Chhattisgarh state. It boasts of the gevra mines which are India's largest open cast mines catering 11% of the nation's coal needs. Major power plants such as NTPC, CSEB, and Bharat Aluminium Company (BALCO) are located at Korba.

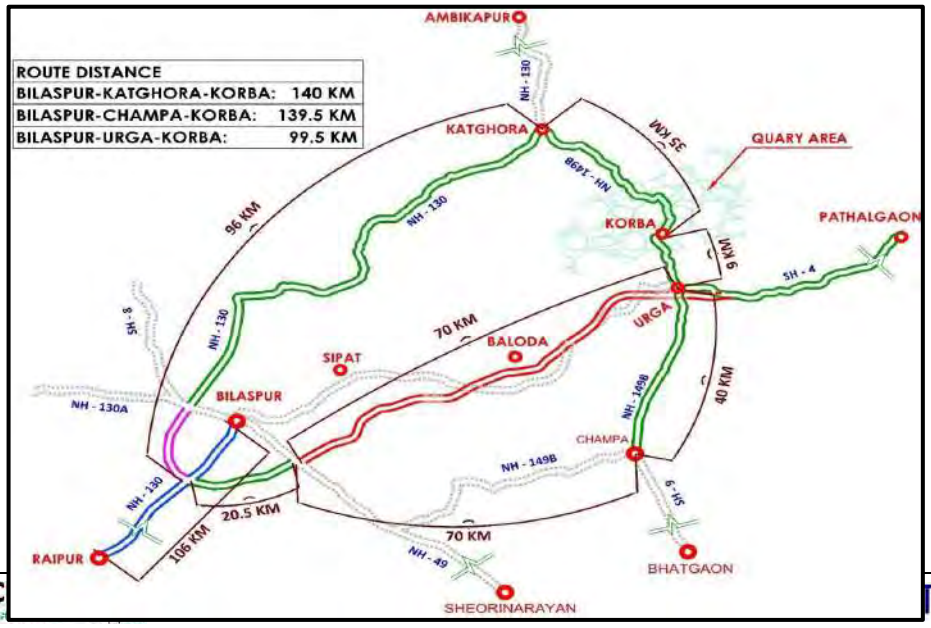


Figure 12 Traffic Study area

The major traffic in the project influence area is bound to Korba. The distance between Bilaspur to Korba along project road will be shorter by approx. 40km than other two parallel routes NH-130 and NH-49B. Currently, due to bad condition and narrow width, the traffic between Bilaspur and Urga / Korba are using parallel roads like NH-130 (Bilaspur-Kathgora road) and NH-149B (Bilaspur-Champa Road). Since the project road is shortest between Bilaspur and Urga / Korba, the traffic on other parallel roads will be diverted onto project road after the proposed improvements. Accordingly, traffic surveys have been conducted on parallel routes also. Following table gives details of present traffic.

Table 3-9: Present traffic along Existing Roads / Parallel Routes

Sl. No	Homogenous Section	Present Traffic				
		ADT (pcu)	Car (Nos)	LCV (nos)	Bus (nos)	Truck (nos)
1	Raipur - Bilaspur section of NH130	20696	2327	805	278	3463
2	Km 51+000 along Project. Road	3668	562	25	16	22
3	Bilaspur - Katghora section of NH130	9079	1531	133	181	1285
4	Bilaspur - Champa section of NH149B	9520	1536	104	152	1168

From the above table it can be observed that the traffic volume along project road is only 3668 PCU consisting of mostly local traffic. The traffic on parallel routes is 9079 PCU and 9520 PCU along Bilaspur - Katghora road and Bilaspur - Champa road respectively. The likely amount of diverted traffic has been assessed considering the road network in the project influence area and Inter-zonal movements on the basis of O-D. The following table gives details of expected traffic on to the proposed alignment once open to traffic.

Table 3-10: Summary of expected traffic on proposed alignment

Year	2017	2021	2025	2030	2035	2040	2045	2050
Tollable								
AADT (Nos)	5453	7618	10992	14992	19373	24726	31557	40276
AADT (PCU)	13399	17904	24869	32920	42278	53958	68866	87892
Non-Tollable								
AADT (Nos)	2511	3052	3709	4734	6042	7712	9842	12562
AADT (PCU)	1405	1707	2075	2649	3380	4314	5506	7028
Total								
AADT (Nos)	7964	10670	14701	19726	25416	32438	41400	52838
AADT (PCU)	14804	19612	26944	35568	45658	58273	74372	94920

Tollable ADT (nos.)

Year	Car	Mini Bus	Bus	LCV	2A Truck	3A Truck	MA Truck	Total
2017	2482	69	69	467	291	272	1803	5453
2021	3695	95	95	697	361	351	2325	7618
2025	5599	133	133	1061	473	471	3122	10992
2030	7909	178	178	1505	604	605	4013	14992
2035	10287	227	227	1967	771	772	5122	19373
2040	13130	290	290	2510	984	986	6537	24726
2045	16757	370	370	3204	1255	1258	8343	31557
2050	21387	472	472	4089	1602	1606	10648	40276
Tollable ADT (PCU)								
Year	**Car**	**Mini Bus**	**Bus**	**LCV**	**2A Truck**	**3A Truck**	**MA Truck**	**Total**
2017	2482	207	207	700	874	816	8113	13399
2021	3695	284	284	1046	1083	1052	10461	17904
2025	5599	399	399	1591	1420	1412	14049	24869
2030	7909	534	534	2257	1812	1816	18059	32920
2035	10287	681	681	2950	2312	2317	23048	42278
2040	13130	869	869	3766	2951	2957	29416	53958
2045	16757	1110	1110	4806	3766	3774	37543	68866
2050	21387	1416	1416	6134	4807	4817	47916	87892

Level of service (LOS) 'B' (Design service volume for LOS B - 40000 pcu per day) offered by the proposed 4-lane facility will cease by year 2033 and Level of Service (LOS) 'C' (Design service volume for LOS C - 56000 pcu per day) will be cease by year 2044. Hence, 6/8-lane facility shall be required by the end of 2040.

3.5 Geology

Chhattisgarh hosts a wide variety of minerals found associated with igneous, sedimentary and metamorphic rock formation. A few of them form large economic deposits while a number of other minerals are reported as occurrences. Large deposits of Coal, Iron ore, Limestone, Dolomite and Bauxite are located in parts of the State. Diamondiferous kimberlites identified in Raipur district are also likely to yield substantial quantity of diamonds. Tin (Cassiterite) bearing pegmatites containing moderate deposits are also known. Medium to small deposits of gold, base-metals, quartzite, soapstone/steatite, fluorite, corundum, graphite, lepidolite, amblygonite of workable size are also known that may grade in the category of large deposits after exploration. Occurrences of garnet, amethyst, beryl, andalucite, kyanite, sillimanite and rare precious mineral alexandrite are also reported from different parts of the State. A few of these may prove to be of sizable deposit. Deposits of grey, pink, red and black (dolerite, amphibolite and gabbro), granites and flagstone of grey, black and purple shades are widely distributed that are suitable for dimension stone and decorative purposes.

The proposed project site passes through coal belt regions and industrial belt of NTPC Sipat lies in the proximity of the project site.

The project site passes through the following geological formations:-

- Chhota Nagpur Gneissic Complex
- Unclassified Metamorphics
- Intracratonic Basins

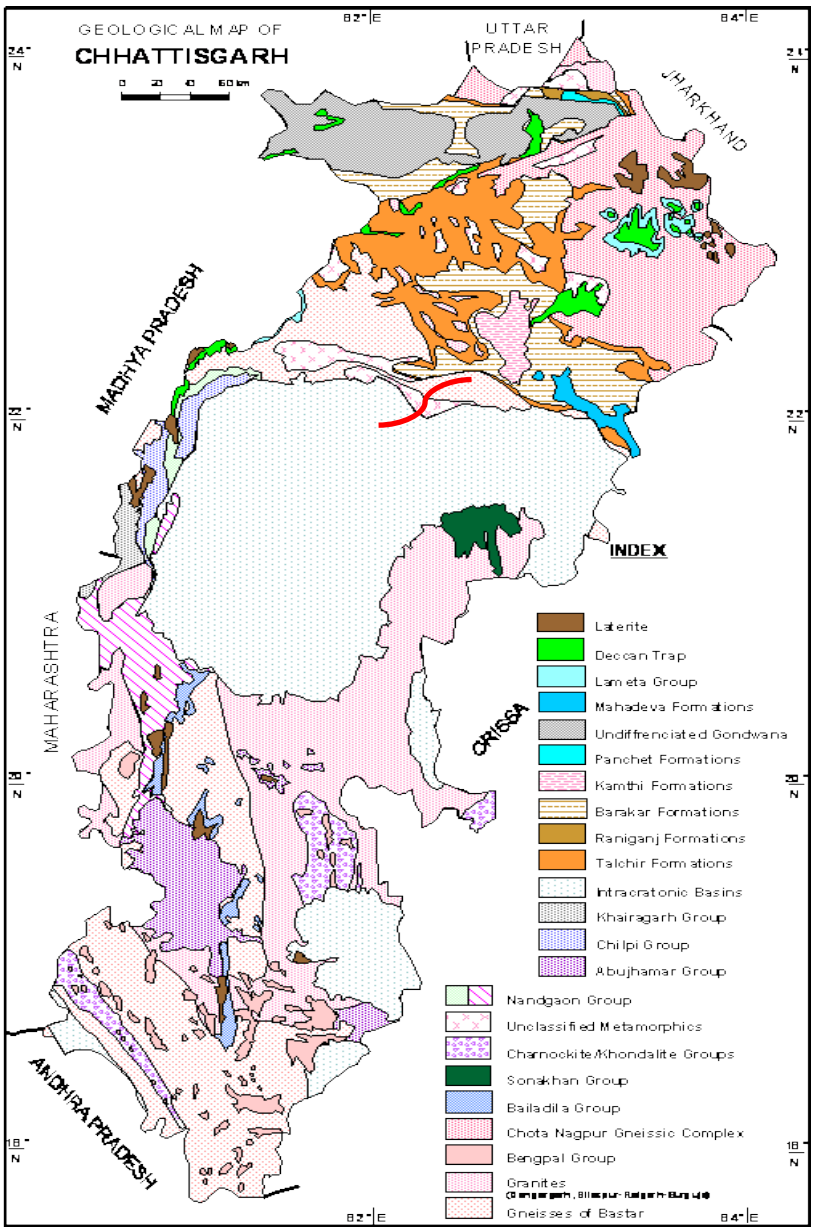


Figure 13 Location of the project in the Geological Map

3.6 Soil Environment

To study the soil quality of the region, sampling locations were selected to assess the existing soil conditions in and around the project area representing various land use conditions. The physical and chemical concentrations were determined.

The present study of the soil quality establishes the baseline characteristics of soil and this will help in future in identifying the incremental concentration changes if any, due to the operation in the proposed project.

3.6.1 Sampling and Analysis Techniques

Soil samples were collected from three different depths viz., 30 cm, 60 cm, and 100 cm below the surface. The samples were analyzed for physical and chemical characteristics. The samples have been analyzed as per the established scientific methods for physio-chemical parameters.

3.6.2 Soil monitoring Locations

The sampling locations were identified with the following objectives;

- To determine the baseline soil characteristics of the study area and
- To determine the impact of proposed project on soil characteristics

Soil samples were collected at eight locations as tabulated below.

Table 3-11: Soil Monitoring Locations

Location Code	Village	Coordinates
BUS1	Darrighat	22°01'43.77"N, 82°13'58.84"E
BUS2	Bhelai	22°03'16.96"N, 82°17'01.78"E
BUS3	Tendua	22°06'06.21"N, 82°19'58.07"E
BUS4	Charpara	22°07'52.93"N, 82°27'08.23"E
BUS5	Khisora	22°10'49.36"N, 82°33'55.54"E
BUS6	Pantora	22°14'23.57"N, 82°37'29.89"E
BUS7	Urga	22°15'59.46"N, 82°43'36.68"E
BUS8	Bhaisama	22°15'46.99"N, 82°46'33.08"E

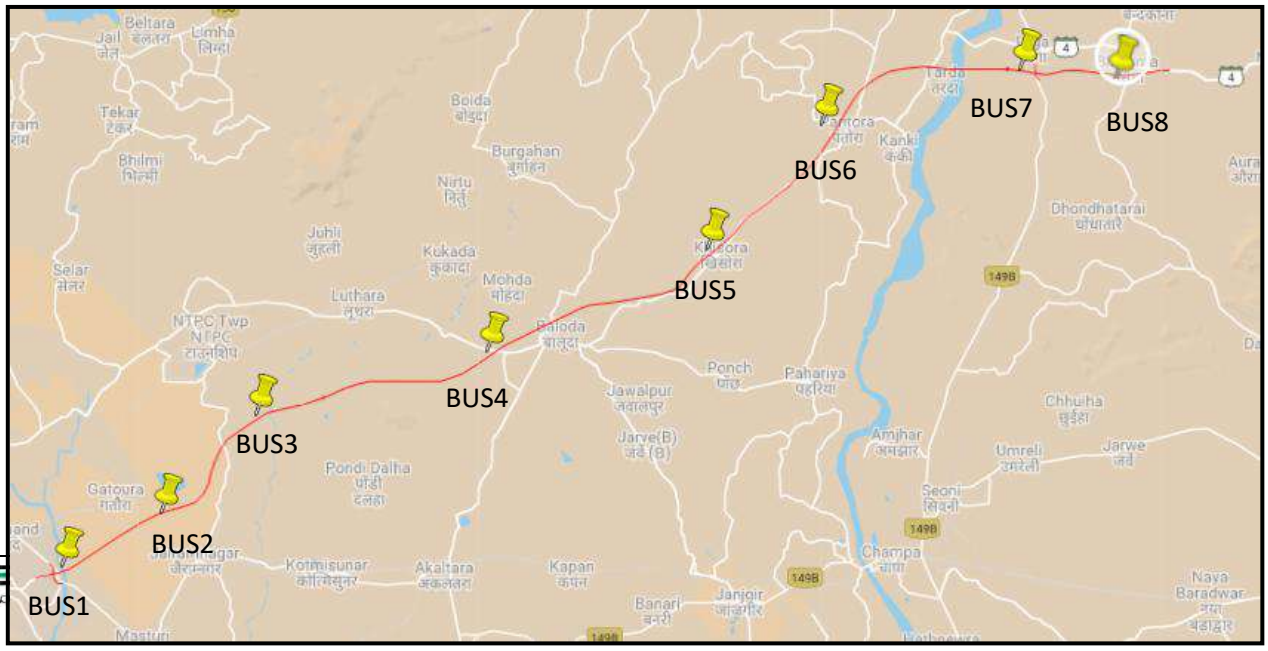


Figure 14- Soil Monitoring Locations

3.6.3 Soil monitoring results

The results of soil monitoring are discussed as below.

Table 3-12: Soil Monitoring Results

S. No	Parameters	Units	Test Method	BUS-1	BUS-2	BUS-3	BUS-4	BUS-5	BUS-6	BUS-7	BUS-8
1	pH (1:2.5 Soil Suspension)	--	IS 2720 (Part 26) :1987	7.73	8.06	7.89	7.70	7.34	7.42	7.88	7.51
2	Moisture Content	% wt./ wt.	IS 2720 (Part 2): 1973	4.67	4.46	5.79	4.55	2.45	3.05	3.08	3.01
3	Electrical conductivity (1:2.5 Soil Suspension)	µmhos/cm	IS 2720 (Part 26): 1987	208	187	151	168	137	133	99	118
4	Organic Matter	% wt./ wt.	IS 2720 (Part 22): 1972	2.96	2.18	2.32	2.31	2.78	2.64	1.66	1.68
5	Texture Classification	--	IS 2720 (Part 4): 1985	Clay Soil	Clay Soil	Clay Soil	Clay Soil	Silty Clay	Silty Clay	Silty	Silty Clay
	Sand	% wt./ wt.	IS 2720 (Part 4): 1985	27.00	28.00	26.0	30	24	24.0	20	21
	Clay	% wt./ wt.	IS 2720 (Part 4): 1985	54.00	49.00	38.0	31	32	33.0	32	34
	Silt	% wt./ wt.	IS 2720 (Part 4):	32.00	31.00	48.0	46	54	54.0	56	53

S. No	Parameters	Units	Test Method	BUS-1	BUS-2	BUS-3	BUS-4	BUS-5	BUS-6	BUS-7	BUS-8
			1985								
6	Bulk Density	gm/cc	IS 2720	1.64	1.55	1.288	1.35	1.68	1.66	1.58	1.52
7	Porosity	% wt./ wt.	IS 2720	70.0	64.0	58.0	59	56.0	54.0	54.0	52.0
8	Available Nitrogen	% wt./ wt.	IS 7874 (Part-1): 1975	0.12	0.10	0.11	0.12	0.30	0.21	0.32	0.36
9	Available Potassium	% wt./ wt.	IS 7874	0.24	0.18	0.13	0.19	0.23	0.13	0.22	0.24
10	Available Phosphorous	% wt./ wt.	IS 7874	0.10	0.08	0.022	0.022	0.031	0.027	0.018	0.028
11	Lead as Pb	mg/kg	EPA 3050 B	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	BDL(<1.0)	17.98	19.71	16.86
12	Iron as Fe	mg/kg	EPA 3050 B	5154.04	4898.24	9439.81	9528.12	34234.64	66155.41	21957.09	21835.66
13	Clacium (as CaO)	% wt./ wt.	EPA 3050 B	2.04	1.65	0.98	0.99	0.84	0.68	0.69	0.94
14	Magnesium (as MgO)	% wt./ wt.	EPA 3050 B	1.04	0.95	1.10	1.20	1.25	1.40	1.20	1.24

3.6.4 Interpretation of results

- The value of pH ranged from 7.34 to 8.06.
- Moisture content varied from 2.45 to 5.79 %.
- Electrical conductivity of the samples varied from 99 to 208 µmhos/cm.
- Iron was highly dominant amongst all the heavy metals present and varied from 4898.24 to 66155.41 mg/Kg.

3.7 Hydrogeology

Hydrogeologically the districts of Bilaspur and Janjgir Champa can be categorized into three groups.

- The Archaean rocks consisting of granites, gneisses, schists, phyllites and quartzites.
- Proterozoic sediments belonging to Chhattisgarh Supergroup mainly consisting of limestone, shales and dolomites and
- a) Semiconsolidated sediments belonging to Gondwana Supergroup consisting of Barakars sandstones and Talchir shales. b) The unconsolidated alluvium along the major river courses of Arpa, Maniari, Khurung, Lilagar and Agar.

3.8 Water Environment

Selected water quality parameters of the Ground and Surface water resources within the project area have been studied for assessing the water environment. Water samples were examined for Physico-chemical, Heavy metals and Bacteriological parameters in order to assess the effect of industrial, vehicular and other activities on ground or surface water.

3.8.1 Sampling and Analysis Technique

Samples for chemical analysis were collected in polyethylene carboys. Samples collected for metal content were acidified with 1ml HNO_3. Samples for bacteriological analysis were collected in sterilized bottles. The samples were analyzed as per the procedures specified in IS:10500 methods and 'Standard Methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA).

3.8.2 Water Sampling Locations

Eight Ground Water and five Surface water samples were collected to establish baseline water quality of the study area.

Table 3-13: Water Monitoring Locations

Location Code	Village	Coordinates
BUGW1	Darrighat	22° 1'43.77"N 82°13'58.84"E
BUGW2	Bhelai	22° 3'16.96"N 82°17'1.78"E
BUGW3	Tendua	22° 6'6.21"N 82°19'58.07"E
BUGW4	Charpara	22° 7'52.93"N 82°27'8.23"E
BUGW5	Khisora	22°10'49.36"N 82°33'55.54"E
BUGW6	Pantora	22°14'23.57"N 82°37'29.89"E
BUGW7	Urga	22°15'59.46"N 82°43'36.68"E
BUGW8	Bhaisama	22°15'46.99"N 82°46'33.08"E
BUSW1	Darrighat	22° 1'34.58"N 82°13'41.73"E
BUSW2	Bhelai	22° 3'15.52"N 82°16'52.50"E
BUSW3	Mudpar	22° 6'8.76"N 82°20'1.94"E
BUSW4	Charpara	22° 7'49.39"N 82°26'55.47"E
BUSW5	Tarda	22°15'55.22"N 82°41'13.03"E

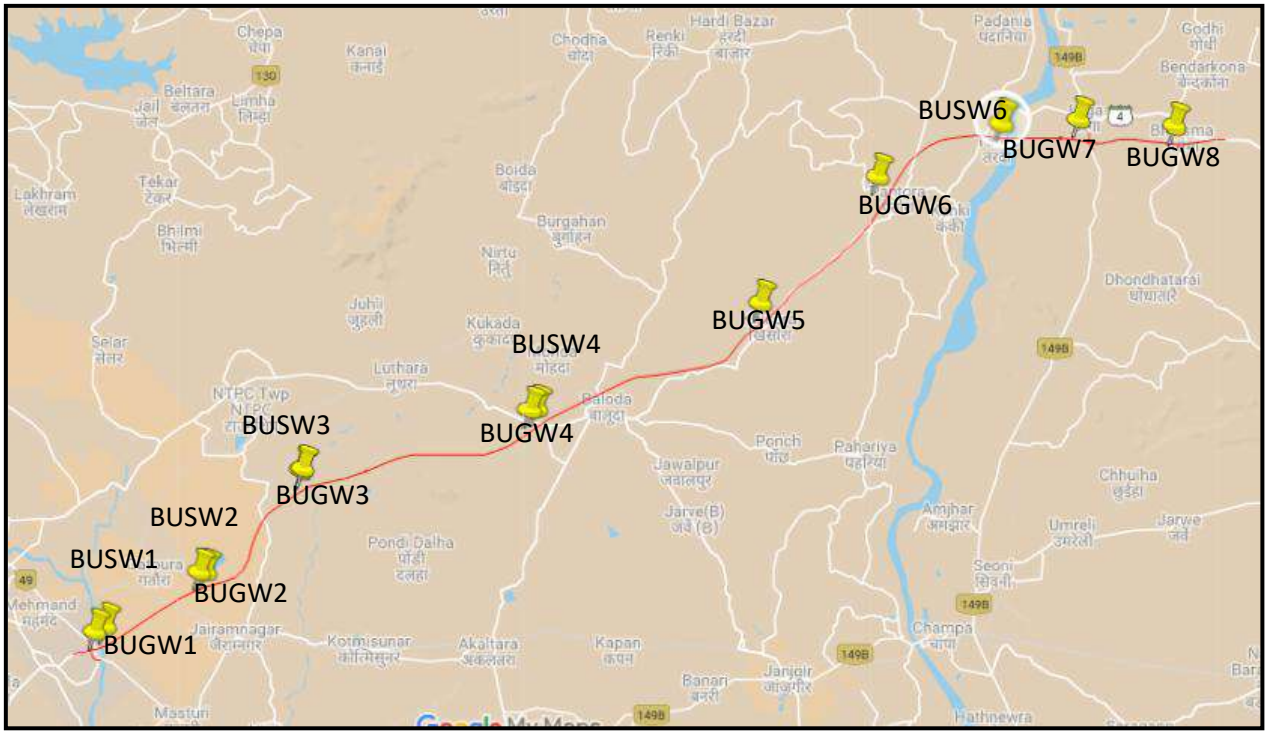


Figure 15- Surface and Ground-water Monitoring Locations

3.8.3 Water Monitoring Results

The analysis results for the ground water samples and surface water samples are given in Table below. The analyzed results are compared with the Acceptable and permissible limit standards (absence of Alternative source) as per IS 10500:2012.

Table 3-14: Water Monitoring Results (Ground water)

S. No.	Parameters	Unit	Procedure	BU GW 1	BU GW 2	BU GW 3	BU GW 4	BU GW 5	BU GW 6	BU GW 7	BU GW 8	Standard as per IS 10500:2012	
Date of Sampling				**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**Acceptable Limit**	**Permissible Limit**
1	Colour	Hazen	IS 3025 (P-4) : 1983	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	5 max.	15 max.
2	Odour	--	IS 3025 (P-5) : 1983	**Agreeable**	**Agreeable**	**Agreeable**	**Agreeable**	**Agreeable**	**Agreeable**	**Agreeable**	**Agreeable**	Agreeable	Agreeable
3	pH	--	IS 3025 (P-11) : 1983	8.12	8.59	7.52	7.54	7.24	7.52	7.94	8.08	6.5 – 8.5	No Relaxation
4	Temperature	ºC	IS 3025 (P-9) : 1984	29.34	32.8	28.7	28.5	29.4	29.6	30.2	29.9	Not Specified	Not Specified
5	Turbidity	NTU	IS 3025 (P-10)-1984	<1.0	<1.0	<1.0	<1.0	<1.0	3.0	<1.0	<1.0	1 max.	5 max.
6	Conductivity	µS/cm	IS 3025 (P-14) : 1984	1520	724	1022	837	480	557	444	373	Not Specified	Not Specified
7	Total Solids	mg/l	IS 3025 (P-15) :1984	953	394	668	592	322	434	310	276	Not Specified	Not Specified
8	Total Dissolved Solids	mg/l	IS 3025 (P-16) :1984	967	310	658	588	300	416	306	256	500 max.	2000 max.
9	Total Suspended Solids	mg/l	IS 3025 (P-17) :1984	BDL (DL 1.0)	BDL (DL 1.0)	10	BDL (DL 1.0)	16	18	BDL (DL 1.0)	BDL (DL 1.0)	Not Specified	Not Specified
10	Total Hardness (as $CaCO_3$)	mg/l	IS 3025 (P-21) :1983	579	381	372	426	160	200	218	170	200 max.	600 max.
11	Total Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (P-23) : 1986	495.6	251.4	383.3	416	404	242.1	167.5	136.2	200 max.	600 max.
12	Chloride (as Cl)	mg/l	IS 3025 (P-32) : 1988	186.1	49.57	94.9	150.9	88.9	116.5	36.9	28.9	250 max.	1000 max.
13	Fluoride (as F)	mg/l	IS 3025 (P-60) : 2008	0.9	0.5	0.5	0.6	BDL (DL 0.1)	0.4	0.5	0.6	1.0 max.	1.5 max.
14	Sulphate (as SO_4)	mg/l	IS 3025 (P-24) : 1986	95.7	56.1	56.8	82.2	7.34	31.8	15.7	22.7	200 max.	400 max.

S. No.	Parameters	Unit	Procedure	BU GW 1	BU GW 2	BU GW 3	BU GW 4	BU GW 5	BU GW 6	BU GW 7	BU GW 8	Standard as per IS 10500:2012	
Date of Sampling				**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**Acceptable Limit**	**Permissible Limit**
15	Phosphate (as PO_4)	mg/l	IS 3025 (P-31) : 1988	BDL (DL 1.0)	BDL (DL 1.0)	BDL (DL 1.0)	BDL (DL 1.0)	BDL (DL 1.0)	BDL (DL 1.0)	BDL (DL 1.0)	BDL (DL 1.0)	Not Specified	Not Specified
16	Nitrate (as NO_3)	mg/l	IS 3025 (P-34) : 1988	16.7	24.66	24.6	32.7	22.4	42.1	16.72	2.32	45 max.	No Relaxation
17	Nitrite (as NO_2)	mg/l	IS 3025 (P-34) : 1988	BDL (DL 0.01)	BDL (DL 0.01)	BDL (DL 0.01)	BDL (DL 0.01)	BDL (DL 0.01)	BDL (DL 0.01)	BDL (DL 0.01)	BDL (DL 0.01)	Not Specified	Not Specified
18	Sodium (as Na)	mg/l	IS 3025 (P-45) : 1993	101.9	15.99	38.4	21.2	34.2	28.4	10.86	9.76	Not Specified	Not Specified
19	Iron (as Fe)	mg/l	IS 3025 (P-53) : 2003	BDL (DL 0.02)	0.053	0.721	0.43	0.532	0.32	0.077	0.16	1.0 max.	No Relaxation
20	Potassium (as K)	mg/l	IS 3025 (P-45) : 1993	7.9	1.25	1.85	2.95	9.8	4.7	2.56	BDL (DL 0.02)	Not Specified	Not Specified
21	Lead (as Pb)	mg/l	IS 3025 (P-47) : 1994	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	0.01 max.	No Relaxation
22	Zinc (as Zn)	mg/l	IS 3025 (P-2) : 2004	BDL (DL 0.02)	0.13	0.024	0.024	0.127	0.09	0.448	BDL (DL 0.02)	5 max.	15 max.
23	Total Chromium (as Cr)	mg/l	IS 3025 (P-2) : 2004	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	0.05 max.	No Relaxation
24	Copper (as Cu)	mg/l	IS 3025 (P-2) : 2004	BDL (DL 0.05)	BDL (DL 0.05)	BDL (DL 0.05)	BDL (DL 0.05)	0.009	0.005	BDL (DL 0.05)	BDL (DL 0.05)	0.05 max.	1.5 max.
25	Calcium (as Ca)	mg/l	IS 3025 (P-40) : 1991	1659	54.5	72.9	94	48.4	77.2	54.8	66.1	75 max.	200 max.
26	Magnesium (as Mg)	mg/l	IS 3025 (P-46) : 1994	52.8	40.8	52.7	45.5	18.1	46.6	28.9	3.3	30 max.	100 max.
27	Manganese (as Mn)	mg/l	IS 3025 (P-59) : 2006	BDL (DL 0.005)	0.013	0.032	0.01	0.078	0.088	BDL (DL 0.005)	BDL (DL 0.005)	0.1 max.	0.3 max.
28	Total Arsenic (as As)	mg/l	IS 3025 (P-2) : 2004	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	0.01 max.	No Relaxation
29	Dissolved Oxygen	mg/l	IS 3025 (P-38) : 1989	6.5	7.6	6.4	7.2	6.8	7.4	7.6	6.8	Not Specified	Not Specified

S. No.	Parameters	Unit	Procedure	BU GW 1	BU GW 2	BU GW 3	BU GW 4	BU GW 5	BU GW 6	BU GW 7	BU GW 8	Standard as per IS 10500:2012	
Date of Sampling				**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**Acceptable Limit**	**Permissible Limit**
30	Chemical Oxygen Demand	mg/l	IS 3025 (P-58) : 2006	BDL (DL 0.5)	BDL (DL 0.5)	BDL (DL 0.5)	BDL (DL 0.5)	BDL (DL 0.5)	BDL (DL 0.5)	BDL (DL 0.5)	BDL (DL 0.5)	Not Specified	Not Specified
31	Biochemical Oxygen Demand at 27°C for 3 days	mg/l	IS 3025 (P-44) : 1993	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	Not Specified	Not Specified
32	Total Coliforms	MPN/100 ml	IS 1622 : 1981	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent/100ml	Absent/100ml
33	Faecal Coliforms	MPN/100 ml	IS 1622 : 1981	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent/100ml	Absent/100ml

Table 3-15: Water Monitoring Results (Surface water)

S. No.	Parameters	Unit	Procedure	BU SW 1	BU SW 2	BU SW 3	BU SW 4	BU SW 5	Standard as per IS 10500:2012	
Date of Sampling				**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**30.03.2018**	**Acceptable Limit**	**Permissible Limit**
1	Colour	Hazen	IS 3025 (P-4): 1983	1.0	1.0	1.0	1.0	1.0	5 max.	15 max.
2	Odour	--	IS 3025 (P-5): 1983	**Agreeable**	**Agreeable**	**Agreeable**	**Agreeable**	**Agreeable**	Agreeable	Agreeable
3	pH	--	IS 3025 (P-11): 1983	7.6	7.9	7.7	7.92	7.76	6.5 – 8.5	No Relaxation
4	Temperature	ºC	IS 3025 (P-9): 1984	29.4	32.2	31.5	30.9	30.4	Not Specified	Not Specified
5	Turbidity	NTU	IS 3025 (P-10)-1984	6.0	<1	<1	8.2	<1	1 max.	5 max.
6	Conductivity	µS/cm	IS 3025 (P-14) : 1984	295	330	376	422	504	Not Specified	Not Specified
7	Total Solids	mg/l	IS 3025 (P-15) :1984	359	248	281	336	352	Not Specified	Not Specified

S. No.	Parameters	Unit	Procedure	BU SW 1	BU SW 2	BU SW 3	BU SW 4	BU SW 5	Standard as per IS 10500:2012	
Date of Sampling				30.03.2018	30.03.2018	30.03.2018	30.03.2018	30.03.2018	Acceptable Limit	Permissible Limit
8	Total Dissolved Solids	mg/l	IS 3025 (P-16) :1984	319	291	273	312	324	500 max.	2000 max.
9	Total Suspended Solids	mg/l	IS 3025 (P-17) :1984	51	43	26	28	24	Not Specified	Not Specified
10	Total Hardness (as $CaCO_3$)	mg/l	IS 3025 (P-21) :1983	92	49	196	140	136	200 max.	600 max.
11	Total Alkalinity (as $CaCO_3$)	mg/l	IS 3025 (P-23) : 1986	149.2	184.9	191.5	202.8	182.7	200 max.	600 max.
12	Chloride (as Cl)	mg/l	IS 3025 (P-32) : 1988	37.6	46.2	20.5	23.5	36.2	250 max.	1000 max.
13	Fluoride (as F)	mg/l	IS 3025 (P-60) : 2008	0.7	0.8	0.6	0.8	0.6	1.0 max.	1.5 max.
14	Sulphate (as SO_4)	mg/l	IS 3025 (P-24) : 1986	19.1	16.7	15.2	21.4	12.33	200 max.	400 max.
15	Phosphate (as PO_4)	mg/l	IS 3025 (P-31) : 1988	BDL (DL 1.0)	BDL (DL 1.0)	BDL (DL 1.0)	BDL (DL 1.0)	BDL (DL 1.0)	Not Specified	Not Specified
16	Nitrate (as NO_3)	mg/l	IS 3025 (P-34) : 1988	1.26	1.42	1.57	3.76	23.90	45 max.	No Relaxation
17	Nitrite (as NO_2)	mg/l	IS 3025 (P-34) : 1988	BDL (DL 0.01)	BDL (DL 0.01)	BDL (DL 0.01)	BDL (DL 0.01)	BDL (DL 0.01)	Not Specified	Not Specified
18	Sodium (as Na)	mg/l	IS 3025 (P-45) : 1993	27.2	38.1	16.7	22.3	46	Not Specified	Not Specified
19	Iron (as Fe)	mg/l	IS 3025 (P-53) : 2003	0.058	0.051	BDL (DL 0.02)	BDL (DL 0.02)	0.028	1.0 max.	No Relaxation
20	Potassium (as K)	mg/l	IS 3025 (P-45) : 1993	6.9	17.2	2.31	3.6	14.22	Not Specified	Not Specified
21	Lead (as Pb)	mg/l	IS 3025 (P-47) :	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	0.01 max.	No Relaxation

S. No.	Parameters	Unit	Procedure	BU SW 1	BU SW 2	BU SW 3	BU SW 4	BU SW 5	Standard as per IS 10500:2012	
Date of Sampling				30.03.2018	30.03.2018	30.03.2018	30.03.2018	30.03.2018	Acceptable Limit	Permissible Limit
			1994							
22	Zinc (as Zn)	mg/l	IS 3025 (P-2): 2004	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	BDL (DL 0.02)	5 max.	15 max.
23	Total Chromium (as Cr)	mg/l	IS 3025 (P-2): 2004	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	0.05 max.	No Relaxation
24	Copper (as Cu)	mg/l	IS 3025 (P-2): 2004	BDL (DL 0.05)	BDL (DL 0.05)	BDL (DL 0.05)	BDL (DL 0.05)	BDL (DL 0.05)	0.05 max.	1.5 max.
25	Calcium (as Ca)	mg/l	IS 3025 (P-40): 1991	18.07	19.1	47.6	28.0	34.0	75 max.	200 max.
26	Magnesium (as Mg)	mg/l	IS 3025 (P-46): 1994	9.6	<1	37.9	12.6	16.8	30 max.	100 max.
27	Manganese (as Mn)	mg/l	IS 3025 (P-59): 2006	0.057	0.042	BDL (DL 0.005)	BDL (DL 0.005)	0.022	0.1 max.	0.3 max.
28	Total Arsenic (as As)	mg/l	IS 3025 (P-2): 2004	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	BDL (DL 0.005)	0.01 max.	No Relaxation
29	Dissolved Oxygen	mg/l	IS 3025 (P-38): 1989	6.8	7.2	7.8	7.1	6.8	Not Specified	Not Specified
30	Chemical Oxygen Demand	mg/l	IS 3025 (P-58): 2006	BDL (DL 0.5)	20	BDL (DL 0.5)	BDL (DL 0.5)	BDL (DL 0.5)	Not Specified	Not Specified
31	Biochemical Oxygen Demand at 27°C for 3 days	mg/l	IS 3025 (P-44): 1993	BDL (DL 5.0)	5.0	BDL (DL 5.0)	BDL (DL 5.0)	BDL (DL 5.0)	Not Specified	Not Specified
32	Total Coliforms	MPN/100ml	IS 1622 : 1981	42	46	92	64	52	Absent/100ml	Absent/100ml
33	Faecal Coliforms	MPN/100ml	IS 1622 : 1981	Present	Present	Present	Present	Present	Absent/100ml	Absent/100ml

3.9 Biological Environment

3.9.1 Protected Areas / Eco-sensitive Zones/ Animal Corridor

The nearest wildlife sanctuary for the project road is Achanakmar Wildlife Sanctuary which is about 43 Kms from the proposed road. No other Notified Protected Area like National park, Sanctuary, Biosphere Reserve, Eco Sensitive Zone or Wildlife Corridor is located within the proximity of the project road section.

3.9.2 Flora & Fauna

45% of the state is covered by forest. Chhattisgarh also has a large concentration of wildlife with national parks and wildlife sanctuaries. A major part of its forests comprise of teak and bamboo.

The study area is blessed with a great diversity of flora and fauna. The natural vegetation includes Sal, Teak, Banyan, Mahua, Neem, Peepal, Arjuna, Kadamb, Sal, Amaltas, Bargad, Jamun, Fig, Palm, Sagwan, Tamarind, Mango, Ber and many others.

Amongst the above the most predominant are Semal, Mahua, Harra, Ber and Tendu.

The rich flora provides sufficient attraction for the variety of birds who nest here and which provides them with food. Insects and other small animals thrive in the numerous shrubs and forest area which dot the region.

The Fauna in the study area comprises of Elephants, bisons, monkeys, deer, Buffalos, Barasinghas, Tigers, Leopards, Gaurs (Indian Bison), Nilgai, Sambar, Chausingha (four-horned Antelope), Sloth Bear, Dhole (Wild Dog), Striped Hyena, Muntjac, Wild Boar, Flying Squirrel, Porcupine, Pangolin, Monkey, Langur, Bulbuls and Myna.

The commonly found reptiles in the study area are Crocodile, Monitor Lizard, Indian Chameleon, Common Krait, Indian Rock Python, Cobra, Russell's Viper etc.

Figure 16- Major Flora in the study area

Figure 17- Major Fauna in the study area

The above details were sought by consultation with the concerned forest departments and local communities. Photographs of the consultation and field tree enumeration are as follows.

Figure 18- Photograph of Consultation with Forest Department and other local communities

3.10 Social Environment

3.10.1 Introduction

The project corridor passes through 45 villages of Bilaspur, Janjgir-Champa and Korba districts of Chhattisgarh

3.10.2 Population

As per Census 2011, Chhattisgarh has a population of 2.55 Cr. which has increased by 0.47 Cr. (as per 2001 census) of which male and female population are 1.28 Cr. and 1.27 Cr. respectively.

The decadal population growth is 22.59%. The child population (0-6 age) is 3661689 (14.33% of total population) in 2011 compared to 3554916 (17.06% of total population) in 2001.

It is significant to note that Bilaspur district shows the highest decennial growth rate of 33.29% followed by Janjgir-Champa (22.94%) and lowest is Korba with 19.25% in the period 2001-2011.

Table 3-16: Percentage Decadal Variation in Population for State and Districts: 2001 - 2011

Districts/State	2001-11 (%)
Bilaspur	33.29
Janjgir-Champa	22.94
Korba	19.25
Chhattisgarh	22.59
India	17.64

Source: Census 2001- 2011

3.10.3 Population Density

The total area of Chhattisgarh is 135191 Sq. Km with a population density of 189 persons per Sq Km in 2011. The national population density is 324 persons per Sq. Km. which shows that the population density is lesser than the national level.

Table 3-17: Population Density for State and District:2011

District	Population Density (persons per sq. km.)
	2011
Bilaspur	322
Janjgir-Champa	420
Korba	183
Chhattisgarh	189
India	324

Source: Census 2011

The population of Janjgir-Champa district is the highest with 420 persons per Sq. Km. followed by Bilaspur (322), and Korba (183). It shows the increased in population density due to urbanization in the districts.

3.10.4 Sex Ratio

In 2011, the sex ratio in Chhattisgarh is 991 females for each 1000 males which is slightly improvement over the last decade of 989 females for each 1000 males in 2001. The child sex ratio stood at 969 females per 1000 males in 2011, with a decline from 975 females' children per 1000 male's children in 2001.

Table 3-18: Sex Ratio (No of Female out of 1000 Male) for State and Districts: 2001 - 2011

Years	2001	2011
Bilaspur	971	971
Janjgir-Champa	998	986
Korba	964	969
Chhattisgarh	989	991
India	933	943

Source: Census 2011

The sex ratio of Korba district has increased in 2011 as compared to 2001 census and Janjgir- Champa has declined.

3.10.5 Literacy Rate

Literacy rate in Chhattisgarh has seen upward trend as per 2011 (70.28%) in which male literacy stands at 80.27% and female literacy is 60.24%. In 2001, literacy rate in Chhattisgarh stood at 64.66% of which male and female were 77.38% and 51.85% respectively.

Table 3-19: Number of Literates and Literacy Rate for State and Districts: 2011

State / Districts	Number of Literates*			Literacy Rate (%)		
	Persons	Male	Female	Persons	Male	Female
Bilaspur	1596560	932474	664086	70.78	81.54	59.71
Janjgir-Champa	1019634	593679	425955	73.07	84.72	61.31
Korba	748759	433391	315368	72.37	82.48	61.93
Chhattisgarh	15379922	8807893	6572029	70.28	80.27	60.24

State / Districts	Number of Literates*			Literacy Rate (%)		
	Persons	Male	Female	Persons	Male	Female
India	763638812	434763622	328875190	72.98	80.88	64.63

Source: Census 2011

**Literates exclude age group 0-6 years that were by definition in the Census of India 2011*

Among the districts, Janjgir-Champa district has the highest literacy rate of 73.07% [84.72% (Male) & 61.31% (Female)] followed by Korba district. Bilaspur district accounts lowest rate of 70.78% [81.54% (Male) and 59.71% (Female)].

3.10.6 Work Participation Rate

The work participation rate in Chhattisgarh is 51.32% in rural areas & 35.66% in urban areas. The work participation rate is slightly less as compared to the national average in both rural and urban areas. The working population in Chhattisgarh increased from 9.68 million in 2001 to 12.18 million in 2011, witnessing an annual compound growth rate of 2.58 percent.

Table 3-20: Workforce participation Rate

State	Rural			Urban		
	Persons	Male	Female	Persons	Male	Female
Bilaspur	48.58	53.17	43.89	35.23	52.26	17.25
Janjgir-Champa	54.00	59.10	48.84	41.47	55.74	26.73
Korba	49.27	56.07	42.44	32.83	51.61	12.60
Chhattisgarh	51.32	56.36	46.29	35.66	53.09	17.42
India	53.03	30.03	41.83	53.76	15.44	35.31

Source: Census 2011

The male-female work participation rate shows that participation of women is more in rural as compared with urban areas. There is a gap between the men and women participation rate in rural and urban areas because of unavailability of education, health care, jobs etc.

3.10.7 Employment Pattern

The Census 2011 further classifies the workers (both main and marginal) into four classifications namely cultivators, agricultural laborers, household industries and other workers. The four-fold classification revealed that there was a declining share of the cultivators and household industry but increasing share of the worker in agricultural laborers and other type of worker.

Table 3-21: Employment Pattern of Main+Marginal Worker in Chhattisgarh

Industry Classification	2001 (millions)	% share	2011 (millions)	% share
Cultivators	4.31	44.54	4	32.88
Agricultural Labourer	3.09	31.94	5.09	41.80
Household Workers	0.2	2.05	0.19	1.54
Other Workers	2.08	21.47	2.89	23.78

Industry Classification	2001 (millions)	% share	2011 (millions)	% share
Total Workers	9.68	100	12.18	100

Source: Census 2011

3.10.8 Demographic Profile of the Project Influence Area

The project corridor transverses through 45 villages of Bilaspur, Jangir-Champa and Korba districts. Tehsil-wise distribution of Project affected villages is presented in Table below.

Table 3-22: List of Affected Villages

Sl. No.	District	Tehsil	Village
District Bilaspur			
1	Bilaspur	Bilaspur	Dheka
2	Bilaspur	Masturi	Karra
3	Bilaspur	Masturi	Nimtara
4	Bilaspur	Masturi	Gataura
5	Bilaspur	Masturi	Parsada
6	Bilaspur	Masturi	Bhilai
7	Bilaspur	Masturi	Ralia
8	Bilaspur	Masturi	Kachhar
9	Bilaspur	Masturi	Hardadih
10	Bilaspur	Masturi	Earamsai
11	Bilaspur	Masturi	Nawagaon
12	Bilaspur	Masturi	Mudpar
District Janjgir-Champa			
1	Janjgir-Champa	Akaltara	Sankar
2	Janjgir-Champa	Akaltara	Sonadulla
3	Janjgir-Champa	Akaltara	Changori
4	Janjgir-Champa	Akaltara	Amlipali
5	Janjgir-Champa	Akaltara	Son
6	Janjgir-Champa	Akaltara	Piparda
7	Janjgir-Champa	Akaltara	Chandniya
8	Janjgir-Champa	Baloda	Dhorla
9	Janjgir-Champa	Baloda	Bachhoud
10	Janjgir-Champa	Baloda	Charpara
11	Janjgir-Champa	Baloda	Baloda
12	Janjgir-Champa	Baloda	Bhilai
13	Janjgir-Champa	Baloda	Korbi
14	Janjgir-Champa	Baloda	Dongari
15	Janjgir-Champa	Baloda	Hardibishal
16	Janjgir-Champa	Baloda	Khishora
17	Janjgir-Champa	Baloda	Angarkhar
18	Janjgir-Champa	Baloda	Pantora

Sl. No.	District	Tehsil	Village
19	Janjgir-Champa	Baloda	Baksara
District Korba			
1	Korba	Katghora	Birda
2	Korba	Katghora	Chainpur
3	Korba	Kartala	Gumiya
4	Korba	Kartala	Katharimaal
5	Korba	Kartala	Tarda
6	Korba	Kartala	Junwani
7	Korba	Korba	Akharapali
8	Korba	Korba	Samipali
9	Korba	Korba	Urga
10	Korba	Korba	Masan
11	Korba	Korba	Bagbuda
12	Korba	Korba	Bhaisma
13	Korba	Korba	Chitapali

Source: published schedule (3A)

The socio-economic profile for all the villages within the project corridor has been carried out based on Census of India 2011 and summarized in Table below:-

Table 3-23: Demographic Profile of the Project Affected Villages

S. No.	Description	Number	% to total
1	Total Population - Gender wise	95407	100
	Male	48226	50.55
	Female	47181	49.45
	Sex ratio (No. of females per 1000 males)		978
2	Total Population (0-6 years) - Gender wise	13699	14.36
	Male	6964	14.44
	Female	6735	14.27
	Sex ratio (No. of females per 1000 males)		967
3	Total Population (Sector Wise)	95407	100
	Rural	81777	85.71
	Urban	13630	14.29
4	Total No. of Households	22455	
	Average House hold size	-	4.25
	Lowest Household size (Village: Khisora)	-	3.56
	Highest Household size (Village: Karra)	-	4.83
5	Total SC & ST Population	39805	41.72
	Total Population (SC)	23415	24.54
	Total Population (ST)	16390	17.18
6	Total Literates – Gender wise	60337	73.84

S. No.	Description	Number	% to total
	Male Literacy (with respect to the male population)	35162	85.22
	Female Literacy (with respect to the female population)	25175	62.24
	Literacy gap between male and female		22.97
7	Total Workers & Work Participation Rate	46911	49.17
	Male (Number and % with respect to the male population)	27106	56.21
	Female (Number and % with respect to the female population)	19805	41.98
	Gender gap in workforce (in percentage)		14.23
8	Total Main Workers & percentage to total worker	24254	51.70
	Male (Number and % with respect to the male working population)	17620	65.00
	Female (Number and % with respect to the female working population)	6634	33.50
a)	Main Worker as Cultivator (Number and Percentage)	5915	24.39
b)	Main Worker as Agricultural Labour (Number and Percentage)	11283	46.52
c)	Main Worker as Household Industry Worker (Number and Percentage)	680	2.80
d)	Main Worker as Other workers (Number and Percentage)	6376	26.29
9	Total Marginal Workers & percentage to total worker	22657	48.30
	Male (Number and % with respect to the male working population)	9486	35.00
	Female (Number and % with respect to the female working population)	13171	66.50
a)	Marginal Worker as Cultivator (Number and Percentage)	2510	11.08
b)	Marginal Worker as Agricultural Labour (Number and Percentage)	18507	81.68
c)	Marginal Worker as Household Industry Worker (Number and Percentage)	317	1.40
d)	Marginal Worker as Other workers (Number and Percentage)	1323	5.84
10	Number and Percentage of Marginal Worker (3-6 Months)	17540	77.42
11	Number and Percentage of Marginal Worker (0-3 Months)	5117	22.58

3.10.9 Social Summary

On the basis of interpretation made above, based on secondary data, the major outcomes specify the following observations and gap in the study area:

- Average literacy rate of the project corridor is approximately 73.84% whether as male literacy is 85.22% and female literacy rate is 62.24% with creating a gender gap of 22.97%.
- The composition of Schedule Caste (SC) in total population is 24.54% and Schedule Tribe (ST) is 17.18%.
- Work Participation Rate of the study area is 49.17% in which males are 56.21% and females are 41.98%, creating a gender gap of 14.23%. Among the total workers 51.70% are main workers and rest 48.30% are marginal worker.

3.10.10 Impact on properties

- The Greenfield project will affect 122 properties (106 Residential, 9 commercial & 7 Residential cum commercial)
- The proposed road improvement will affect 3 Temples/Church and two government structures.
- Out of the 127 affected structures (including CPR'S), 80 are Pucca, 3 are kutcha structures and 44 are Semi-Pucca.

3.10.11 Socio-economic profile of affected population

Social Category: Out of the 31 PAFs, 6 General, 16 belong to Other Backward Castes (OBC), 7 Schedule caste & 2 are Schedule tribe.

Vulnerable Group: There are 6 Schedule tribes, 45 SC/BPL and 19 are Women headed household vulnerable among the affected households.

Out of the 145 PAFs, 72 are female and 73 are male.

4 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 The Context of Impact Analysis

The Prediction of impacts is the most important component in the Environmental Impact Assessment studies. Both qualitative and quantitative techniques and methodologies have been used to conduct analysis of the potential impacts likely to occur as a result of the proposed development activities on physical, ecological and socio-economic environments. The prediction of impacts would, therefore, help in minimizing the adverse impacts and to enhance the beneficial impacts on environmental quality both during pre and post project.

4.2 Analysis of Impacts

The proposed development of Bilaspur Urga Section of NH130A would create impacts on the environment in two distinct phases:

(i) During the construction phase, this may be regarded as temporary or short term.

(ii) During the operation phase, would have long-term effects and hence require mitigation plan for management.

4.2.1 Impacts on Meteorological Parameters

4.2.1.1 Impact

Project Highway is located in semi-arid region with high variation between summer and winter temperatures. Though no change in the macro-climatic setting (precipitation, temperature and wind) is envisaged due to the project, the microclimate is likely to be temporarily modified by vegetation removal and the addition of increased pavement surface. There will be an increase in daytime temperature on the road surface and soil due to loss of shade and big trees, which in turn might lead to formation of heat islands especially along the inhabited sections. In addition, the removal of trees will increase the amount of direct sunlight resulting in higher temperatures along the highway.

This increase in the daytime temperature assumes significance especially to the slow moving traffic, the pedestrians and the first row of residences / receptors along the corridor, as the entire project stretch experiences temperatures as high as 49°C during summers. The impact will be felt more by the slow moving traffic and pedestrians along the project road.

4.2.1.2 Mitigation

Although the impact shall be significant and long term in nature, it is reversible in nature and shall be compensated for by additional plantation of trees. It must be noted that the impact is unavoidable. However, it may be pointed out that the project has taken care to minimize tree felling as no tree felling shall be done beyond corridor of impact.

4.2.2 Impacts on Ambient Air Quality

Air quality along the project corridor will be impacted both during the construction and operation stages of the project.

Construction stage impacts will be of short term and have adverse impacts on the construction workers as well as the settlements adjacent to the road, especially those in the down wind direction.

Operation stage impacts will not be as severe as the construction stage impacts and will be confined generally to a band of upto 100m from the edge of the lane on either side of the corridor.

Operation Stage Impacts

Operation stage impacts will not be as severe as the construction stage impacts and will be confined generally to a band of width ranging from 50 to 75m from the edge of the lane on either side of the corridor.

No major dust generation is envisaged during the operation stage as the road shoulders are proposed to be paved and all slopes and embankments shall be turfed as per best engineering practices.

The major impact on air quality during operation will be due to plying of vehicles. The impacts on air quality at any given time will depend upon traffic volume / rate of vehicular emission within a given stretch and prevailing meteorological conditions.

CALINE4 software developed by the California Department of Transportation (CALTRANS) has been used for estimation of air quality impacts due to vehicular movement on the proposed highway.

CALINE4 is a line source air quality model developed to assess air quality impacts near roadways. The model input is broadly divided into five parameters such as Job Parameters, Link Geometry, Link Activity, Run Condition and Receptor Positions

- **Job Parameters:** contains general information that identifies the job, defines general modelling parameters, and sets the units (feet or meters) that will be used to input data on the Link Geometry and Receptor Positions Screens.
- **Run Type:** determine averaging times and how the hourly average wind angle(s) will be determined. In the present case modeling exercise were made to predict the impact on worst case scenario. Multi-Run/Worst Case Hybrid type was used impact modeling.
- **Aerodynamic Roughness Coefficient:** determine the amount of local air turbulence that affects plume spreading. CALINE 4 offers the 4 choices for aerodynamic roughness Coefficient namely; Rural, Suburban, Central Business District and Other. For the present modelling rural roughness options have been considered.
- **Altitude above Sea Level:** Define the altitude above mean sea level. This input is used to determine the rate of plume spreading. The project corridor has an average altitude of 279m above MSL.
- **Link Type:** 5 choices available such as At Grade, Fill, Depressed, Bridge and Parking lot. In this particular model study At Grade link type is used.
- **Link Height:** For the project link height is being considered as zero.
- **Mixing Zone Width:** Mixing zone is defined as the width of the roadway, plus 3m on either side.
- **Traffic Volume:** The hourly traffic volume anticipated to travel on each link, in units of vehicles per hour.

- **Emission Factor:** The weighted average emission rate of the local vehicle fleet, expressed in terms of grams / mile per vehicle.
- **Wind Speed:** Expressed in meters per second. USEPA recommends a value of 1 m/s as the worst-case wind speed.
- **Wind Direction:** The direction the wind is blowing from, measured clockwise in degrees from the north. As the model study is on "Worst Case scenario", therefore CALINE 4 will not consider this input.
- **Emission Rate:** Factor is arrived using standard values prescribed by The Automotive Research Association of India, Pune under Air Quality Monitoring Project-Indian Clean Air Programme (ICAP).

  Modeling exercise has been undertaken considering the Traffic scenario in Year 2050. Emission rate as estimated for the project are detailed out in Table below.

Table 4-1: Traffic and Emission Rate used for Model

Projected Traffic Year 2050 (AADT)	CO Emission Factor (gm/mile/vehicle)
40276	4.34

Results

The output results at various distances along the project highway for projected Year 2050 are presented in Table below.

Table 4-2: Predicted Ground Level Concentration

Distance from Carriageway Edge (m)	CO Incremental Concentration (mg/m^3)
0m	0.34
10m	0.23
20m	0.18
30m	0.15
40m	0.13
50m	0.12
60m	0.10
70m	0.10
80m	0.09
90m	0.08
100m	0.08

Conclusion

Considering the baseline ambient concentration of CO was <1.14 mg/m^3 at all monitoring stations and predicted incremental concentration of 0.34 mg/m^3 at the edge of project RoW, the maximum resultant CO concentration shall be in the tune of 1.48 mg/m^3 in respect to 2 mg/m^3 of Ambient Air Quality Standards. Hence, predicted CO concentration including ambient level shall remain well within the National Ambient Air Quality Standards for the projected years 2050.

4.2.2.1 Impacts during Pre-Construction phase

Generation of dust is the most likely impact during this stage due to:

- Site clearance and use of heavy vehicles and machinery etc.;
- Procurement and transport of raw materials from quarries to construction sites;

4.2.2.2 Mitigation measures during Pre-Construction phase

The impacts will mostly be concentrated in the ROW. If adequate measures such as sprinkling of water on haul roads around sites where clearance activities are on, covering material trucks especially those carrying sand and dust, then the impacts can be reduced to a great extent. It is likely that impacts due to dust generation are felt downwind of the site rather than on the site itself.

4.2.2.3 Impacts during Construction phase

During construction phase, the project would have impacts on ambient air quality due to the emissions by construction equipments and vehicles, and an increase in dust level by the construction activities. Earth excavation work, foundation work, transportation and handling of construction materials together with wind erosion could be the major factors, which may produce a temporary and localized increase in PM10 and PM2.5 levels. The increased movement of heavy vehicles carrying construction materials, operation of DG sets as standby power back-up system would generate gaseous emissions. The construction contractor has to ensure regular monitoring of dust levels in the vicinity of the proposed expansion site during the construction activities. Dust suppression will have to be applied and other means as necessary to suppress and curb dust pollution, in the event that high levels of dust are observed.

Construction activities to be carried out during the dry season when the moisture content would be less, dust generation, particularly due to earthworks will be significant. Dust is likely to be generated due to the various construction activities including:

- Mixing of road materials;
- Construction and allied activities.

4.2.2.4 Mitigation Measures during Construction phase

Generation of dust is a critical issue and is likely to have adverse impact on health of workers working in dust generation activities. The Environmental Action Plan to be prepared by Contractor/Concessionaire must lay emphasis on enforcement of measures such as provision of pollution masks, regular sprinkling of water to suppress dust to mitigate this impact.

4.2.2.5 Impacts during Operation Phase

The negative impacts on air quality during operation stage shall not be significant as that of construction stage. This is due to the reduction of dust particles. No dust generation is envisaged during the operation stage as the all road shoulders are proposed to be paved and all slopes and embankments shall be turfed as per best engineering practices.

The significant contributor to the air pollution would be the movement of vehicles in the area (as line source of emission).

4.2.2.6 Mitigation measures during Operation Phase

The air quality shall also improve due to the plantation activity carried out in the ROW during the end of construction phase.

4.2.3 Impacts due to Noise and Vibration

Though the level of discomfort caused by noise is subjective, there is a definite increase in discomfort with an increase in noise levels. Road noise depends on factors such as traffic intensity, the type and condition of the vehicles plying on the road, acceleration / deceleration / gear changes by the vehicles depending on the level of congestion and smoothness of road surface. However, the baseline noise monitoring survey shows that noise levels are well within the stipulated limit as per CPCB Standard in all of the locations during day and night time both. Hence, noise is not a major concern in this area. However, a number of sensitive receptors (schools, colleges and hospitals) have been identified vicinity to the road which may get exposed to higher level of noise. The impacts on noise due to the project will be of significance in both the construction as well as the operation stages.

4.2.3.1 Pre-construction and Construction Stage

Impact

Site clearing activities, movement of HEMMs, operation of machineries, crusher & mixing plants, vehicular movement, etc. are likely to increase the noise level of the project region. Noise pollution is matter of concern, where alignment passes nearby to sensitive receptors like habitation, forest area, etc.

About 90 dB (A) of noise shall be generated from construction activity which shall attenuate to less than 55 dB (A) i.e. day time prescribed noise level at about 100m and less than 45 dB (A) i.e. night time prescribed noise level at about 300m. Comparison of distance vs Noise level (considering two Noise source of Intensity 90 dB(A) are working in parallel) for day and night time are shown in Figures 19 and 20 below.

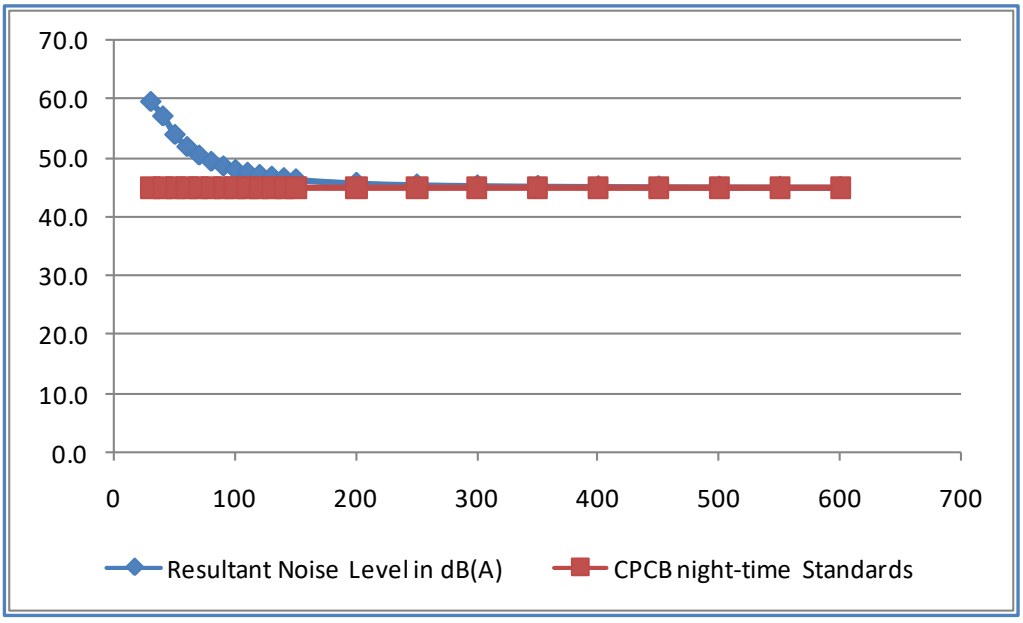


Figure 19- Day-time Construction Noise Intensity vs Distance from the Source

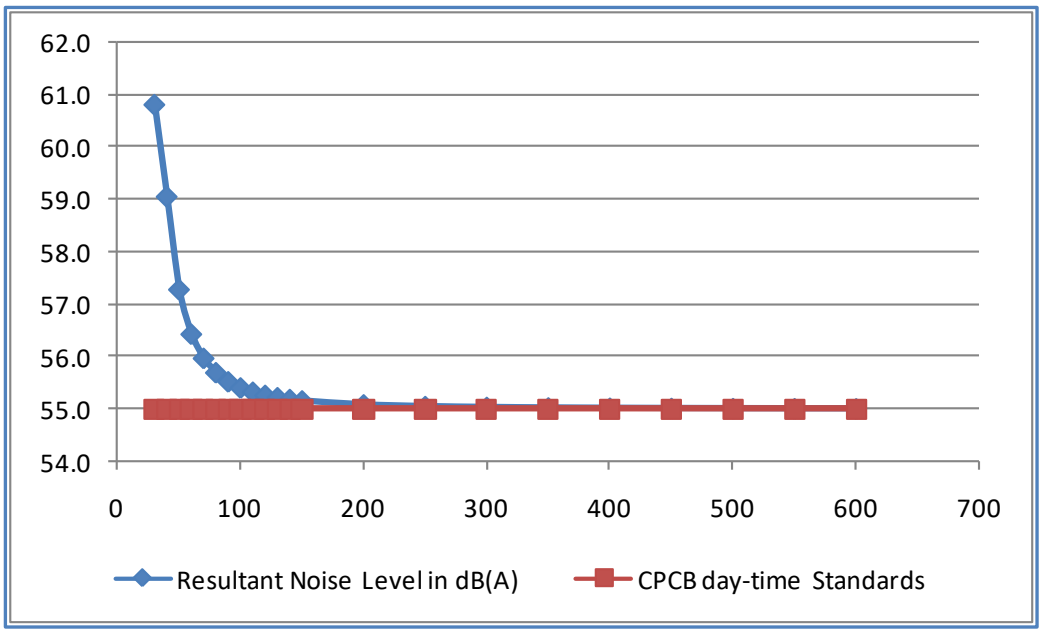


Figure 20- Night-time Construction Noise Intensity vs Distance from the Source

Part of project stretch is proposed adjacent to settlement areas. Therefore, the impact due to the noise shall be significant at these locations. Prior mitigation measures shall be required for neutralizing the affects.

Mitigation Measures

Construction camp shall be established at least 500m away from nearest habitation and forest area. Temporary noise barriers should be provided surrounding the high noise generating construction equipment during work near to habitation and forest area. Stationary noise source like generator sets shall be provided with an acoustic shield around them. The plants, equipment and vehicle used for construction will strictly conform to CPCB standards. Vehicles and equipments used will be fitted with silencer and maintained accordingly.

Noise generating activities should be scheduled based on community welfare. Noise level will regularly be monitored as per monitoring plan and if the noise level at any time is found to be higher, then immediate measure to reduce noise in that area will be ensured.

Noise standards of industrial area / zone will be strictly enforced to protect construction workers. All the workers working very close to the noise generating machinery shall be provided earmuffs to avoid any ill impacts on their health and condition will be made a part of conditions of contract.

4.2.3.2 Operation Stage

Impact

Road noise depends on factors such as traffic intensity, the type and condition of the vehicles plying on the road, acceleration / deceleration / gear changes by the vehicles depending on the level of congestion and smoothness of road surface. Noise is a major area of concern, especially since sensitive receptors (forest, habitation, etc.) have been identified in close proximity of the road.

CoRTN (Calculation of Road Traffic Noise) model developed by up UK Department of Transport is used for assessment of Noise Impact Intensity at various distances from the proposed highway. Traffic Noise has been estimated for uninterrupted traffic flow condition.

Limitations

Metrological conditions are not taken into account and Model does not take background noise into account such as trains, aero plane, industry, daily activities, market activities, etc.

Classification of Vehicles

In CoRTN model vehicles are classified onto two categories:

- Light vehicles
- Heavy vehicles

Approach, Methodology & Validation

The model has been validated for Indian Conditions by CSIR Central Road Research Institute and published the validation in 2008 vide paper titled "Validation of Noise Prediction Model for an Urban Area". The present model used for the project is derived from the CSIR CRRI validated and modified model.

Input Traffic

CoRTN model software was run by using traffic forecast data of year 2050.

Result Discussion

Considering individual sections have different traffic intensity, therefore, variation in the noise level increments is observed along the proposed corridor. The increment noise level will attain to the standards of residential i.e. 55 dB(A) at a distance of 40m from the carriageway edge. Space of carriageway and median is limited for 26m out of 70m RoW. Therefore, the effective distance for attenuation of noise level to ambient standard level shall be 18m from the RoW edge.

Table and figures below shown the Noise level due to traffic activities at various distances from carriageway edge against the Noise standards for Rural and residential areas.

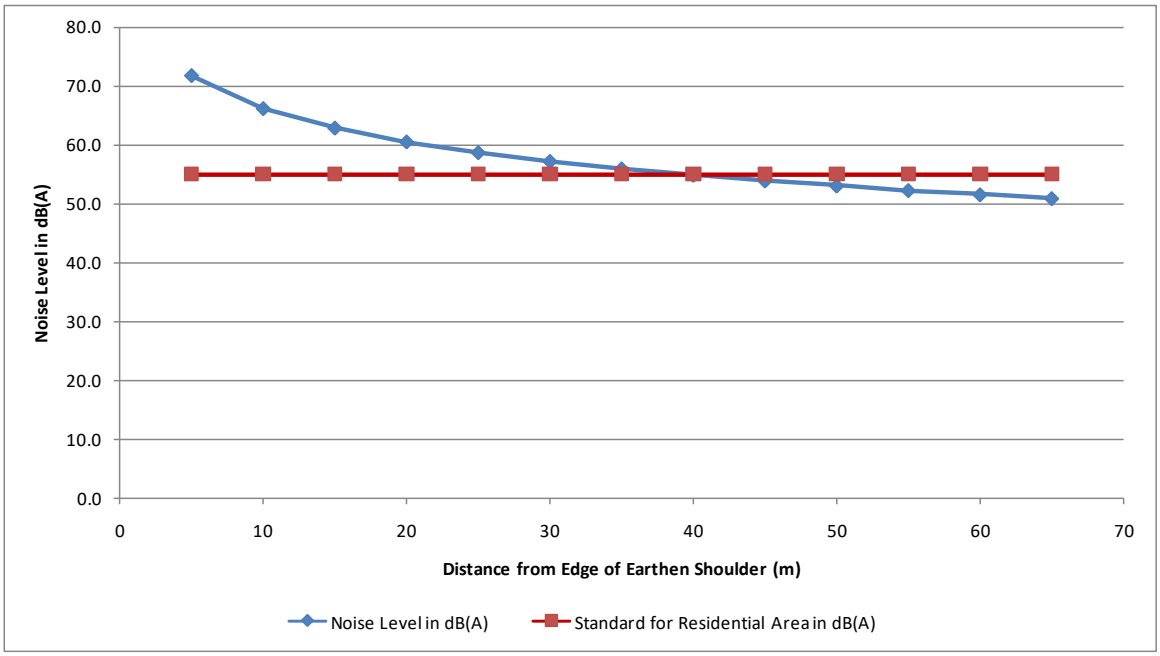
Table 4-3: Noise Level due to Vehicular Traffic (Year 2050)

Dist. from Earthen Shoulder edge (m)	Noise Level in dB(A)	Noise Standards for day time in dB(A)
5	71.8	55
10	66.2	
15	62.9	
20	60.5	
25	58.7	
30	57.2	
35	56.0	
40	54.9	

Dist. from Earthen Shoulder edge (m)	Noise Level in dB(A)	Noise Standards for day time in dB(A)
45	53.9	
50	53.0	
55	52.3	
60	51.6	
65	50.9	

Source: Outcome of Mathematical Modeling

Figure 21- Noise Intensity due to Vehicular Operation vs Noise Standards (Year 2050)



Mitigation Measures

Though the level of discomfort caused by noise is subjective, there is a definite increase in discomfort with an increase in noise levels. Road noise depends on factors such as traffic intensity, the type and condition of the vehicles plying on the road, acceleration / deceleration / gear changes by the vehicles depending on the level of congestion and smoothness of road surface. Noise is a major area of concern, especially since a number habitation and forest area have been identified in close vicinity of proposed alignment. The mitigation measures for noise are essentially aimed at protecting the receptor.

Noise barrier shall be provided in near residential areas. Tentative location of noise barrier location is provided in table below. However, location shall be finalised in consultation with villagers.

Table 4-4: Tentative Noise Barrier Locations

Order	Tentative Chainage	Side of the Proposed Highway	Approximate Length of barrier (m)
Noise Barrier 1	70000	LHS	60

Order	Tentative Chainage	Side of the Proposed Highway	Approximate Length of barrier (m)
Noise Barrier 2	67900	RHS	80
Noise Barrier 3	66100	Both	100
Noise Barrier 4	60300	Both	80
Noise Barrier 5	51200	Both	100
Noise Barrier 6	2100	RHS	80

No horn zone sign shall be displayed 100m before on either side of these receptors. Plantation as planned on both side of the proposed highway will help in attenuation on noise disseminated from vehicular operation. Regular monitoring is proposed in operation stage to monitor the efficiency of mitigation measures.

To reduce noise and vibrations, compound wall as noise barriers (Wall of 2m height) is proposed in front of education and medical facilities located along the proposed corridor. As per research carried out in the developed countries, a masonry wall has Noise Reduction Coefficient (NRC) value between 0.2 to 0.5. Based on Noise Modeling, noise level will attain to the standards of residential area at a distance of 13.5m RoW edge. Accordingly noise barriers are proposed for the sensitive receptors located within 13.5m from RoW edge (35.5m from earthen shoulder edge).

The issue for provision of Noise barrier needs to be discussed during construction phase. The contractor will hold a discussion with stakeholders related to sensitive receptor during pre-construction and construction stage of the road.

4.2.3.3 Mitigation measures during Construction phase

The contribution of project design towards mitigation of increased noise levels would be the improved riding surface and geometry, which will reduce vehicular noise generation, at least during the initial years after construction. The mitigation measures for noise are essentially aimed at protecting the receptor.

Provision of Personal Protective Equipment (PPE) for the crew will be made a part of conditions of contract. Specifying construction timings will prevent disturbance to the local populations. The following mitigation measures as given in table below need to be worked out for the noise impacts associated with the various construction activities

4.2.3.4 Impacts during Operation phase

During operation, impacts due to noise and vibration are explained below:

- Noise due to operation of DG sets for power back-up would be controlled by adequate acoustic treatment and hence there will not be any significant impact. However, operation of DG set is not a regular activity of the terminal.
- There may be marginal impact on ambient noise level due to the movement of vehicles but it will not increase the baseline. Impacts on noise environment, if any, during to the operational stage of the project would be appropriately attenuated by the development of greenbelt in the vicinity of the project.

4.2.3.5 Impacts during Operation phase

To reduce noise and vibrations, plantation and compound wall as noise barriers (Wall of 2m height) is proposed. As per research carried out in the developed countries, a masonry wall has Noise Reduction Coefficient (NRC) value between 0.2 to 0.5. Most of the sensitive receptors have their own compound wall. However, costing of the boundary wall have been calculated considering that compound wall need to be constructed afresh. The feasibility of extending the existing boundary wall will be checked by the contractor during construction phase. The plantation along the compound wall will act as additional facility to inhibit noise disturbance. Shade and flowering trees shall be planted within the boundary of the sensitive receptors, between the building line and the compound wall. Cross section of the Boundary wall (Nise Barrier) is given as Figure below.

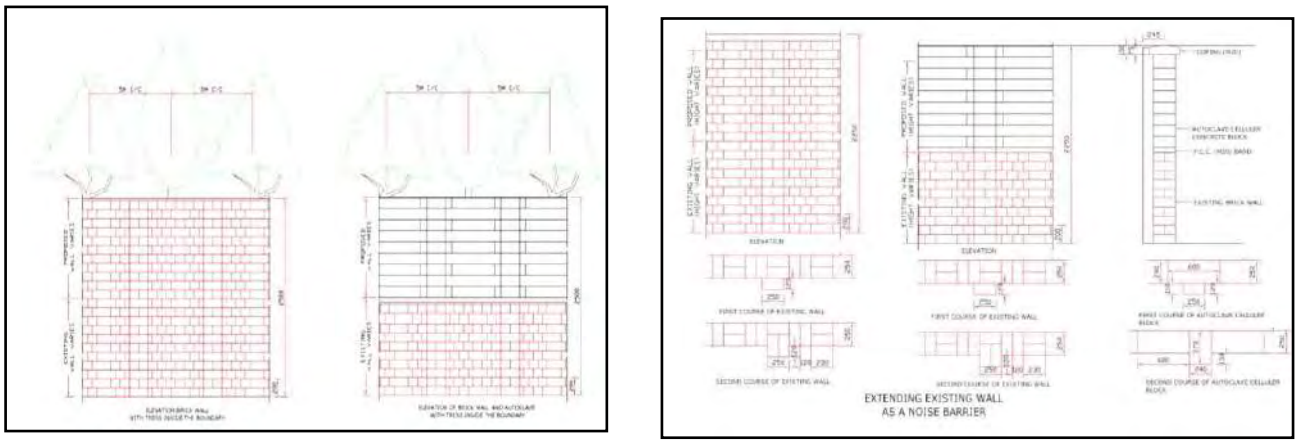


Figure 22- Cross section of the Boundary wall (Noise Barrier)

4.2.4 Impacts on Water Environment

- Construction of the cross drainage structures i.e. Major and Minor bridges and culverts are proposed for the project. The cross drainage structures will be constructed without compromising on the flow part. Short-term increase in runoff sedimentation load during construction may occur due to the removal of trees, vegetative cover and compaction of the surrounding soil during pre-construction. Thus the increased sediment load will be a significant impact that needs to be addressed for all water bodies along the corridor.
- Road construction is expected to increase surface run off.

The total water demand of the project is 1508891 KL, which is inclusive of

- 1466891 KL for Construction purpose
- 18000 KL for domestic consumption and utilities requirement
- 12000 KL for gardening/ green belt development
- 12000 KL for Dust Suppression

Location of surface water sources located along side the river are shown in **Annexure XIII**.

Wastewater generated from rinsing of Batching plants and sewage generated by employees may cause health hazard if not disposed at properly designated places.

4.2.5 Mitigation Measures

- NHAI would install Septic tanks or use bio-toilets to treat sewage generated by employees.
- Silt fencing will be provided between road and water bodies to avoid any siltation due to run-off from construction area.
- Continuous unlined drain in rural sections and covered line drain urban sections has been proposed. Surface runoff shall be drained to the nearest cross drainage structure. The engineering design includes design of cross drainage structures, which should take care of the extra flow.

4.2.6 Solid waste / Sludge Generation

The proposed terminal during the operation phase shall generate solid waste which includes food waste generated by employees and garden leaves etc. Tentative quantity would be about 450 kg per day.

4.2.7 Mitigation measures

Municipal Solid waste will be collected and disposed of in environmentally acceptable ways.

- Dark grey bin for non-recyclable waste
- Green bin for food/ compostable garden waste
- Blue bin for paper waste

Recyclable waste would be re-used or disposed-off by sale. Garden waste & compostable waste would be composted. Other non-recyclable waste would be disposed off through municipalities.

4.2.8 Impacts on Landuse

The proposed construction of the highway will have significant impacts on the existing landuse. The present landuse of the site is mostly agricultural/ open. However, after the implementation of the project, the landuse shall change to paved surface and area near the road may change into commercial place. Thus, to minimize the effects of the change in the landuse, the proper mitigation measures shall be taken including greenbelt development, water sprinkling, and reclamation of dug out pits for construction purpose.

4.2.8.1 Physiography

Pre-construction and Construction Stage

Road construction activities involve alterations in the local physiography and drainage patterns. The impacts on physiography may include destabilisation of slopes due to cut and fill operations. Cut-and-fills will be designed for improvement to the road geometry, and parallel cross drainage structures will be added to improve drainage. There would be no grading of the roadside area. Project road stretch falls in plain terrain.

4.2.8.2 Geology and Seismology

Pre-Construction, Construction and Operation Stage

The entire stretch of the project highway traverses through seismic Zone - II as defined by the Indian Standard (IS) seismic zoning classification system, i.e., a zone of stability. The project does not have any impact on the geological or seismic stability of the area.

4.2.8.3 Quarries

Pre-Construction & Construction Stage

Impact

Existing quarries that are already in operation with the required clearances have been recommended for this project. No new quarries are proposed and hence no major impacts, which arise in making new quarries operational, are likely. In case Contractor/Concessionaire decides in opening new stone quarries he shall follow the stipulated GoI norms.

Quarrying in non-scientific manner may unstable the soil condition and affect the terrain of the area.

Dust, in addition to being a health concern also reduces visibility thereby increasing safety concerns. As no new quarry needs to be opened for this project (majority of the material shall be from cut operations, reuse of old materials and existing quarries), therefore, no new impacts are likely to arise due to quarrying operations. It will be ensured that quarry contractor is following environment management system to take care of the working conditions of workers in the existing quarry areas selected for the project.

Mitigation

Existing approved quarries which are already in operation with the required environmental clearances have been recommended for this project, hence no new quarries have been proposed. It needs however, to be noted that recommendation on use of quarries is a guideline only and has been done to establish the feasibility of construction. Though the quarry materials are to be transported over long distances to the construction sites, almost all the quarries identified have proper access roads, therefore, no major impacts during the hauling of materials is envisaged. The issue of dust generation etc. along the haul roads needs to be addressed through proper enforcement of dust suppression measures.

Sand required for the construction will mostly be procured from the approved operating river quarry as. As an alternative to borrowing of sand from river bed the possibility of using stone crusher dust shall be explored. Stone dust from crusher can be used for the construction works provided the quantity and the quality produced is certified by Monitoring consultant to be satisfactory for all construction works, else river sand shall be used from the identified quarry. None of the sand quarry sites would require any additional preventive environmental measures. However, the long leads mean that care would have to be taken to prevent spillage of material and damage to the haul roads during transportation. No additional

adverse environmental impact except those resulting from spillage during transportation is expected to occur. Hence proper care for transportation should be taken into account.

4.2.9 Impacts on Soil

The proposed highway would involve construction and allied activities within the local area as required for various utilities. Open excavation would be carried out in the designated areas and which will temporarily have short-term impacts on soil in local areas within the project premises. Hence, there will not be any significant impact on the soil outside the premises of the project.

4.2.10 Impacts on Socio-economic Environment

The project will definitely contribute towards the socio-economic development of the area by way of development of ancillary industries. The direct and indirect employment to the local population during the operation of the project for both semi-skilled and unskilled levels will benefit the local population. During construction phase, the project will also generate temporary local employment. In nutshell, the project would create better infrastructure, better availability of resources, improve livelihood, socio-economic and health facilities.

4.2.11 Impacts on Biological Environment

4.2.11.1 Forest area

Need for diversion of forest land has been envisaged for this project. Hence Forest Clearance under the purview of Forest (Conservation) Act, 1980 is applicable.

About 47 Hectares of forest area is proposed to be diverted for the proposed project. The application for the same has already been done to the forest department.

4.2.11.2 National Park/ Ecological Sensitive Areas

The 10-km buffer zone of the project area is not having any

- National Park
- Sanctuaries
- Biosphere Reserve
- Wildlife Corridor
- Tiger/ Elephant Reserve

There is a scope of slight impact to local domestic animals, which graze in the area especially after the road is constructed. Increased vehicle movement in the area might lead to accidents involving animals. Apart from this, micro-ecosystems developed on the roadside with the birds, animals and insects using the plantation over the years would be lost due to loss of their habitat.

Mitigation

- Speed control has been proposed. Design speed should be limited within 45 km/hr. Proper signage must be placed at 1 km interval at each side of road (smaller size: 900mm eq. triangle) & 2 km interval at each side of road (Larger Size: 1200 x 600 mm).

- Mandatory / Regulatory sign (60 cm circular) for entire section of project road for every 2 km at alternate side is proposed
- No negative impacts are envisaged on the fauna during the construction phase & operational phase.
- Special care of Ponds shall be taken since the wildlife and Public dependent on these water bodies.
- No horn zone and no halting sign shall be placed in stretch between km Noise Sensitive receptor like school and Hospitals.
- The compensatory plantation shall act as the new habitat for the birds, animals and insects species.

4.2.12 Statement of Environmental Impacts

Table 4-5: Potential Impacts during construction phase

Environment Media	Potential Impacts	Source of Impact	Type of Impact	Safeguards/Mitigative Measures
Water Pollution	Spillage/ Seepage	Construction Material	Short Term	Careful handling of construction equipments
Air Quality	Increase in NO_2 Concentration & Dust Concentration	DG Sets/Construction Equipment/ Vehicles	Short Term	• Adequate servicing of equipments • Adequate stack height • Water spraying
Noise and Vibration	Increase in Noise Level due to operation of equipment	DG Sets/ Construction Equipments	Short Term	• Adequate servicing of equipments • Acoustic enclosures for DG Sets
Socio-economy	Enhancing of Socio- economic conditions	Employment Generation Facility Creation	Beneficial Impacts	-
Ecology & Biodiversity	No Impact Significant	No Significant Impact	No Significant Impact	Greenbelt development
Land use	Paved surface	--	Marginal	-
Geology	No Impact on Geology	No Impact on Geology	No Impact on Geology	-
Hydrology and Ground water	Spillage / Seepage	Construction Material	Short Term	Careful handling of equipment.

Table 4-6: Potential Impacts during operation phase

Environment Media	Potential Impacts	Source of Impact	Type of Impact	Safeguards / Mitigative Measures
Water Pollution	None	None	None	--
Air Quality	Increase in NO_2	Vehicular	Significant if	• Water Sprinkling

Environment Media	Potential Impacts	Source of Impact	Type of Impact	Safeguards / Mitigative Measures
	concentration& Dust Concentration	Movement	remain unabated	• Green belt development
Noise and Vibration	Increase in Noise Level due to operation of equipment	Vehicular Movement	Significantif remain unabated	Green belt development.
Socio-economy	Improvement in Socio- economic status	Employment Generation Facility Creation	Beneficial Impacts	-
Ecology & Biodiversity	Loss of habitat	Terminal Activities	No Significant Impact as there is no ESZ in buffer zone	Green Belt Development will enhance ecological value.
Land use	No change in Landuse	No change in Landuse	No change in Landuse	-
Geology	No Impact on Geology	No Impact on Geology	No Impact on Geology	-
Hydrology and Groundwater	No Impact	No Impact	No Impact	-
Solid & Hazardous Waste	No Impact	No Impact	No Impact	-

4.2.13 Development of Impact Matrix for networking

Matrix system is adopted for the evaluation of quality of the environment components with reference to present project activities. To understand the significance of the key impacts, comparison basis is described hereinafter. The matrix system incorporates a list of activities associated with the present project activities, in addition to a checklist of potentially impacted environmental indicators. Positive or negative signs are assigned to the impact value to show the beneficial or adverse effects. The impact is quantified using (0-10). Scale in the increasing order of severity as per the rating given below:

Table 4-7: Color coding for increasing severity

LEGEND											
Magnitude	0	1	2	3	4	5	6	7	8	9	10
Color Coding											
Severity	Least severe										Most severe

Table 4-8: Severity details

Impact	Scale (0-10)	Impact Management
No Impact (NI)	0-1	No significance & can be absorbed by assimilative capacity of nature

Slight to Moderate Impact (SMI)	>2-4	Can be addressed by appropriate measures
Appreciable Impact (AI)	>5-7	Can be reverted by appreciable control measures
Considerable Impact (CI)	>8-9	Can be reverted by major control/ policy measures
Permanent Impact (PI)	>9-10	Permanent damage & not reversible

Table 4-9: Impact Analysis Matrix

Environmental Components	Project Activities/Proposed Action											
	Pre-Construction			Construction						Operation		
	Land Acquisition	Delineation	Survey	Site Clearance	Workforce Camp	Excavation	Embankment	Assess Roads	Culverts	Traffic Management	Maintenance	Greenbelt Development
Surface Water Quality	0	0	0	5	1	4	0	0	1	0	0	0
Surface water hydrology	0	0	0	6	1	7	2	0	4	0	0	0
Air Quality	0	0	0	7	2	5	0	0	0	0	0	1
Land-use Pattern	0	0	0	4	4	5	1	1	0	0	0	0
Ground-water quality	0	0	0	0	0	1	0	0	0	0	0	0
Soil quality	0	0	0	0	1	3	0	0	0	0	0	0
Noise Levels	0	0	0	4	5	5	0	0	0	5	0	1
Socio-Economic status	3	0	0	3	3	2	0	2	0	4	2	0
Health	0	0	0	3	3	4	0	0	0	1	0	2
Ecology and Bio-diversity (Flora)	0	0	0	2	2	3	0	0	0	0	0	5
Ecology and Bio-diversity (Fauna)	0	0	0	0	2	3	0	0	0	0	0	4

4.2.14 Outcome of the Impact Matrix

The detailed analysis of the Impacts by the project the following was determined:-

Impacts of the project activities on most of the components were either in the No Impact(NI) zone followed by the ones in Slight or Moderate Impact(SMI) Zone.

Few of the activities i.e. Site clearance and Excavation had Appreciable impacts on Surface water hydrology and Air Quality.

5 ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

5.1 Introduction

This chapter tries to compare feasible alternatives to the proposed project with respect to site, technology, design etc. The alternatives examined take into account all possible and feasible options and include with and without project scenarios in terms of the potential environmental impacts for the justification of the project.

5.2 Criteria for Selection of Site

- The Economic Corridor between two terminal stations should be short and straight as far as possible, but due to engineering, social and environmental considerations some deviations may be required.
- The project should be constructible and easy to maintain; the Greenfield project should reduce the vehicle operation cost with respect to the existing option already available *i.e.* using the NH/SHs in combination to reach from point A to point B.
- It should be safe at all stages i.e. during design, construction and operation stages. Safety audits at each stage should confirm the same.
- The project initial cost, maintenance cost, and operating cost should be optimum so as to be considered economical with respect to its options.
- The alignment should be finalised giving due consideration to siting/location of major structures including Major/Minor Bridges, Interchanges and ROBs. The space requirement of interchanges to be kept into consideration to avoid major resettlement.
- Tunnel / Box cutting of Hills should be considered as the last option and should be provided only when it is absolutely necessary.
- The location of spurs for connecting the important towns to be decided while fixing the alignment Options.
- The alignment should follow the unused / barren land to the extent possible to reduce the cost of land acquisition.

The proposed options in the present case connects the under developed regions of Chhattisgarh which would lead to the development of new growth centres along the proposed highway i.e. paving the way for economic development of the region.

Hotspots for the alignment options to avoid to the extent possible:

Habitations: Proposed alignment is fixed in such a way that traverses at a minimum distance of 150 m from built up areas and avoiding important buildings and structures. However, few isolated buildings falling along the alignment cannot be avoided due to Geometric requirements.

Wildlife Sanctuaries, National Parks, Reserve Forest and other Eco Sensitive Zones: The proposed alignment doesn't pass through any Wildlife Sanctuary, National Park and other Eco Sensitive Zones. However it passes through Revenue and reserve forests. Utmostcare is taken while fixing the alignment near forest areas. The MOEF&CC guidelines have been adhered to and the alignment has been fixed keeping it away from any eco-sensitive zone. It was not possible to completely avoid the reserve forest areas. However, every effort has been made to reduce the acquisition of forest area.

Water Bodies: The proposed alignment has been fixed taking due consideration & importance of retaining the existing water bodies as far as feasible.

Railway Crossings and Important Structures: The components which increases the project cost are the presence of the Major bridges, ROBs and other structures. In order to reduce the project cost number of structures and its length were given due consideration while finalising the alignment.

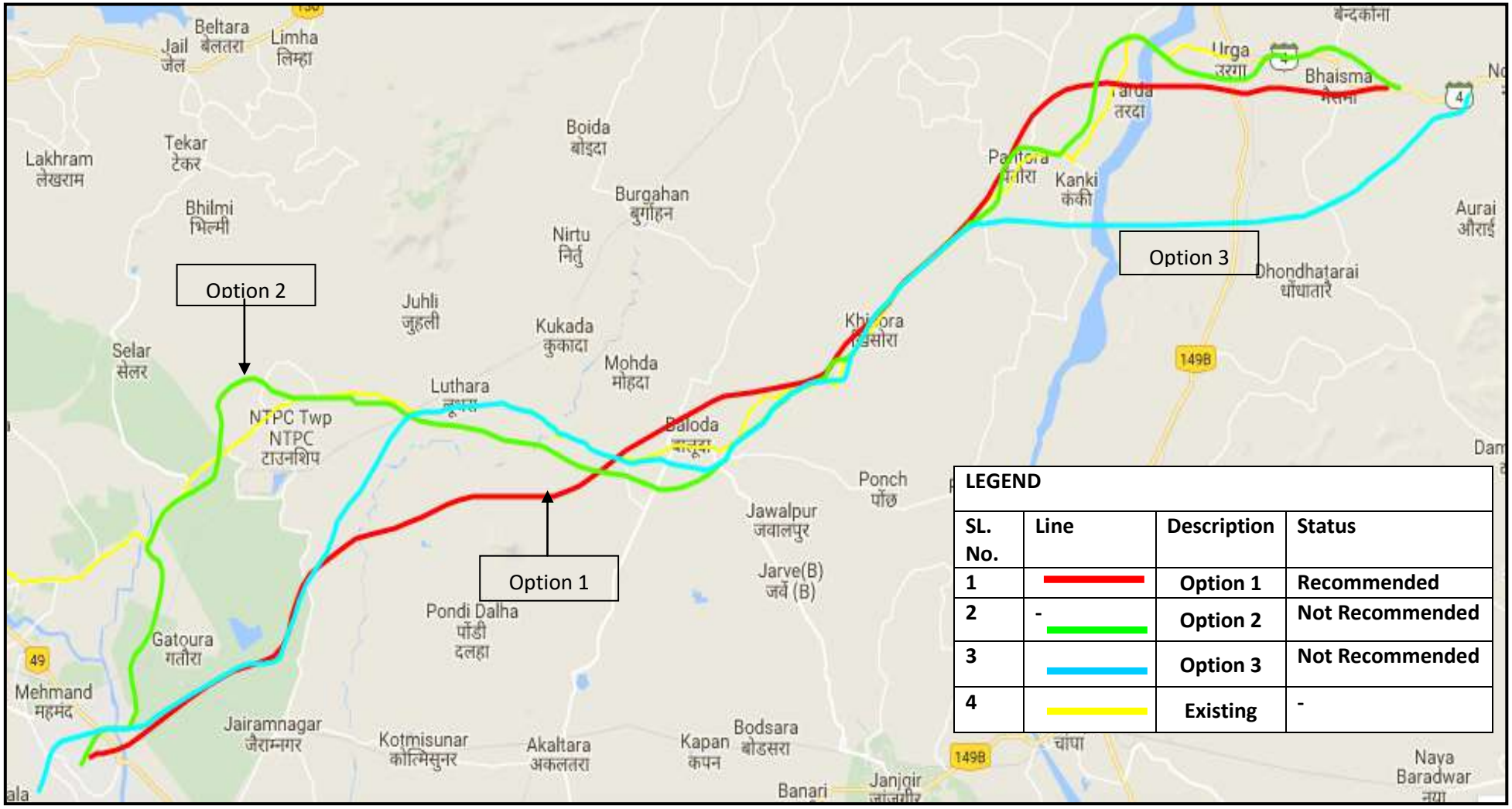


Figure 23- Locations of the alternatives

The comparative statement for all the options for proposed alignment is given in below table:

Table 5-1: Comparative statements of all options

S. No	Description	Option I	Option II	Option III
1.	**Length (Km.)**	70.2	84.6	80.5
2.	**Start point**	Alignment starts at Junction with NH-130 & NH-130A, near Nehru Chowk, Bilaspur	Alignment starts at Junction with NH-130 & NH-130A, near Nehru Chowk, Bilaspur	Alignment starts near Silpahri Village, Bilaspur
3.	**End point**	Alignment terminates at Junction with NH-149B & SH-4 near Urga Village.	Alignment terminates at Junction with NH-149B & SH-4 near Urga Village.	Alignment terminates at Junction with NH-149B & SH-4 near Urga Village.
4.	**Districts**	Bilaspur, JanjgirChampa and Korba	Bilaspur, JanjgirChampa and Korba	Bilaspur, JanjgirChampa and Korba
5.	**Connecting Highways**	NH200	NH200	NH200
		SH4, SH9	SH4, SH9	SH4, SH9
6.	**Lane Configuration**	4 lane		
7.	**Proposed Right of Way (m)**	70	70	70
8.	**Ex. Right of Way (m)**	0, as it is a greenfield alignment	0, as it is a greenfield alignment	0, as it is a greenfield alignment
9.	**Approx Travel Time (Hrs,Mins)**	2 hrs	2 hrs 20 Mins	2 hrs 10 Mins
10.	**No of NH crossings**	1	1	1
11.	**No of SH crossings**	2	2	2
12.	**Features**	Underpasses 20	Underpasses 37	Underpasses 39
		ROB 2	ROB 2	ROB 2
		Major Bridge 3	Major Bridge 4	Major Bridge 4
		Minor Bridge 2	Minor Bridge 7	Minor Bridge 6
		3 Rivers and 2 Canals	3 Rivers and 2 Canals	3 Rivers and 2 Canals
13.	**Number of settlements shall be affected**	8	30	20
14.	**Length of proposed road along the settlements (Km.)**	0.698	4.372	6.403
15.	**Affected Forest Area (Ha)**	47	48	50
16.	**Land Acquisition (Ha)**	409	592.2	563.5
17.	**Land Acquisition Cost (Cr.)**	246	356.2	339
18.	**Eco-sensitive/Protected Area**	None	None	None
19.	**Merits**	1. Major part of the alignment passing through the agricultural and barren land with patches of Forest		
		2. No ESZ areas in the RoW		
		3. The forest area is less than Option 3.	3. The forest area is less than	

S. No	Description	Option I	Option II	Option III
			Option 3.	
		Least Pollution Envisaged		
		5. Shortest Distance. Hence least time required for commuting.		
		6. Least land to be Acquired		
		7. Least number of settlements to be affected		
		8. Least number of Sensitive Features		
20.	**Demerits**			1.Maximum number of Sensitive Features
				2. Maximum forest Area
			3. Maximum Land to be acquired	
				4. Maximum Settlements to be affected.

5.3 Outcome of the Analysis of Alternatives

Out of the three options, Option I is best suitable due to following reasons:-

- Major part of the alignment Passing through the agricultural and barren land with patches of Forest
- No ESZ areas in the RoW
- Least forest area involved
- Shortest Distance. Hence least time required for commuting
- Least land to be acquired
- Least number of settlements to be affected
- Least number of Sensitive Features

6 ENVIRONMENT MONITORING PROGRAM

Present study for EIA/EMP has been carried out over a shorter period and the data cannot bring out all variations induced by natural or by human activities. Therefore, regular monitoring program of the environmental parameters is essential to take into account the changes in the environment. The objectives of monitoring, therefore, would be:

- To follow the trend of parameters which have been identified as critical;
- To ensure the efficiency of the controlling measures;
- To ensure that new parameters, other than those identified in the impact assessment study, which do not become critical through the commissioning of new installations or through the modification in the operation of existing facilities;
- To check assumption made with regard to the development and to detect deviations in order to initiate necessary measures.

Regular monitoring of important and crucial environmental parameters is of immense importance to assess the status of environment during operation of the proposed project. With the knowledge of baseline conditions, the monitoring program can serve as an indicator for any deterioration in environmental conditions due to operation of the project and suitable mitigating steps could be taken in time to safeguard the environment. Monitoring is as important as that of control of pollution since the efficacy of control measures can only be determined by monitoring. A specific routine monitoring program would therefore be implemented which has been discussed as below:-

Table 6-1: Project Monitoring Schedule

Component of Environment	No. of Location	Parameter	Frequency
Ambient Air Quality	6 locations vicinity in project	SO_2, NO_x, PM_{10}, $PM_{2.5}$, CO, O_3, Pb, Benzene, BaP, Total Hydrocarbons	Two times a week in a year for 24 hrs
Ambient Noise Level	5 location in project vicinity	Leq, Lmax, Lmin	Two times in a year
Water	6 locations including surface and ground water	As per IS 10500 and IS 2296	Twice in a year
Soil characteristics	4 locations in the close vicinity of the project	As per ICAR soil fertility criteria	Twice in a year

Regular monitoring of important and crucial environmental parameters is of immense importance to assess the status of environment during operation of the proposed project. With the knowledge of baseline conditions, the monitoring program can serve as an indicator for any deterioration in environmental conditions due to operation of the project and suitable mitigating steps could be taken in time to safeguard the environment. Monitoring is as important as that of control of pollution since the efficacy of control measures can only be determined by monitoring.

7 ADDITIONAL STUDIES

The various additional studies have been undertaken for the project including Risk assessment, Public Consultation and Social Impact Assessment/ R&R Action Plans.

7.1 Public Consultation

Major purpose of the public consultation of environmental issues in the EIA study is to appraise the stakeholders on potential environmental impacts and collect their feedback so that adequate safeguards can be considered during the planning phases. The outcome of the consultation is discussed in sections below.

7.1.1 Consultation Details

Consultations were held at 10 different locations along the alignment. Details of the location along with time and date of consultation is given in Table below.

Table 7-1: Details of Consultation

Sr. No	Location & Dates	Stakeholders Participated	Target group
1.	At village market, Sankar village Date: 05/10/2018 & Time: 04:00PM	Local community	Affected families, panchayat member and local people
2.	At Sarpanch house, Chandaniya Date: 06/10/2018 & Time: 11:30 AM	Local community	Sarpanch, affected families and local people
3.	At chowk, Dheka village Date: 06/10/2018 & Time: 03:00 PM	Local community	Affected families, labor and local people
4.	At Dashrath Yadav house, Bhilai Date: 09/10/2018 & Time: 11:30 AM	Local community	Sarpanch, affected families, women and local people
5.	At Karampal meri house, Baksara village Date: 09/10/2018 & Time: 01:00 PM	Local community	Affected families and local people
6.	At chowk, Tarda-Parsa Bhata village Date: 09/10/2018 & Time: 02:40 PM	Local community	Sarpanch, affected families, women and local people
7.	Near canal, Akhrapali village Date: 09/10/2018 & Time: 04:30 PM	Local community	Affected families and local people
8.	At Christ church, Urga Date: 10/10/2018 & Time: 10:10 AM	Committee of the church	Director and committee member of the church
9.	At satnami mohalla, Bagbuda village Date: 10/10/2018 & Time: 11:27 AM	Local community	Affected families and local people
10.	At chowk near Chandar Bai house, Bhainsma Date: 10/10/2018 & Time: 01:40 PM	Local community	Sarpanch, affected families, labor and local people

At the start of the consultation sessions, the project objectives, proposed improvements for the project were informed to the participants. It was informed to the participants that there was a conscious effort to minimize adverse environmental impacts. Further, it was clarified that, the consultations will form inputs to further refine the project designs to minimize lands on private and community structures and assets.

Figure 25- Consultation and Group Discussion with different stakeholders

	
Consultation meetings with affected and local people at Dheka village (Ch- 1+300)	Consultation meetings with local people at Sankar village (Ch- 18+100)
	
Consultation meetings with affected and local people at Sankar village (Ch- 18+100)	Consultation meetings with Panchayat Member at Sankar village (Ch- 18+100)
	
Consultation meeting with Sarpanch and affected people at Chandaniya village (Ch- 24+600)	Consultation meeting with Sarpanch and affected people at Bhilai village (Ch- 34+600)

	
Consultation meeting with affected women at Bhilai village (Ch- 34+600)	Consultation meeting with Sarpanch and affected people at Baksara village (Ch- 51+200)
	
Consultation meeting with affected people at Tarda-Parsa Bhata village (Ch- 56+600)	Consultation meetings with affected families and local people at Akhrapali village (Ch- 59+950)
	
Consultation with director and member of the Life in Christ Church at Urga village (Ch- 63+000)	Consultation meeting with affected and local people at Bagbuda village (Ch- 66+140)

	
Consultation meeting with affected people at Tarda-Parsa Bhata village (Ch- 67+860)	Consultation meeting with former Sarpanch, affected and local people at Bhaisma village (Ch- 68+080)

7.1.2 Outcome of the Consultation

Major issues observed among the community were related to the land acquisition, compensation and alignment location. Findings related to key issues such as general perception about the project; suggestions to mitigate hardships resulting from dislocation and loss of livelihood are presented below:

- It was observed that people are not only aware of the project but also mostly welcomed the project in general
- People uses bore wells for drinking water and irrigation purpose
- People suggested for development of irrigation system (Canal) along the side of proposed highway as social service to the community
- Youth of the study area it is found that they are much conscious with their education, career and are seeking employment opportunity in metropolitan cities like Delhi, Mumbai and abroad. Numbers of youth were involved in preparation of govt. jobs like army, police and SSC.
- Affected people demanded for vehicular underpass for day to day activities, village and market access.
- Air & Noise pollution was not a big concern in the project area. However dust pollution in dry season and noise due to traffic movement sometime disturbs immediate roadside dwellers.
- The potential PAPs in general were very much concerned about the mode of compensation and employment.
- Green Belt development along the highway

7.2 Public Hearing

Public consultation is an integral part of the project and required to conduct prior to Environmental Clearance. Public consultation is the process by which the concerns of local affected persons and others who have reasonable stake in the environmental impacts of the project or activity are ascertained. The project proponent has submitted the draft EIA report along with executive summary in Hindi and English to Chhattisgarh Environment

Conservation Board for its wide circulation. Public hearings were conducted in all 3 project districts as per provisions of EIA Notification, 2006 (amended thereof).

Table 7-2: Public Hearing Details

District	Date of Public Hearing	Chaired by	Place of Public Hearing	Advertisement date	Approx. Nos. of Attendees
Janjgir-Champa	25-02-2019	ADM, Janjgir Champa RO, CECB, Bilaspur	Near Gram Panchayat Bhawan, Amlipali Village	23-01-2019 (Times of India and Navbharat Bilaspur)	200
Bilaspur	06-03-2019	ADM, Bilaspur RO, RPCB, Bilaspur	Open Area near Radha Swami Ashram, Village-Dekha	03-02-2019 (Dainik Bhaskar, Bilaspur) 04-02-2019 (Hindustan Times)	300
Korba	05-07-2019	ADM, Korba RO, RPCB, Korba	Govt. High School, Tarda Village	07-08-2019 (Rajasthan Patrika) 08-08-2019 (Times of India)	200

Public Hearing at Janjgir Champa District

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THE TIMES OF INDIA, NEW DELHI
WEDNESDAY, JANUARY 23, 2019

क्षेत्रीय कार्यालय
छत्तीसगढ़ पर्यावरण संरक्षण मंडल, रायगढ़
व्यापार विहार, पं. दीनदयाल उपाध्याय पार्क के पास, बिलासपुर (छ.ग.)

लोक सुनवाई की सूचना

भारत शासन, पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय को ई.आई.ए. अधिसूचना दिनांक 14.09.2006 के अंतर्गत सर्व साधारण को सूचित किया जाता है कि M/s National Highways Authority of India द्वारा जिला-बिलासपुर एवं जिला-जांजगीर-चाम्पा के Development of Bilaspur Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Jnction with NH-130 and NH-130A, Near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattisgarh (approx. 70.2km) के पर्यावरणीय स्वीकृति हेतु लोक सुनवाई बाबत छ.ग. पर्यावरण संरक्षण मंडल अटल नगर, जिला-रायपुर में आवेदन किया गया है। उक्त के संबंध में लोक सुनवाई अपर कलेक्टर, जांजगीर-चाम्पा की अध्यक्षता में दिनांक 25.02.2019, दिन-सोमवार, समय-11.00 बजे, स्थान-ग्राम पंचायत भवन अमलीपाली के समीप खुदे मैदान, तहसील-अकलतरा, जिला-जांजगीर-चाम्पा (छ.ग.) में नियत की गई है। ई.आई.ए. अधिसूचना दिनांक 14.09.2006 के प्रावधानों के अनुसार ड्राफ्ट ई.आई.ए. रिपोर्ट एवं कार्यपालक सार की प्रति एवं इसकी सी.डी. जन सामान्य के अवलोकन हेतु डायरेक्टर, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार, इंदिरा पर्यावरण भवन, जोरबाग रोड, नई दिल्ली, मुख्य वन संरक्षक, क्षेत्रीय कार्यालय (डब्ल्यू.सी.जेड.) पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, ग्राउण्ड फ्लोर, ईस्ट विंग, न्यू सेक्रेटरियेट बिल्डिंग, सिविल लाईन्स, नागपुर (महाराष्ट्र), कार्यालय कलेक्टर, जांजगीर-चाम्पा, जिला-पंचायत कार्यालय, जांजगीर-चाम्पा, जिला व्यापार एवं उद्योग केन्द्र कार्यालय चाम्पा, जिला-जांजगीर-चाम्पा, कार्यालय ग्राम पंचायत सोंकर, कार्यालय ग्राम पंचायत सोनादुल्ला, कार्यालय ग्राम पंचायत चंगोरी, कार्यालय ग्राम पंचायत अमलीपाली, कार्यालय ग्राम पंचायत सोन, कार्यालय ग्राम पंचायत पिपरदा, कार्यालय ग्राम पंचायत चंदनिया, कार्यालय ग्राम पंचायत धोरसा, कार्यालय ग्राम पंचायत बलौदा, कार्यालय ग्राम पंचायत चारपारा, कार्यालय ग्राम पंचायत बलौदा, कार्यालय ग्राम पंचायत भिलाई, कार्यालय ग्राम पंचायत कोरपी, कार्यालय ग्राम पंचायत डोंगरी, कार्यालय ग्राम पंचायत हरदीबिशाल, कार्यालय ग्राम पंचायत खिसोरा, कार्यालय ग्राम पंचायत अंगारखार, कार्यालय ग्राम पंचायत पंतोरा, कार्यालय ग्राम पंचायत बक्सरा, जिला-जांजगीर-चाम्पा (छ.ग.) मुख्यालय छ.ग. पर्यावरण संरक्षण मंडल, पर्यावास भवन, नार्थ ब्लॉक, सेक्टर-19, अटल नगर, जिला-रायपुर, क्षेत्रीय कार्यालय, छ.ग. पर्यावरण संरक्षण मंडल, व्यापार विहार, पं. दीनदयाल उपाध्याय पार्क के पास, जिला-बिलासपुर में रखी गई हैं। जिस किसी व्यक्ति को उक्त परियोजना के संबंध में सुझाव, विचार, टीका-टिप्पणियां एवं आपत्तियां प्रस्तुत करना हो तो वे इस सूचना के जारी होने के दिनांक से 30 दिन के अंदर क्षेत्रीय कार्यालय छ.ग. पर्यावरण संरक्षण मंडल, व्यापार विहार, पं. दीनदयाल उपाध्याय पार्क के पास, जिला-बिलासपुर में मौखिक या लिखित रूप से कार्यालय समय में प्रस्तुत कर सकते है।

क्षेत्रीय अधिकारी
छत्तीसगढ़ पर्यावरण संरक्षण मंडल,
जिला-बिलासपुर (छ.ग.)

नवभारत

7

क्षेत्रीय कार्यालय,
छत्तीसगढ़ पर्यावरण संरक्षण मंडल,
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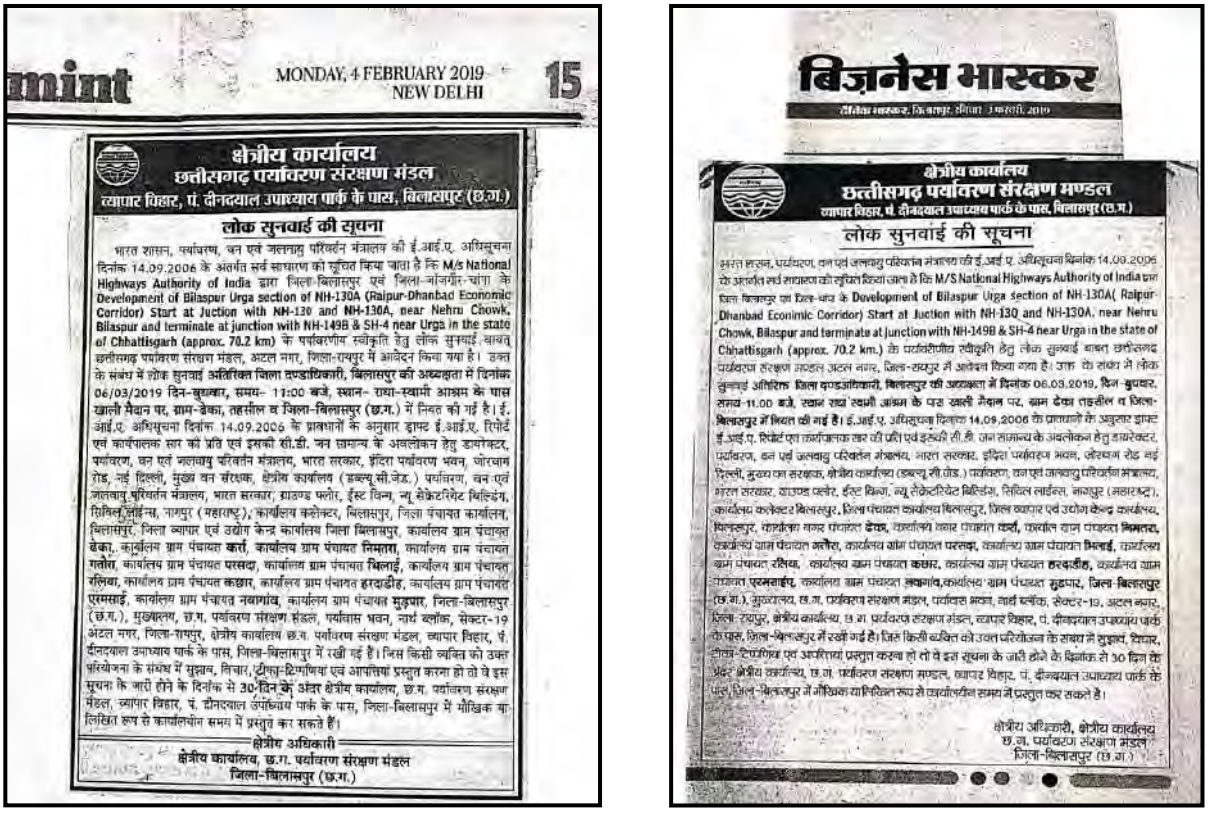
क्षेत्रीय अधिकारी
छत्तीसगढ़ पर्यावरण संरक्षण मंडल,
जिला-बिलासपुर (छ.ग.)

Figure 26- News Paper Cutting

Figure 27- Photographs of Public Hearing in Janjgir Champa District

Public Hearing at Bilaspur District



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MONDAY, 4 FEBRUARY 2019 NEW DELHI 15

क्षेत्रीय कार्यालय
छत्तीसगढ़ पर्यावरण संरक्षण मंडल
व्यापार विहार, पं. दीनदयाल उपाध्याय पार्क के पास, बिलासपुर (छ.ग.)

लोक सुनवाई की सूचना

भारत शासन, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय की ई.आई.ए. अधिसूचना दिनांक 14.09.2006 के अंतर्गत सर्व साधारण को सूचित किया जाता है कि M/s National Highways Authority of India द्वारा जिला-बिलासपुर एवं जिला-जांजगीर-चांपा के Development of Bilaspur Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Juction with NH-130 and NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattisgarh (approx. 70.2 km) के पर्यावरणीय स्वीकृति हेतु लोक सुनवाई बाबत् छत्तीसगढ़ पर्यावरण संरक्षण मंडल, अटल नगर, जिला-रायपुर में आवेदन किया गया है। उक्त के संबंध में लोक सुनवाई **अतिरिक्त जिला दण्डाधिकारी, बिलासपुर की अध्यक्षता में दिनांक 06/03/2019 दिन-बुधवार, समय- 11:00 बजे, स्थान- राधा-स्वामी आश्रम के पास खाली मैदान पर, ग्राम-डेका, तहसील व जिला-बिलासपुर (छ.ग.)** में नियत की गई है। ई. आई.ए. अधिसूचना दिनांक 14.09.2006 के प्रावधानों के अनुसार ड्राफ्ट ई.आई.ए. रिपोर्ट एवं कार्यपालक सार की प्रति एवं इसकी सी.डी. जन सामान्य के अवलोकन हेतु डायरेक्टर, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, इंदिरा पर्यावरण भवन, जोरबाग रोड, नई दिल्ली, मुख्य वन संरक्षक, क्षेत्रीय कार्यालय (डब्ल्यू.सी.जेड.) पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, ग्राउण्ड फ्लोर, ईस्ट विंग, न्यू सेक्रेटरियेट बिल्डिंग, सिविल लाईन्स, नागपुर (महाराष्ट्र), कार्यालय कलेक्टर, बिलासपुर, जिला पंचायत कार्यालय, बिलासपुर, जिला व्यापार एवं उद्योग केन्द्र कार्यालय जिला बिलासपुर, कार्यालय ग्राम पंचायत **ढेका**, कार्यालय ग्राम पंचायत **कर्रा**, कार्यालय ग्राम पंचायत **निमतरा**, कार्यालय ग्राम पंचायत **गतोरा**, कार्यालय ग्राम पंचायत **परसदा**, कार्यालय ग्राम पंचायत **भिलाई**, कार्यालय ग्राम पंचायत **रलिवा**, कार्यालय ग्राम पंचायत **कछार**, कार्यालय ग्राम पंचायत **हरदाडीह**, कार्यालय ग्राम पंचायत **एरमसाई**, कार्यालय ग्राम पंचायत **नवागांव**, कार्यालय ग्राम पंचायत **मुड़पार**, जिला-बिलासपुर (छ.ग.), मुख्यालय, छ.ग. पर्यावरण संरक्षण मंडल, पर्यावास भवन, वार्ड ब्लॉक, सेक्टर-19 अटल नगर, जिला-रायपुर, क्षेत्रीय कार्यालय छ.ग. पर्यावरण संरक्षण मंडल, व्यापार विहार, पं. दीनदयाल उपाध्याय पार्क के पास, जिला-बिलासपुर में रखी गई हैं। जिस किसी व्यक्ति को उक्त परियोजना के संबंध में सुझाव, विचार, टीका-टिप्पणियां एवं आपत्तियां प्रस्तुत करना हो तो वे इस सूचना के जारी होने के दिनांक से **30 दिन के अंदर** क्षेत्रीय कार्यालय, छ.ग. पर्यावरण संरक्षण मंडल, व्यापार विहार, पं. दीनदयाल उपाध्याय पार्क के पास, जिला-बिलासपुर में मौखिक या लिखित रूप से कार्यालयीन समय में प्रस्तुत कर सकते हैं।

क्षेत्रीय अधिकारी
क्षेत्रीय कार्यालय, छ.ग. पर्यावरण संरक्षण मंडल
जिला-बिलासपुर (छ.ग.)

बिज़नेस भास्कर

क्षेत्रीय कार्यालय
छत्तीसगढ़ पर्यावरण संरक्षण मण्डल
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क्षेत्रीय अधिकारी, क्षेत्रीय कार्यालय
छ.ग. पर्यावरण संरक्षण मंडल
जिला-बिलासपुर (छ.ग.)

Figure 28- News Paper Cutting

Figure 29- Photographs of Public Hearing in Bilaspur District

Public Hearing at Korba District

Times of India, Raipur Dt. 04/06/2019

Govt to foodgr

Move To Cut St

IN THE SUPREME COURT OF INDIA
CIVIL ORIGINAL JURISDICTION
TRANSFER PETITION (CIVIL) Nos. 1371-1373 OF 2012

छत्तीसगढ़ पर्यावरण संरक्षण मंडल
सर्व संबंधित को सूचना

Figure 30- News Paper Cutting

Figure 31- Photographs of Public Hearing in Korba District

Detailed proceedings of Public Hearing are attached as **Annexure XII**. The English translation of major observation made by the stakeholder during Public Hearing along with reply of the NHAI officials is presented in Table below.

Table 7-3: Public Hearing Proceedings

Name of the Person	Issues Raised (in Brief)	NHAI Response
Janjgir Champa District		
Mr. Kirti Kumar Rajpoor, Amlipali	Request to provide adequate compensation for land being acquired for proposed road.	Compensation shall be provided based on LARR, 2013
	More nos. of plantation should be carried out in comparison to trees to be felled.	At least 2 nos. of trees shall be planted for each tree to be felled.
	Supports the road construction, as it will help in the development of state. However, due to the vehicular movement on the road, crop may get affected, how will the compensation against this will be provided.	Construction vehicle shall be instructed to follow the specified route. Regular monitoring for first 5 years is prposed during operation phase
Mrs. Prabha Singh Rajpoot, Amlipali	Farmers are dependent on their agriculture land. Please provide the employment to the person loosing livelihood.	Compensation shall be provided based on LARR, 2013
Mr. Banshilal Kurre, Hardivishal	Please share the land measurement to the concerned farmers, whose land is affected under the proposed road, also provide the adequate compensation under land acquisition. Employment should be given to the youngsters.	Preference shall be given to the locals during construction phase of the project.
Mr. Balram Yadav, Korbi	There are 14 mango trees in my land, I have sold the land, but not the trees, however Patwari does not understand, Please help me to get the compensation for these trees.	Trees valuation shall be decided by Horticulture Dept.
Mr. Akhilesh kumar Thakur, Sonheed	My 3.75-acre land is affected under this road, but the land is still not divided between my father and uncle, the case is	District Revenue Authority shall take necessary measure for such incidence.

Name of the Person	Issues Raised (in Brief)	NHAI Response
	still in court, I request you to please right justice so that I get an appropriate compensation.	
Mr. khorbehra Banerjee, Hardivishal	Patwari has not shared any information about the land affected, please share this information with the concerned farmer.	Land acquisition information in respect to individual Khasra nos. has already been published in the news-paper.
	We will survive on the interest of the money to be provided by the authority against the land acquisition. Please inform that income tax will not be applicable on this money.	Tax shall be applicable as per provision of Central Govt. Act
Mr. Suresh Kumar Mehwaal, Amlipali	I am in support of this road construction, how much compensation will be given for affected land in Amlipali, how much compensation will be given for tube well, please share the details of compensation.	Compensation shall be provided according to the guidelines laid by authorities and in LARR, 2013.
		Other amenities shall be separately valued by authorities.
Mr. Antraam Raj, Hardivishal	I want to ask the status of the proposed four-lane road, as we heard that the road is cancelled before.	Compensation shall be provided according to the guidelines laid by authorities and in LARR, 2013.
	Patwari has not disclosed the details of the affected land and the compensation fixed against it.	
	Please disclose the rate of compensation. Compensation of the tree planted by me in government land should be allotted to me.	
Mrs. Kumit Kumar Binjhwaar, Angaarkhaar	I have submitted a request towards land division in 2018, 1.15-acre land is under the national road, I which 7-8 peoples land is there. I will not divide my land. Mention the name of person, whose ever land is affected. Patwari has not mentioned my name, I request to please take measurements of my land.	District Revenue Authority shall take necessary measure for such incidence.
Mr. Rohit Kumar, AngarkhaarPantora	We are three brothers and the land on which road is passed belongs to me, I do farming on this land from past many years, I request you to please give compensation in my name.	
Mr. Rajkumar Singh, Akaltara	Please give employment to the youngsters of Amalpali village as per their qualification on the construction of NH. Trees to be felled should be properly managed as per provision of acts.	Locals shall be given preference for job opportunities during construction phase.
Mr. Hemant Singh, Chandniya	We are dependent on this land, please provide us adequate compensation and share the measurement details of our	Compensation shall be provided according to the guidelines laid by authorities and in LARR,

Name of the Person	Issues Raised (in Brief)	NHAI Response
	land affected in this road project.	2013.
Bilaspur District		
Mr. Shyam Lal Patel, Bhilai	The compensation amount for Gatoora village is 12 lac per acre, whereas for Bhillai it is 4 lacs per acre, request you to please make them equivalent. I wish to mention that, until the compensation amount is fixed, I will not permit anyone for measurement.	Compensation shall be provided according to the guidelines laid by authorities and in LARR, 2013.
Mr. Khemanand Singh, Limtara	There is three-fold difference in compensation amount between Gatoora & Limtara, and both of these villages are adjacent, we have submitted an application in court, we have the acknowledgement. Please look into this matter.	Compensation shall be provided according to the guidelines laid by authorities and in LARR, 2013.
Mr. Manish Kumar, Dheka	New trees should be planted against the trees felled, till now only small trees are planted, please look into the matter.	Shrubs shall be planted at the median, whereas, tree shall be planted as avenue plantation.
Mr. Santosh Kumar Patre, Raliya	I wish to know the rate of compensation per acre.	Compensation shall be provided according to the guidelines laid by authorities and in LARR, 2013.
Mr. Jitendra Singh	We have heard that the junction that needs to be constructed here, is now cancelled, is it true? Please make sure that this project will not be cancelled, about 100 Acre of land from this village is affected under this project, know no one is buying and we are not able to sell it.	Public hearing is one of the important step for project approval. Construction shall be started once EC is received from MOEF&CC.
Mr. Lakhan Tandon, Limtara	Why is the Compensation rate of village Limtara, Darighat, Gtoora is different, someone has received 4 times, someone 2 only, why is this discrepancy? The rate should be equal as the people are same, road is same.	Provision of LARR, 2013 has been followed for finalisation of compensation.
Mr. Paramanand Patel, Limtara	My Land is being acquired for the project. What is the provision for Well, Tube-well and trees located on this land.	Other amenities shall be separately valued by authorities
Mr. IlliyaasKarra	Please inform how much will be the compensation for our affected land. Out of our 18 Ha land, how much will be occupied and how much will be available.	Compensation shall be provided according to the guidelines laid by authorities and in LARR, 2013.
Mr. Balram Rathore, Limtara	Pillar demarcation and measurement has been done on our land, but our name is not published in the LA, please inform the status of our land (occupied	CALA shall lookout is this matter. Compensation shall be provided according to the guidelines laid by authorities

Name of the Person	Issues Raised (in Brief)	NHAI Response
	or not), also inform about the compensation plan. Request you to please provide compensation without any problems.	and in LARR, 2013.
Mr. Mukesh Kumar Patel	Our land is also affected in the proposed national highway, patwari has informed that he will include the tube well also, but it was never included, please give compensation of our land as per the Aeramsaahi.	Other amenities shall be separately valued by authorities.
Mr. Bhagwat prasad Patel, Parsahi	I want to know about the compensation of the tube well, that is present in the affected land.	Compensation shall be provided according to the guidelines laid by authorities and in LARR, 2013.
Mr. Yogendra Singh Thakur, Limtara	Land survey is in process from a long time, farmers are not able to do anything. Please re-publish the information in newspaper about whose land will be occupied for the proposed road. Weather is also not looking good.	Land acquisition details has already been published in news-paper. For more details please contact to Patwari or CALA.
Mr. Bhagwat Prasad Suryavanshi, bhilai	Patwari has taken the measurements of my Grand mother's land, which is about 1 acre, I request to please give direction to patwari for re-measurement, as a small part is left, my land is in Gatoora which is around 18 decimel and abour 2-3 decimel is left, I request to please occupy full land.	Land has been acquired for road purpose only.
Mr. Nathuram Krveta, Hardadih	Please inform about the compensation of my land, whatever the difference between the land compensation of raliya and hardadeeh should be the same.	Compensation shall be provided according to the guidelines laid by authorities in LARR, 2013.
Mr. Chandan Patel, Bhilai	Our land is a cultivated land, when canal will open Khutaghat will get water in our land, our agriculture land in bhillai is having loss because of the animals. Development cannot be done by putting the agricultural land on the stake, we are not in favour of this road.	-
Mr. Manish Dhore, Dheka	Please inform whether the road junction will be constructed here or not, villagers are looking forward to see their children getting married if they get compensation, please share the truth, whether junction will be constructed or not.	Design details has already been provided in the EIA report. Copy of EIA report is available at individual Panchayat Level.
Mr. Shyam Lal Markaam, Nandgaon	Please give equal compensation to our land comparing to the rate gatoor and bhillai. Please direct patwari to measure	Provision of LARR, 2013 has been followed for finalisation of compensation.

Name of the Person	Issues Raised (in Brief)	NHAI Response
	the land to be affected in proposed road.	
Mr. Chandram Kahnde, Gatoora	2 guna is occupied of 80 decibels from my brother's land, 1 guna has to be left, please do re-measurement of our land, as only 4 decibels are still left.	CALA and Patwari shall lookout in this matter.
Mr. Ratanlaal Kurre, Gatoora	Please give employment to us, as our agriculture land is affected from this road that will create employment issues.	Locals shall be preferred for employment during construction activities.
Mr. Ramcharan Vastrakaar, Navagaon	We don't know anything, please give information.	Design details has already been provided in the EIA report. Copy of EIA report is available at individual Panchayat Level.
Mr. Kumaan Bhai, Parsada	Our village is adjacent to Gatoor village, but the compensation rate is different, please equalize the rate.	Provision of LARR, 2013 has been followed for finalisation of compensation.
Mr. Saurabh Mourya, Dheka	Do we need to pay, when patwari comes for land measurement, please inform, as patwari is demands money.	CALA shall lookout in this matter.
Korba District		
Mr Jagdish Prasad Kaushik, village Tadra, Tah. Kartla, Dis. Korba	Khasra number 439/2, 439/3, 439/4 of Village Tarda needs to be re-verified.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. Ramnarayan Rajwade, Vill. Birda, Tah. Kartla, Dis. Korba	The affected family is seeking employment as there is no other land available.	As per requisite norms, there is no such provision to provide employment to the project affected families.
Mr. Dhani Ram, vill. Gumiya, Tah. Kartla, dist. Korba	The land of the person is not been published in the 3D. Kindly do the needful. (615/1)	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. Ganga Prasad, vill. Gumiya, Tah. Kartla, dist. Korba	The land of the person is not been published in the 3D. Kindly do the needful. (556/2)	
Mr. Har prasad, vill. Gumiya, Tah. Kartla, dist. Korba	The father persons land records has been lost. Kindly do the needful.	
Mr. Vyas Narayan Kurmi and others, Vill. Tarda, Tah. Kartla, dist. Korba	The person's pond and agricultural land is affected by the project. Kindly provide proper compensation and also employment.	Proper valuation of the pond and land shall be done by the CALA (Competent Authority for Land Acquisition). As per requisite norms, there is no such provision to provide employment to the project affected families.
Mrs. Aghan Bai Kanwar, vill. Tarda,	Joint family wants compensation amount in their individual account so	This matter shall be dealt by the CALA (Competent Authority for

Name of the Person	Issues Raised (in Brief)	NHAI Response
Tah. Kartla, Dist. Korba	that no issue rise.	Land Acquisition) and appropriate actions shall be taken.
Mr. Ramnarayan Rajwade, Vill. Birda, Tah. Kartla, Dis. Korba	Kindly provide proper compensation and also employment.	As per requisite norms, there is no such provision to provide employment to the project affected families.
Mr. Sukhi Ram Patel, Vill. Tarda, Tah. Kartla, Dist. Korba	The compensation amount is not known to us. Kindly tell us, What will happen to our fruit bearing trees?	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken. Proper valuation of the fruit bearing trees shall be done by the CALA (Competent Authority for Land Acquisition).
Mr. Mahesh Ram Satnami, Vill. Akhrapali, Dist Korba	Kindly add my name instead of the seller's name.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. SinghDev, vill. Kathrimaal, dist. korba	The area and survey number of the khasra are wrong. Kindly rectify it.	
Mr. dhanau ram & satya Narayan, vill. Akhrapali, Tah. & Dist. Korba	The owner of the affected land has left the village. Kindly provide the compensation to two of us.	
Mrs. Gayatri, Vill. Tarda, Dist. Korba	Hasdeo River, Samshan Ghat, School Premises And Shala Bhawan shall be affected by the project. Proper action must be taken.	Proper valuation of the Samshan Ghat, School Premises And Shala Bhawan shall be done by the CALA (Competent Authority for Land Acquisition).
Mrs. Gayatri, Vill. Tarda, Dist. Korba	There is no government secondary school in the village. Kindly see if it can be constructed.	This project comes under bharatmala pariyojana of Central Government and there is no such provision in it.
Mr. Ramnarayan Rajwade, Vill. Birda, Tah. Kartla, Dis. Korba	Kindly provide employment to the affected family members.	As per requisite norms, there is no such provision to provide employment to the project affected families.
Mr. Dolnarayan rajwade, vill. Kathrimaal, dist. korba	Do not accept the sale of the land sold and execute the registered benami in the favor of the seller.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. Omkar Prasad Kaushik, Vill. Tarda, Dist. Korba	In place of compensation against felled trees, double the number of trees should be planted in remaining land.	Trees shall be evaluated jointly by CALA (Competent Authority for Land Acquisition) and forest department.
Mr. Dolnarayan	The land is in name of my brother, out of	This matter shall be dealt by the

Name of the Person	Issues Raised (in Brief)	NHAI Response
rajwade, vill. Kathrimaal, dist. korba	which some part is mine. Hence, kindly issue my amount on my name.	CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. Kamta Prasad Patel, Vill. Tarda, Dist. Korba	My boundary room, trees and plants are affected by the project. Kindly provide proper compensation for it.	Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
Mr. Firatram & other villagers, Vill. Tarda, Dist. Korba	There is bad condition of drinking and bathing water, electricity and toilets in the village. Kindly see if it can be constructed.	This project comes under bharatmala pariyojana of Central Government and there is no such provision in it.
Mr. Saman Singh Kanwar, Vill. Bhesma, Tah. Kartal, Dist. Korba	My land has been acquired for some other project whose compensation is not given yet. Kindly provide compensation.	This is not related to the project.
Mrs. Tej Bai, Vill Tarda, Dist. Korba	My land has been taken forcibly taken by my son in law. Kindly provide compensation to me and take action against him.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. Dilsingh Patel, Vill. Akhrapalli, Dist. Korba	I have my house in government land and I have no other land. Kindly provide compensation for the house.	Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
Mr. Teras Ram Patel, Vill. Akhrapalli, Dist. Korba	I don't know how much of my land is affected by the project. Kindly tell me.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. Nohar Shaye, Vill. Tarda, Dist. Korba	My land has been acquired for some other project whose compensation is not given yet. Kindly provide compensation.	This is not related to the project.
Mr. Radhelal Patel, Vill. Akhraplli, Dist. Korba	My details have not been published. Kindly get it done before the work commences.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. Teras Ram Patel, Vill. Tarda, Dist. Korba	My land has been left over. Kindly acquire the remaining land as well.	
Mr. Dhaniram, Vill. Akhrapalli, Dist. Korba	My land details have not been published yet. Kindly do the needful.	
Mrs. Rambai Patel, Vill. Tarda, Dist. Korba	My land has been forcibly taken. Kindly do the needful.	
Mr. bandhuram Manjhi, Vill Tarda, tah. Kartal, Dist. Korba	The is a problem of drinking and bathing water, electricity and toilets in our village. Kindly do the needful.	As per requisite norms, there is no such provision to provide drinking and bathing water,

Name of the Person	Issues Raised (in Brief)	NHAI Response
		electricity and toilets to the project affected families.
Mr. Omprakash Sahu, Vill. Gumiya, Tah. Kartal, Dist. Korba	There is a road crossing proposed in village Gumiya. What facilities are proposed?	Vehicular underpass has been provided at the mentioned location.
Mr. Dawaas Ram Patel, Vill. Kudurmaal, Tal. Kartal, Dist. Korba	When will we receive the compensation?	Land acquisition is in progress. Compensation shall be given after the process is completed.
Mr. Tul Singh Kanwar. VIll Bhesma, Tah. Kartal, Dist. Korba	Land acquisition increased by 5 meters length. And tell us regarding compensation of trees.	The ROW increased from 60 to 70. Hence, the LA land increased. Trees shall be evaluated jointly by CALA (Competent Authority for Land Acquisition) and forest department.
Mrs. Shanti Bai, VIll. Tarda, Tah. Kartal, Dist. Korba	My land has been forcibly taken by someone else. Kindly do the needful. There are some trees in my acquired land. Weather trees shall be planted or compensation shall be given.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken. Trees to be cut shall be valuated
Mr. Nirmal Kaushik, Vill. Tarda, Tah. Kartral, Dist. Korba	My land has been forcibly taken by someone else. Kindly provide the compensation to me.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mrs. Bundkanwar, Vill. Tarda, Tah. Kartral, Dist. Korba	35 dismil of the acquired land belongs to my father. Kindly provide its compensation to me.	
Mr. Santosh Kumar Patel, Vill. Chainpur, Tah. Kartral, Dist. Korba	My land has been forcibly taken by someone else. Kindly provide the compensation to me.	
Mr. Dhaniram bhargav, Vill. Gumiya, Tah. Kartral, Dist. Korba	My land details have not been published. Kindly do the needful.	
Mr. Ganga Prasad Aaidile, vill. Gumiya, Tah. Kartral, Dist. Korba	My land details have not been published. Kindly do the needful.	
Mr. Haya Khan, Vill. Junwani, Tah. Kartral, Dist. Korba	I had bought the land for constructing my home which is now being acquired for the project. Kindly provide new land for my home.	Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. As per requisite norms, there is no such provision to provide land to the project affected families.
Mr. Omprakash	My land details have not been	This matter shall be dealt by the

Name of the Person	Issues Raised (in Brief)	NHAI Response
Rajwade, Vill. Pathrimaal, Tah. Kartral, Dist. Korba	published. Kindly do the needful. Also apprise about the compensation to be given.	CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
		Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
Mr. Saeed Mohammad, Vill. Junwani, Tah. Kartral, Dist. Korba	My tube-well and pond is affected by the project. Kindly provide alternative source of water.	This project comes under bharatmala pariyojana of Central Government and there is no such provision in it.
Mr. Dwarika Prasad Jaiswal, Vill. Junwani, Tah. Kartral, Dist. Korba	I purchased a alnd in name of my son for constructing my home Hence please provide compensation to me.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. Ismail Khan, Vill. Junwani, Tah. Kartral, Dist. Korba	I had bought the land for constructing my home which is now being acquired for the project. Kindly provide new land for my home.	Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. As per requisite norms, there is no such provision to provide land to the project affected families.
Mr. Saman Singh Kanwar, Vill Bhaisma, Tah. Kartal, Dist. Korba	My well shall be affected by the project. Kindly provide the compensation for it.	Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
Mrs. Chandan Bai Yadav, Vill. Junwani, Tah. Kartral, Dist. Korba	My well shall be affected by the project. Kindly provide the compensation for it.	Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
Mr. Rahul Bhagel, Vill. BagBuda, tah. Kartal, Dist. Korba	Trees shall be planted beside the proposed National highway to reduce pollution.	Greenbelt development shall be carried out as per guidelines and with consultation of forest department.
		Also compensatory afforestation shall be done for every tree cut as per norms.
Mr. Shivnarayan Rajwade, Vill.	The affected family is seeking employment as there is no other land	As per requisite norms, there is no such provision to provide

Name of the Person	Issues Raised (in Brief)	NHAI Response
Kathrimaal, Tah. Kartal, Dist. Korba	available. Also water source is needed.	employment or water source to the project affected families.
Mr. Manharan Lal Patel, Vill. Tarda, Tah. Kartal, Dist. Korba	My house and well are also affected. Kindly provide proper compensation. Also provide jobs.	As per requisite norms, there is no such provision to provide employment to the project affected families.
Mr. Nandkishor Sahu, Vill. Chainpur, Tah. Kartal, Dist. Korba	The acquired land is in name of my grandfather. He is dead, My father is also dead. Kindly provide compensation to my mother.	This matter shall be dealt by the CALA (Competent Authority for Land Acquisition) and appropriate actions shall be taken.
Mr. R. Mij, Vill. Naktikhar, Tah. Korba, Dist. Korba	My land is in Bhaisama which is in name of my wife. Kindly tell how much compensation shall be given.	Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
Mr. Jeewan Lal Rajwade, Vill. Kathrimaal, Tah. Kartal, Dist. Korba	The highway is taking away large part of our land.	Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
	Also agriculture land, pond and trees are affected. Vehicles on plying shall create pollution and diseases. Compensation should also be given for saved land. And jobs should also be given.	The pollution in existing road is more due to poor condition and zig zag route. This proposed route shall decrease the pollution as the design speed is about 100 Km/hr. Hence noise and air pollution shall be minimized.
Mr. Saeed Mohammad, Vill. Junwani, Tah. Kartal, Dist. Korba	Proposed highway passes through Junwani and Bhaisama which may generate noise and air pollution.	The pollution in existing road is more due to poor condition and zig zag route. This proposed route shall decrease the pollution as the design speed is about 100 Km/hr. Hence noise and air pollution shall be minimized.
Mr. Balraam, Banjaare, Vill. Akhrapali, Tah. Kartal, Dist. Korba	My well and sagwan tree will also be affected. Kindly provide compensation for that also.	Proper compensation shall be given as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
Mr. Ashutosh Kaushik, Vill. Tarda, Tah. Kartal, Dist. Korba	Proposed highway passes through Junwani and Bhaisama which may generate noise and air pollution.	The pollution in existing road is more due to poor condition and zig zag route. This proposed route shall decrease the

Name of the Person	Issues Raised (in Brief)	NHAI Response
		pollution as the design speed is about 100 Km/hr. Hence noise and air pollution shall be minimized.
Mr. Arun Kumar Banjaare, Vill. Akhrapali, Tah. Kartal, Dist. Korba	My home and Guru Ghasidas ji's Jaitkham lies in the alignment, Hence kindly change it.	The proposed alignment has been finalized after prior survey and keeping in mind the terrain, elevation and drainage pattern of the area.

7.3 Risk Assessment

Risk assessment for highway construction project is done to prevent adverse impact at the design or planning stage, prioritize hazards and control measures, to maintain cost and quality of the project and for scheduled completion of the project. This study involves risk identification, risk classification, risk analysis or evaluation and ranking of risks using Relative Importance Index (RII).

Highway projects consist of many risks and this is due to involvement of many contracting parties including designers, contractors, sub-contractor and suppliers. Risks are the major cause of poor performance on highway construction projects.

Construction of highways involves various risk factors from designing and planning stages to completion of project. Due to these factors, there are delays in completion of project which involve large funds. So risk assessment consisting of risk identification, risk classification and risk analysis or evaluation is necessary for maintaining cost and quality of the project and for scheduled completion of the project.

7.3.1 Objectives of Risk Assessment of Highways

The objectives of this study are listed below:

- To define the various major risks involved in highway construction project.
- To identify and classify the various risks involved inconstruction of highway.
- To analyze or evaluate the risks involved in highway construction.

7.3.2 Types of Risk associated with Highways

The various types of risks associated with Highways construction are:-

- Construction risks- Machineries delay due to rain and other causes, uncertain market conditions, contractor productivity issues, time etc.
- Design Risk- Variations in design and defective designs.
- Political Risk- Excessive approval procedures in administrative government departments
- Organizational Risk- Lack of skilled labor, lack in knowledge level of lead group, etc.
- Accidental Risk- machineries accidents, overexertion, accidental falls etc.
- Uncertainty in market conditions- price inflation of construction materials.
- Time and Cost Overruns
- Shortage of Utilities-Shortage of electricity, gas, water, fuel, etc.

7.3.3 Methodology of Risk Assessment

The data was analyzed by using quantitative method of Relative Importance Index (RII). The RII is computed using the equation:

$$RII=\sum W/ (A*N)$$

*Reference- International Journal of Engineering Research & Technology (IJERT) Vol. 5 Issue 02, February-2016

Where:

W – is the weight given to each risk by the respondents and ranges from 1 to 5, (where "1" is "very low risk" and "5" is "very high risk")

A – is the highest weight (i.e. 5 in this case) and;

N – is the total number of respondents.

In this case however, the questionnaire survey was not done as the project is Greenfield and the tender is yet to be awarded.

The severity of risk was decided by our in-house team of designers, traffic surveyors, environmentalists and risk experts.

Table 7-4: Categories of Risk

Risk Category	Risk No.	Risks	W [1-5]	RII [0-1]
Construction	R1	Machineries	3	0.6
	R2	Delay due to rain or other causes	2	0.4
	R3	Uncertain construction market conditions	2	0.4
	R4	Contractor productivity issues	1	0.2
	R5	Time	2	0.4
Design	R6	Development around road analysis	2	0.4
	R7	Uncertainty in horizontal alignment	1	0.2
	R8	Uncertainty in access requirements	1	0.2
	R9	Uncertain indirect costs: design, construction, project management	2	0.4
	R10	Design errors and omissions	2	0.4
	R11	Consideration of improper basic parameters	1	0.2
Topography	R12	Construction in hilly region	1	0.2
	R13	Uncertainty in landscaping activities	1	0.2
Political	R14	Issues related to obtaining Railway Permits	1	0.2
	R15	Issues related to obtaining Govt. Approvals	2	0.4

Risk Category	Risk No.	Risks	W [1-5]	RII [0-1]
	R16	Other Political or external issues	1	0.2
	R17	Change in policies	2	0.4
Land acquisition	R18	Uncertain land acquisition cost	3	0.6
	R19	Uncertain land acquisition schedule	3	0.6
	R20	Change in policies	2	0.4
Environmental	R21	Natural obstruction: hills, rivers, trees	3	0.6
	R22	EIA Required	2	0.4
Organizational	R23	Skilled Labor	1	0.2
	R24	Knowledge level of lead group	1	0.2
Accidental	R25	Unanticipated damage during construction	2	0.4
Utilities	R26	Utilities not relocated on time	2	0.4
	R27	Fuel: availability, price	2	0.4
	R28	Electricity	2	0.4
Minerals	R29	Mineral mining issues	1	0.2
	R30	Cost of minerals	1	0.2
Law and order	R31	Local disturbances	2	0.4
Climatic condition	R32	Unforeseen climatic conditions	1	0.2
Others	R33	Quality: construction, product	1	0.2
	R34	Funds/Money	1	0.2
	R35	Emotional issues	1	0.2
	R36	Heritage issues	1	0.2
Average RII				**0.33**

7.3.4 Outcome of Risk Assessment

By the above analysis, a clear conclusion was drawn that risk is associated at some stages / activities of the project.

Majority of risk was involved in the following aspects:-

- Handling of Construction machineries
- Uncertainty in Land Acquisition Cost
- Uncertainty in Land Acquisition Schedule
- Natural Obstruction i.e. Forest, rivers, canals, trees etc.

The average RII of the Risk analysis came out to be **0.33** which can be considered into broadly acceptable region of the ALARP triangle.

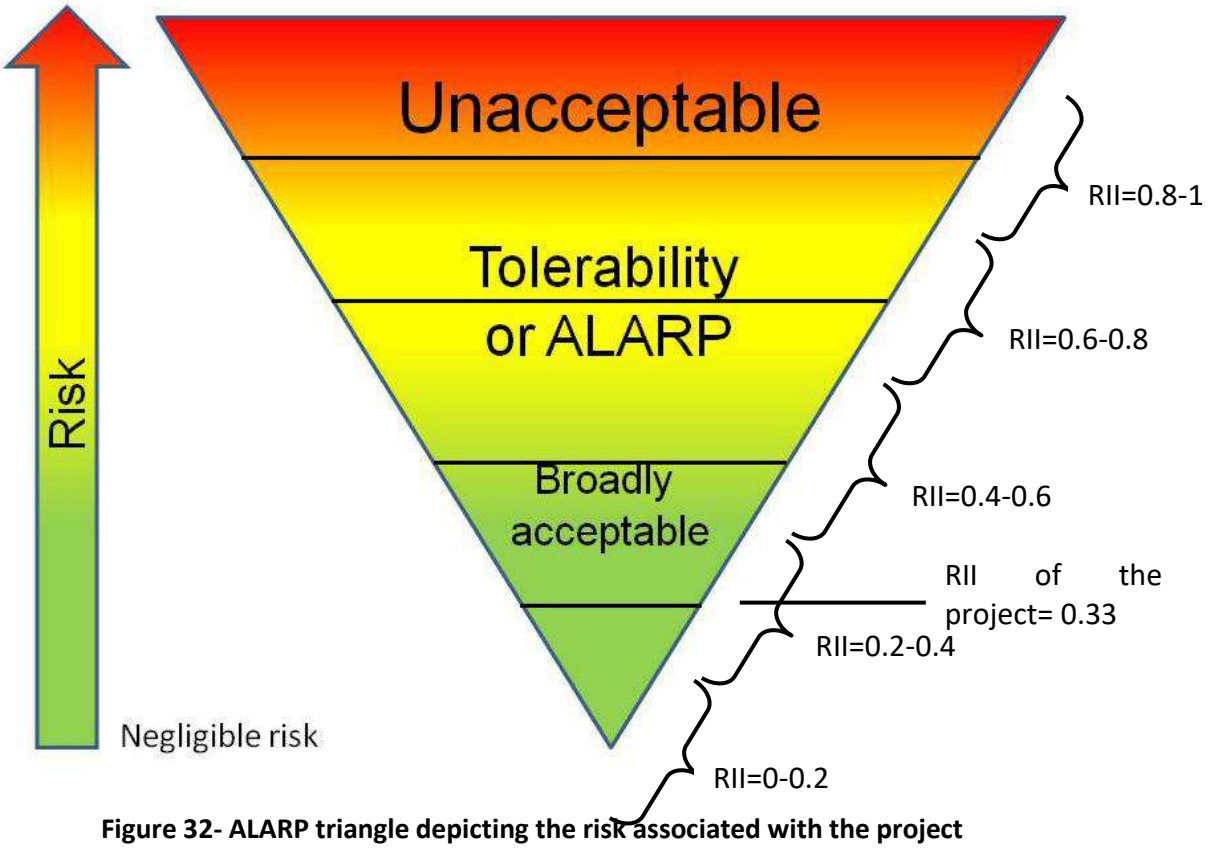


Figure 32- ALARP triangle depicting the risk associated with the project

7.4 Social Impact Assessment and R&R Action Plan

7.4.1 Census and Socio-Economic Surveys

The census survey has been carried out covering 100% PAFs, whereas, socio-economic survey has been conducted for 25% samples. The data was collected on demography, sex ratio, occupational structure, literacy rates, etc. Data was collected for each affected property.

7.4.2 Minimisation of Resettlement Impacts

RoW for proposed green field economic corridor is 70m. Therefore, land acquisition of about 506 ha of land is envisaged. Alignment has been fixed after due consideration of social displacement associated with structure demolishment.

7.4.3 Potential Impacts

A total of 122 private structures (1 is encroacher), 2 government & 3 religious properties will be affected by the proposed green field project. All the structure will be fully impacted within the proposed 70 meter RoW. Acquisition of about 506 ha of land is envisaged for the proposed economic corridor.

7.4.4 Ownership of the Properties likely to be affected

Out of 127 properties that are likely to be affected, 122 (96.06%) are private properties (properties that are owned by individuals and do not have govt. or community ownership),

while 3 (2.36%) are religious properties (Temple/Church) and 2 (1.57%) are government structures. The project will also acquire private and government land.

7.4.5 Type of Construction of the structure

Among the total impacted 127 nos. of structures, 44 are semi-pucca, 80 are pucca and 3 are kutcha. Table below summarise the distribution of affected structures in terms of construction type.

Table 7-5: Typology of affected structure

Typology of Structure	Numbers	Total %
Pucca	80	62.99
Semi-pucca	44	34.65
Katcha	3	2.36
Total	127	100

7.4.6 Type of Private Properties to be affected

Built up structure will be affected for 100 residential, 9 commercial properties and 7 residential-cum-commercial, 3 residential boundary walls, 3 nos. of cattle shed are likely to be affected due to proposed development.

Table 7-6: Type of affected private structure

Type of structure	Numbers	Total %
Residential	100	81.97
Commercial	9	7.38
Resi-Cum-Commercial	7	5.74
Residential (Boundary Wall)	3	2.46
Cattle shed	3	2.46
Total	**122**	**100**

7.4.7 Status of the Ownership of the properties/structure

The proposed green field project will impact 122 private properties in which 121 are title holder and remaining non-title holder (1). Details of properties with level of impacts have been presented in Table below.

Table 7-7: Ownership Status of Private Structures

Type of structure	Owners	Encroacher	Total Affected Properties	% age
Residential	99	1	100	81.97
Commercial	9	-	9	7.38
Resi-Cum-Commercial	7	-	7	5.74
Residential (Boundary Wall)	3	-	3	2.46
Cattle shed	3	-	3	2.46
Total	**121**	**1**	**122**	**100**

7.4.8 Impact on Cultural Properties and Community Assets

The proposed green field project will affect 3 religious and 2 govt structures. Religious structures include 2 Temples and one church where govt. structures include police station and check post of forest department.

7.4.9 Social profile of the PAPs along the Project Road

At this stage of study, only those households whose structures are likely to be impacted are included in the sample survey. Socio-economic survey has been carried out for 25% on the basis of random sample survey of the affected structures. Total 31 project affected households (PAHs) are surveyed. There are altogether 145 persons excluding children below the age of 6 years (family members of affected households). Out of 145 PAPs, 73 are male and 72 are female. By the proposed green field project, 145 people from 31 households will be affected and in which 50.34% are male and 49.66% are female.

Religious Category

Majority of the families belongs to Hindu population (93.55%) and remaining 6.45% families belongs to Muslim category respectively. The trend shows that Hindu communities dominate the project area.

Social Category

Out of the 31 PAFs, 16 belong to Other Backward Castes (OBC), 7 are Sc, 2 belong to ST and the remaining 6 are of General category.

Marital Status of the surveyed persons

68.28% are married and 28.28% are unmarried, only 2.07% and 1.38% are widow and widower respectively in the sample surveyed.

Usual activity of the surveyed persons

Out of 145 surveyed population, 46 person were employed, 47 were found involved in house hold work, 34 were the student, whereas, 11 were old age people and 7 were found unemployed. Table below present the work participation distribution among the survey population.

Table 7-8: Work Participation Distribution of Sampled Population

Usual activities	Numbers	Percentage (%)
Employed	46	31.72
Unemployed	7	4.83
HH Work	47	32.41
Student	34	23.45
Old Person	11	7.59
Total	**145**	**100**

Occupation pattern of Working Population

Out of 46 employed persons, 28.26% are involved in labour activities and 28.26% are involved in agricultural activities. Only 21.74% & 17.39% are involved in service and Business, whereas, 4.35% of working population were found self employed.

Table 7-9: Occupation Pattern among the Working Population

Occupation	Number of families	Total %
Self Employed	2	4.35
Agriculture	13	28.26
Business	8	17.39
Service	10	21.74
Labour	13	28.26
Total	**46**	**100**

Economic condition of the Project affected households

The surveyed families have been classified as per the income slabs given in Table below.

Table 7-10: Annual Income of Affected household

Income slabs	Numbers	Total %
Up to 50000 per annum	5	16.13
More than 50000 <100000 per annum	5	16.13
More than INR 100000 per annum	21	67.74
Total	**31**	**100**

As per NRLM, annual income for non-poor family is more than 1 lakh for 4-5 members of each family. Table reveals that 67.74% of families are under non-poor families category. Only 16.13% are poor families, as per the NRLM categorization of the poverty line. The poverty slabs has been considered as per the national rural livelihood mission.

7.4.10 R&R Plan

Entitlement Matrix

The land, built-up structures and assets falling in the project affected corridor will be compensated for the loss. The compensation to be provided across different categories is referred as entitlement. The entitlement matrix across different categories of project affected people as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 is detailed out in the table below.

Table 7-11: Entitlement Matrix for Project Affected Families (PAFs)

Impact type	Entitled entity	Entitlement based on The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013
1. Loss of Land (Titleholders)		

Impact type	Entitled entity	Entitlement based on The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013
1A. Loss of Agricultural Land	Affected Family (Titleholder)	➢ Cash compensation at replacement cost as determined according to The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013 or replacement of land if available ➢ If the residual plot is not viable and PAP becomes a marginal farmer, then any of the following three options are to be given to the PAP, subject to PAP's acceptance. • Acquire the required land and pay compensation and assistance for the same. • If PAP so wishes acquire the remaining portion of the plot and pay compensation and assistance for the entire plot including residual part. • If PAP is from vulnerable group, compensation for the entire land by means of land for land will be provided, if PAP wants so, provided that land of equal productive value is available. • If the land for land option is exercised, then an additional INR 50,000/- per acre will be paid for land preparation. • An amount of INR 25,000/- will be provided for each PAP towards building cattle shed etc. ➢ If the PAP wishes to buy land with the compensation amount, then an additional INR 50,000/- per acre will be paid for land preparation. ➢ Subsistence Grant of INR 50,000/- ➢ One-time resettlement allowance of INR 50,000/- ➢ All fees, stamp duties, taxes and other charges, as applicable under the relevant laws, incurred in the relocation and rehabilitation process, are to be borne by the IA.
1B. Loss of Residential/ Commercial land	Affected Family (Titleholder)	➢ Cash compensation at replacement cost as determined according to The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013 or replacement of land if available. ➢ Subsistence Grant of INR 50,000/- ➢ One-time resettlement allowance of INR 50,000/- ➢ All fees, stamp duties, taxes and other charges, as applicable under the relevant laws, incurred in the relocation and rehabilitation process, are to be borne by the IA.
2. Loss of Structures (Titleholders)		
2A. Loss of	Affected Family	➢ Compensation of structure will be paid at the

Impact type	Entitled entity	Entitlement based on The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013
Residential Structures	(Titleholder)	replacement cost to be calculated as per latest prevailing Basic Schedule of Rates (BSR) without depreciation ➢ Assistance of INR 30,000/- towards temporary accommodation or Rental assistance as per the prevalent rate in the form of grant to cover maximum six-month rentals, whichever is higher. ➢ Subsistence Grant of INR 50,000/- ➢ Transportation assistance of INR 50,000/- ➢ One-time resettlement allowance of INR 50,000/ ➢ Relocation assistance under existing Government schemes / programs. ➢ Right to salvage material from demolished structure and frontage etc.
2B.Loss of Rental Accommodation (Residential/ Commercial	Tenants	➢ Rental assistance for both residential & commercial tenants: Assistance of INR 30,000/- towards temporary accommodation or Rental assistance as per the prevalent rate in the form of grant to cover maximum six-month rentals, whichever is higher. ➢ Additional structures erected by tenants will also be compensated separately directly to the tenants. ➢ Transport/ Shifting assistance based on type of house and household assets, subject to a minimum of INR 50,000/-. ➢ Any advance deposited by the tenants will be refunded from owners total compensation package to the tenant on submission of documentary evidence. ➢ Right to salvage material from demolished structure and frontage etc. erected by tenants.
3. Loss of Structures Residential/Commercial (Non-Titleholders)		
3A. Loss of Immovable and Pucca Structures (Residential/ Commercial)	Squatters/ Encroachers	➢ Squatters and Encroachers will be notified and given one-month time to remove their assets or enough time to harvest their present crops. ➢ Compensation for loss of structures at replacement cost. All asset/structures impacted will be compensated irrespective of the notice time. ➢ Subsistence Grant of INR 50,000/- ➢ Transport/ Shifting assistance of INR 50,000/-. ➢ One-time resettlement allowance of INR 50,000/- ➢ Relocation assistance under existing Government schemes/programs ➢ For Squatters and Encroachers right to salvage material from the demolished structure.
Loss of Crops	• Titleholders	➢ Advance notice to all to harvest crops, fruits and

Impact type	Entitled entity	Entitlement based on The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013
and Trees	• Share Croppers • Lease Holders • Non-title holders	remove trees. ➢ In case of standing crops, cash compensation at current market prices for mature crops based on average production. ➢ For fruit bearing trees compensation at average fruit production for next 15 years to be computed at current market value. ➢ For timber trees compensation at market price based on kind of trees.
4. Loss of livelihood		
4A. Loss of Primary Source of Income/ Livelihood	• Titleholders • Non-Titleholders • Agricultural Labourers • Share Croppers	➢ Subsistence Grant of INR 50,000/- ➢ INR 25,000/- for cattle shed or petty shop ➢ One-time grant of INR 25,000/- to artisans, small traders and certain others ➢ Employment opportunity for PAPS in the sub-project construction work, if available and if so desired by them. ➢ National/State level job card under National Rural Employment Guarantee Program. ➢ Income generation skill upgrading vocational training of their choice at a rate of INR 10,000/- ➢ For Agricultural Labourers and Share Croppers an assistance of 500 days of wages at prevailing minimum wage rate ➢ One-time resettlement allowance of INR 50,000/-
5. Common Property Resources		
5A. Loss of Common Property Resources	• Community	➢ Reconstruction as per latest norms and guidelines, Commissioning and handing over to concerned departments/ community of all affected community property resources with community consultation and participation
6. Vulnerable		
6A. Vulnerable PAPs	Women headed households, Widows, STs, Chronically ill, old persons etc.	➢ A onetime assistance of INR 50,000/- over and above other entitlements. ➢ Handholding for ensured access to other government subsidies, schemes and services
7. Other Unforeseen / Unanticipated Impacts		
7A. Unforeseen/ Unanticipated Impacts		➢ Any unforeseen/ unanticipated impacts due to the sub-projects will be documented and mitigated based on the spirit of the principle agreed upon in this framework.

The amount payable as compensation for land acquisition for national highway will be determined based on the components mentioned in First schedule of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. The parameters are as follows.

Table 7-12: Components of Compensation for Land Acquisition

a) Market value of land	–	Highest of the value specified in Indian Stamp Act / Average Sale Price for similar type of land / State Government specified minimum price per unit area
b) Multiplication Factor	–	1.0 for the state projects rural areas 2.0 for Central projects in rural areas
c) Value of assets attached to land or building	–	Assets like trees, plants, standing crops and immovable assets
d) Solatium	–	100% * (a*b + c)
e) Additional amount on market value	–	@ 12% p.a. on market value (from date of publication of notification under section 3A till the date of payment of compensation or date of possession of land, whichever is earlier)
f) Other components	–	If any

An estimate of cost for Rehabilitation & Resettlement has been worked out to Rs. 1655.4 crores which covers all components of land acquisition, compensation, assistance and entitlements. However, this cost is likely to revise after due verification by the revenue officers in advance stage of land acquisition.

Table 7-13: Estimated Budget for R&R

Sl. No	Particulars	Amount (Rs.) in Crores
A	**Compensation for Land Acquisition**	
1	Compensation for Structure/Agriculture/barren land (Ha)	6962356694
2	Structure (sqm)@ 122 structures*	226099096
3	Solatium(100% of Sl.1& 2)*	7188455789
	Total	**14376911578**
B	R&R Entitlements	
4	Subsistence allowance for Residential owners=36000 x structures	3816000
5	Shifting Allowances =36000 x structures	3816000
6	Resettlement Allowances 50000x structure	6100000
	Total	**13732000**
C	Others Services	
7	N.G.O Service Charges	2000000
8	Administrative Cost	1000000
9	M & E consultant Lump sum	1500000
10	HIV/AIDS awareness	500000
	Total	**5000000**
	A+B+C	**14395643578**
11	Contingency 15%	2159346537
12	**Grand Total**	**16554990115**

**- Central Valuation Board, Raipur & MoRTH Notification (Annexure 12.1 & 12.2)*

Detailed SIA and RAP as prepared for the project is enclosed as **Annexure XII**.

7.5 Cumulative Impact Assessment

The proposed project is a part of Raipur Dhanbad Economic Corridor. The total approximate length of the complete Economic Corridor is 707 km.

The proposed corridor shall follow the following route:-

Raipur - Bilaspur - Gumla - Ranchi - Bokaro – Dhanbad

The Feasibility studies have been undertaken in various sections. The adjacent section which is in proximity of the Bilaspur Urga Section and can cause cumulative effects on environment is Urga Pathalgaon Section.

The corridor of impacts of both the sections does not overlap each other and cumulative impacts shall be discussed in report of the last section.

8 PROJECT BENEFITS

This Chapter depicts the various benefits due to the implementation of the project including Improvements in the physical infrastructure, Improvements in the social infrastructure, Employment potential for skilled, semi-skilled and unskilled labours and other tangible benefits.

8.1 Improvement in Physical Infrastructure

The proposed project shall enhance and improve the current route between Bilaspur and Korba which is narrow and zig-zag and thus needs to be straightened, widened and improved geometrically to mobilize the heavy traffic.

Also the commuters commuting between the route shall save both time and fuel.

The Project will further have following benefits:-

- **High-speed connectivity and access:** The projected corridor is a proposed economic corridor. This will avoid traffic congestion and speed-up the freight movement
- **Decongestion of existing National and State Highways:** The proposed corridor will take away traffic pressures from existing SH and NH passing through various cities. Also, long-distance traffic will shift to the proposed corridor, thereby leaving the NH and SH for regional and local usage.
- **Usage shift:** Long-distance traffic will shift from existing roads to the proposed Economic Corridor, resulting in lesser congestion on these highways
- **Improved safety**: Due to access control, the Roadway & Travel Safety of the traffic connecting the cities will be enhanced as there will be minimum distractions & conflict zones
- Improvement in Social Infrastructure
- **Aiding economic growth:** The seamless connectivity will provide better access to vehicles as a link to the National Highways. The Project will reduce travel time and provide boost to trade and commerce linked to the regions connected through this economic corridor.
- **Growth of backward areas:** The biggest strength of the alignment is that it plans to cover backward districts of Chhattisgarh. As a result of connectivity and access to other parts of the country, these backward areas will be aided to integrate with rest of the world. Further, freight and passenger traffic on the economic corridor will help promoting ancillary economy of these regions.
- **Support to industries**: Different types of industries like Manufacturing, Tourism etc. along the proposed corridor will be facilitated in their business operation and reachability.

8.2 Employment Potential

The proposed project shall generate an employment opportunity to about 900 persons. It shall also generate additional employment opportunities in form of transportation of construction materials, greenbelt development and implementation of EMP.

During operations phase, the Project will largely have indirect employment benefits in form of highway amenities and through economic & social hubs developed around the Economic

Corridor. Efficient reach and connectivity to distant markets will further enhance economy of the districts and create employment opportunities.

8.3 Conclusion

The benefits of the Project are multi-fold. It will substantially reduce the travel time between Bilaspur and Korba and the other remote areas falling on the alignment. In addition to the improved connectivity, it will also provide a boost to the economic status of the villages / towns falling in the dedicated Project area.

- Overall improvements by the proposed project also include the following benefits:
- Better connectivity to economic, social and political hubs of Chhattisgarh, Jharkhand and Odisha
- Faster growth and outreach to better and improved facilities
- Fast and safe connectivity resulting in savings in fuel, travel time and total transportation cost
- Reduction in accidents
- Better approach to medical & educational services
- Faster transportation of perishable goods like fruits, vegetables, and dairy products
- Better opportunities for transporting, processing and marketing of agricultural products
- Development of local agriculture and handicrafts
- Development of tourism and pilgrimage
- Opening up of opportunities for new occupations and trade on the route
- Indirect and direct employment opportunity to people from all skilled, semi-skilled and unskilled streams
- Improved quality of life for people and so on
- Development of backward areas through rapid industrialization and access to distant markets
- Creation of ancillary ecosystem through highway amenities, support services and industrial / manufacturing areas

9 ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management is an integral part of the planning process for development of any project activities. Environmental planning & sustainable development approach is essential to maintain balance between "supportive" and "assimilative" capacities of a region and hence to stay within the carrying capacity. The Management Plan for construction and operation phases of the development of the proposed road would include measures that minimize adverse impacts to the environment.

Environmental Management Plan (EMP) is the process to ensure that environmental considerations are integrated into the project scope. These are tools for mitigating or offsetting the potential adverse environmental impacts resulting from various activities of the project.

9.1 The Objective & Scope for EMP

The objectives of the development of Environmental Management Plan for the proposed project activities would be to reduce the negative impacts to acceptable level & enhance the positive impact to achieve "Sustainable Development in the region". The Environmental Management Plan (EMP) has been designed within the framework of various regulatory requirements on environmental and Socio-economic aspects aiming at the following:

- Minimize disturbance to native flora and fauna, if any.
- Prevent and to attenuate air, water, soil and noise pollution, if any.
- Encourage the socio-economic development.

9.2 Environmental Management Plan for the Proposed Project

The Environmental Management Plan for the proposed project activities envisage to outlines the key environmental management and safeguards that will be initiated by the project proponent to manage the key environmental issues associated with the construction and operation of the proposed project. The major concerns for the EMP of the proposed project activities would be:

- Delineation of mitigation and compensation measures for all the identified significant impacts.
- Delineation of unmitigated impacts.
- Physical planning including work programme, time schedule and locations for putting mitigation and compensation systems in place.

The environmental management plan (EMP) would, therefore, consists of following main components:

- To integrate potential impacts (positive or negative), environmental mitigation measures, implementation schedule, and monitoring plans.
- To describe the potential environmental impacts and proposed management associated with each stage of the project development.
- To control environmental impacts to levels within acceptable standards, and to minimize possible impact on the community and the workforce of foreseeable risks during the construction and subsequent operational phases of the project.

- To highlight that the environmental mitigation measures shall be used in consonance with good management practices and good engineering design, construction and operation practices.

The EMP would, hence, be a working document that concerned stakeholders need to both understand environmental concerns and to address associated issues to facilitate environmental management.

9.3 Impact Mitigation during Construction Phase

Environment protection measures/precautions shall be adopted to minimize the impacts due to activities during the construction stage. The impacts during the construction phase on the environment would be of transient and short-term nature and are expected to reduce gradually on completion of construction activities. Nevertheless, efforts are needed to reduce these short-term impacts on various components of the environment, as illustrated below, to the possible extent.

9.3.1 Air Quality Management

During the construction phase, certain amount of dust shall be generated due to the mobilization of labor, machinery and materials. The processes, which causes pollution includes land clearing, excavation, leveling of land, operation of construction machinery/equipment, foundations, paving and other requisite infrastructure etc. in the proximity to the construction site. The impacts may be temporary in nature and shall marginally deteriorate the ambient air quality. However, Project Proponent would ensure following measure for reduction of the dust generation:

- Topsoil removed shall be preserved for later reinstatement purposes by piling it along the boundary of the site.
- Construction dust materials shall be sprayed with water for dust suppression prior to any loading, unloading or transfer operation so as to maintain the dusty materials to avoid dispersion. Stockpiles of aggregate or spoil shall be covered band water applied.
- Vehicles involved in transportation of loose and fine materials like sand and fine aggregates shall be covered to reduce spills on roads.
- The height from which excavated materials are dropped shall be controlled to a minimum practical height to limit fugitive dust generation from unloading.
- Earth moving equipment, typically a bulldozer with a grader blade and ripper shall be used for excavation work.

All vehicles, equipment and machinery used for construction shall be regularly maintained to ensure that the pollution emission levels conform to the CPCB norms. Another source of gaseous emissions is the DG sets, which may be used as back-up for power generation for pumping stations. The DG sets shall be properly maintained to fulfil the statutory requirements. The periodical ambient air quality monitoring shall be done to ensure that the significant impacts are being mitigated adequately.

9.3.2 Noise and Vibration Management

The noise and vibration shall be generated mainly due to operations of machinery/equipment/DG Sets used for construction and transportation of materials to the

site. The Project Proponent would ensure following measures to minimize the noise levels generated at the site:

9.3.3 Noise Mitigation Measures

DG Sets for back-up power shall be provided with adequate acoustic enclosure and also fitted with muffler to reduce the noise in adherence with the regulatory requirements.

- All plants and construction equipments shall be fitted with noise control measures.
- Acoustic enclosures shall be provided for compressors for drills and rock cutters.
- Provision of protective devices such as ear muffs/plugs to the workers
- Servicing of all construction vehicles and machinery shall be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective shall be replaced.
- Vehicles hired for bringing construction materials at site shall conform to the noise emission standards and to be operated during non-peak hours.
- Noise Barriers shall be provided in form of Dense Tree Belt around the Project site and particularly facing residential areas.
- Personnel exposed to noise levels beyond threshold limits will be provided with protective gears such as earplugs, muffs, etc. especially construction personnel involved in pile driving operations. Rotation of personnel will also be adopted.
- Temporary noise barriers will be used to break the propagation of sound from the construction site.

Ambient noise level monitoring shall be conducted at suitable locations at periodic intervals during construction phase to conform to the stipulated standards both during day and night time. Data shall be reviewed and analyzed by the project manager for adhering to any strict measure.

Guidelines for control of Pollution from Stationary Diesel Generator (DG) Sets Noise Standards for DG Sets (15-500 KVA)

The total sound power level, Lw, of a DG set should be less than, 94+10 log10 (KVA), dB (A), at the manufacturing stage, where, KVA is the nominal power rating of a DG set.

Acoustic enclosure/acoustic treatment of room for stationary DG sets (5 KVA and above)

Noise from the DG set should be controlled by providing an acoustic enclosure or by treating the room acoustically.

The acoustic enclosure/acoustic treatment of the room should be designed for minimum 25 dB(A) of Insertion Loss or for meeting the ambient noise standards, whichever is on the higher side (if the actual ambient noise is on the higher side, it may not be possible to check the performance of the acoustic enclosure/acoustic treatment. Under such circumstances the performance may be checked for noise reduction up to actual ambient noise level, preferably in the night time). The measurement for Insertion Loss may be done at different points at 0.5m from the acoustic enclosure/room, and then averaged.

The DG set should also be provided with proper exhaust muffler with Insertion Loss of minimum 25-dB (A).

9.3.4 Vibration Mitigation Measures

During the construction activities, vibrations may be envisaged. The vibrations could be result of activities like excavation, piling, movement of heavy equipment, etc.

The machinery equipped with latest vibration-reduction technology shall minimize the vibrations.

The effects of vibrations will be minimized by ensuring construction works take place during daytime and weekdays

9.3.5 Water Resource Management

Salient features of water quality management shall comprise of following, which would be ensured by Project Proponent:

Raw water quality shall be checked on regular basis for essential parameters as per BIS guidelines.

All the debris resulting from the site shall be isolated from the waste water and disposed of separately.

No untreated discharge is to be made to water courses.

To prevent contamination from accidental spillage of oil, the storage areas shall be isolated and will be inspected and cleaned at regular intervals.

Water availability to the construction staff should be fit for drinking purpose. Code to ensure drinking water quality is Indian Standard Specification for Drinking Water Quality IS 10500-2012.

9.3.6 Soil Conservation & Land Environment Management

The following measure shall be adapted by the Project Proponent to prevent/ reduce the soil contamination:

It will be ensured that no construction spoils of any unsuitable material are disposed of.

Dust bins shall be placed at requisite locations

Lubrication waste oil shall be collected separately in HDPE drums and shall be disposed of as per standard practice

Solid waste (building material, metal scrap, plastic etc.) generated during the construction phase shall be properly segregated. The recyclable plastic, metal etc. waste should be separately stored. Other material will be used for land filling or the designated Solid waste disposal sites.

Construction debris will be collected and suitably used on site as per construction waste management plan. The project proponent will take prior permission from the competent authority for disposal of construction waste on landfill site in the project area.

9.3.7 Traffic Movement Management

In order to minimize impact of Traffic Movement, following measures would be taken up:

Planning vehicle movements would ensure the minimal use of road and help in reducing the adverse impacts, if any.

Spray down dirt roads if too dusty.

9.3.8 Construction Workers Health & Safety Plan

In order to ensure the health and safety of construction workers, project proponent would advise construction contractors to envisage adequate steps, as described below:

- To provide potable water at site so that workers should not get exposed to water borne diseases.
- To provide first-aid facilities in the proximity of the construction sites and to work on the modalities forproviding immediate ambulance services in the event of any major injury to facilitate workers to avail hospital services well in time.
- To provide all necessary safety gadgets to construction workers like helmets, protective footwear and gloves. The personnel engaged in the work of mixing, cement, lime mortars, concrete etc. to be provided with masks to reduce the impact of direct exposure.
- Persons to be engaged in welding activities to be provided with protective eye-shields to ensure safety during welding. Ear-plugs are to be provided to workers exposed to high noise areas. Labors working on elevated platforms to be provided with safety belts.
- The construction contractor will strictly adhere to the statutory child labor act.
- The construction contractor will also ensure that no paint containing lead or lead products is used except in the form of paste or readymade paint. Facemasks will be provided for use to the workers when paint is applied in the form of spray.
- Adequate safety measures will be ensured for workers during handling of materials at site. The contractor will adhere to all regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, and safe means of entry and exit.
- The construction contractor will take adequate precautions to prevent danger from electrical equipments.
- All machines to be used in the construction will conform to the relevant Indian Standard Codes, and will be kept in good working order. These would be regularly inspected and properly maintained as per the provision of standard.
- The construction contractor would ensure that no danger or inconvenience to be caused toany person or the public by placing or stacking the material for construction.
- All necessary fencing and lights will be provided to protect the public.
- Utmost efforts would be put-up by construction contractor to maintain theaesthetic quality of the area as well as maintain the optimum lightening in the area to avert anymishappenings.

9.3.9 Management Plan for Ecology and Biodiversity

Extensive plantation shall be carried out in form of greenbelt development and compensatory afforestation. Species shall be chosen which are native to the local area and no new alien species shall be introduced.

9.3.10 Management plan for Socio-economic profile

As a part of Corporate Social Responsibility, various site specific activities has been planned to enhance the socio-economic profile of the area including provision of seed capital to local businessmen, scholarship schemes for students, construction of toilets for school students and community toilets for villagers.

9.4 Impact Mitigation during Operation Phase

The Project Proponent would do all out efforts to minimize the negative impacts and enhance the positive impacts during operational phase of the project.

9.4.1 Air Quality Management

Control of Fugitive Emissions

The main source of fugitive emissionsshall be from the vehicles plying on the road. The measures to reduce the emissions shall be:

Regular Water sprinkling (twice a day)

Extensive Greenbelt development- It shall act as a dust absorber and shall thus reduce the fugitive emissions

9.4.2 Noise Management

Noise shall only be generated by the vehicles plying on the road which shall be reduced by Greenbelt development which acts as a noise barrier.

9.5 EMP Budget

The EMP cost has been presented in below table. The budgeted cost of EMP is Rs. 17.292 Crores (Approximately).

Table 9-1: Tentative Budget for Environment Management Plan

Item No.	Component	Description	Unit	Quantity	Unit cost (INR)	Total Cost		Responsible Agency
						INR	Cr.	
1	MITIGATION / ENHANCEMENT COST							
1.1	Construction Stage							
1.1.1	Horticulture	Planting of flowering, shade, medicinal, ornamental & fruit bearing trees in suitable area @ Approx. 1584 numbers per Km. (As per Letter No. NHAI/GHD/02/01/02-22/2016/50 Dated 17.01.2018) and Green Highways (Plantation & Maintenance) Policy-2015	No.	100000	1,500.00	150000000	15.0000	Project Execution Agency
1.1.2		Landscaping and aesthetics of interchange as per design, drawings and direction of the Environmental Specialist of the Supervision Consultant	LS	1	1,25,000.00	250000	0.0250	Project Execution Agency
1.2.3	Soil & Ground Water	Providing Oil Interceptors as per design and drawing at vehicle parking areas and as per directions of the Environmental Specialist of the Engineer	Nos.	5	30,000.00	150000	0.0150	Project Execution Agency
1.2.4	Surface Water	Silt Fencing for Water Bodies adjacent to the road	running m	1000	1,100.00	1100000	0.1100	Project Execution Agency
1.2.5	Flora	Cost of transport & distribution of cooking fuel to construction workers to prevent	Months	24	20,000.00	480000	0.0480	Project Execution

Item No.	Component	Description	Unit	Quantity	Unit cost (INR)	Total Cost		Responsible Agency
						INR	Cr.	
		indiscriminate felling of trees						Agency
1.2.6	Air	Dust Management with sprinkling of water, covers for vehicles transporting construction material	Km	70.2	30,000.00	2106000	0.2106	Project Execution Agency
1.2.7	Noise	Provision of compound wall of noise sensitive features upto a height of total 2m above ground level complete in all respect as per Technical Specifications and as per the direction of the Engineer.	running m	500	8,000.00	4000000	0.4000	Project Execution Agency
1.2.8	Solid Waste Disposal	Disposal of Sewage and other wastes in the construction yard and labour camps as per directions of the Environmental Specialist / Environmental Engineer of the Engineer.	Month	24	12,000.00	288000	0.0288	Project Execution Agency
Total Mitigation / Enhancement Cost						**158374000**	**15.8374**	
2	MONITORING COST							
2.1	Construction Stage							
2.1.1	Air	Monitoring of ambient Air Quality and gaseous pollutants as per CPCB Standard Procedures at 6 locations including hot mix plant locations, sensitive area as per direction by Environmental Specialist of Monitoring Consultant for two seasons in a year for 2 years as per the Monitoring Plan given in EMP	No. of Samples	576	2,000.00	1152000	0.1152	Project Execution Agency
2.1.2		Analysis charges of Ambient air for samples collected for parameters as per AAQ Standards Notification, 2009 and CPCB	No. of Samples	576	4,000.00	2304000	0.2304	Project Execution Agency

Item No.	Component	Description	Unit	Quantity	Unit cost (INR)	Total Cost		Responsible Agency
						INR	Cr.	
		manual.						
2.1.3	Water Quality	Collection of grab samples of water quality at 6 locations for 2 years (twice a year) in pre & post monsoon seasons as per the Monitoring Plan given in EMP and as per direction of Environmental Specialist of the Monitoring Consultant	No. of Samples	24	400	9600	0.00096	Project Execution Agency
2.1.4		Analysis of water quality at locations in the monitoring plan for pH, Turbidity, total solids, turbidity, COD, BOD, DO, Chlorides, Hardness, Oil & Grease, TSS, TDS, Total Coliform, Iron, Fluorides, Nitrates, E. Coli, Total Coliform and faecal Coliform as specified in "Standard Methods for Examination of Water and Wastewater" published by WEF, AWWA and APHA as per direction of Environmental Specialist / Environmental Engineer of the Engineer and as per MoEF&CC rate list.	No. of Samples	24	6,000.00	144000	0.0144	Project Execution Agency
2.1.5	Noise	Monitoring Noise level at Equipment Yards, Sensitive area and Settlements using hand held noise meters at 5 locations as per directions of Environmental Specialist of the Monitoring Consultant for two seasons in a year for 2 years as per the Monitoring Plan given in EMP	Nos.	20	1,500.00	30000	0.0030	Project Execution Agency
2.1.6	Soil	Collection and Analysis of Soil samples at 4	Nos.	16	2,000.00	32000	0.0032	Project

Item No.	Component	Description	Unit	Quantity	Unit cost (INR)	Total Cost		Responsible Agency
						INR	Cr.	
		locations as per directions of Environmental Specialist of the Monitoring Consultant for twice a year for 2 years as per the Monitoring Plan given in EMP						Execution Agency
2.1.7	Transportation Cost	Transportation cost for monitoring of noise, air and water during construction period	L.S.	1	2,50,000.00	250000	0.0250	
2.2	Operation Stage							
2.2.1	Air	Sampling and monitoring ambient Air Quality and gaseous pollutants as per CPCB Standard Procedures at 2 locations including sensitive area as per direction by Environmental Specialist of Consultant for once in a month for 3 season in every alternate year for 2 years.	No. of Samples	36	2,000.00	72000	0.0072	NHAI
2.2.2		Analysis charges of Ambient air from samples collected for parameters as per AAQ Standards Notification, 2009	No. of Samples	36	4,000.00	124000	0.0124	NHAI
2.2.3	Water Quality	Collection of grab samples of water quality at 4 locations for twice a year in pre & post monsoon seasons for 2 years as per direction of Environmental Specialist of the Consultant	No. of Samples	16	400	6400	0.00064	NHAI
2.2.4		Analysis of water quality at locations in the monitoring plan for pH, Turbidity, total solids, COD, BOD, DO, Chlorides, Hardness, Oil & Grease, TSS, TDS, Total Coliform, Iron, Fluorides, Nitrates, E. coli, Total coliform and	No. of Samples	16	6,000.00	96000	0.0096	NHAI

Item No.	Component	Description	Unit	Quantity	Unit cost (INR)	Total Cost		Responsible Agency
						INR	Cr.	
		faecal coliform etc. as specified in "Standard Methods for Examination of Water and Wastewater" published by WEF, AWWA and APHA						
2.2.5	Noise	Monitoring Noise level at Sensitive area and Settlements using hand held noise meters at 5 locations for twice in a year for 2 years as per directions of Environmental Specialist of the Monitoring Consultant	Nos.	20	1,500.00	30000	0.0030	NHAI
2.2.6	Soil	Monitoring and analysis of Soil samples at 4 locations as per directions of Environmental Specialist of the Engineer for twice in a year for 2 year as per the Monitoring Plan given in EMP	Nos.	8	2,000.00	16000	0.0016	NHAI
2.2.7	Transportation Cost	Transportation cost for monitoring of noise, air and water during operation period for 2 years considering every alternate year.	L.S.	1	50,000.00	50000	0.0050	NHAI
TOTAL MONITORING COST						4336000	0.4336	
3	MISCELLANEOUS COST							
3.1	Training	Training	L.S.	1	2,50,000.00	250000	0.0250	NHAI
3.2	Advocacy and Policy Making	Holding meetings for policy planning and subsequent review meetings with Revenue Department, Forest Department, local representatives, NGOs, etc. regarding development controls.	Year	12	15,000.00	180000	0.0180	NHAI
3.3	Administrative	Maintenance of vehicle with the Environment	Months	36	35,000.00	1260000	0.1260	NHAI

Item No.	Component	Description	Unit	Quantity	Unit cost (INR)	Total Cost		Responsible Agency
						INR	Cr.	
	Charges including logistics	Cell, Data processing, administrative support, stationery etc.						
3.4	Miscellaneous Items	Digital Camera for the Environment Cell	No.	2	20,000.00	40000	0.0040	NHAI
3.5		Portable sound level meter	No.	1	2,50,000.00	250000	0.0250	NHAI
TOTAL MISCELLANEOUS COST						**1980000**	**0.198**	
TOTAL COST						**164690000**	**16.469**	
Contingency @ 5% on Total Environmental Cost						**8234500**	**0.823**	
GRAND TOTAL						**172924500**	**17.292**	
Rate per kilometer						**1874926.813**	**0.187**	

9.6 Corporate Environment Responsibility

As per the OM file No. 22-65/2017-IA.III dated 1st May 2018, CER cost will be calculated 0.5% of the total project cost. Hence, CER cost for the project will be ~ INR 5.91 Crore. Break-up of CSR activities as proposed is given in Table below.

Table 9-2: Activities and Budget Proposed under Corporate Environmental Responsibilities

S. No.	Particulars	Area specific expenses	Unit	Budget (INR)
1	Health	Provision for fullfilment of PHC Requirements in 8 Tehsil	8	4000000
2	Education	Awarness regarding Environment & Social Concern on quarterly basis in 8 Tehsil	32	1600000
3	Skill development	Deploy Environmental Engineer by contractor for Awarness regarding Road Safety and Uses of PPE and other environmental Aspects	3	1800000
4	Infrastructure creation for drinking water supply	Provision of wells in 8 Tehsil	8	4000000
5	Electrification including solar power	Installation of Solar Panel and LED Bulb near Project road crossing at 3 interchanges	3	1500000

S. No.	Particulars	Area specific expenses	Unit	Budget (INR)
6	Solid waste management facilities	Collection, Segregation, Transporation and Disposal of Solid waste from near by village and Municiple area. (Provision of Solid waste collection Vehicle)	8	400000
7	Rain water harvesting	Provision of Rain water Harvesing at 500 mtrs at each side in 70.2 x2=140.4 km	140	6300000
8	Plantation in community areas	Plantation Activities in 20% of avenue plantation area	22240	33360000
9	Creation of Urinals	Bathroom facility at 4 nos. of rest areas and 1 Toll Plaza	5	1250000
9	Misc. Facilities	Misc. Facilities and Expenses for Rural Infrastructure development	LS	2100000
Sub-Total				56310000
10	Contingency @ 5%			2815500
Total (INR)				59125500
Note:	Cost towards CER shall stand under the provision of NH Act.			

10 SUMMARY AND CONCLUSION

10.1 INTRODUCTION

The Government of India has taken up development of Economic Corridors, Inter Corridors, Feeder Corridors and National Corridors to improve the efficiency of Freight Movements in India under Bharatmala Pariyojana.

National Highway Authority of India has been appointed as Nodal Agency for proposed development of Bilaspur Urga section of NH-130A which is a part of Raipur – Dhanbad Economic Corridor under Bharatmala Pariyojana, Lot 3/ Package-1.

10.2 DESCRIPTION OF THE PROJECT

Project starts from the end point of Bilaspur bypass, which is under construction at NH-130. It is 11 Km away from the start point along NH-130 towards south and then ends with existing road SH-04 at a distance of 7.5 km from Urga. The project road is part of Raipur – Dhanbad economic corridor and total length of the Project Road is 70.2 km.

The proposed project stretch is 70.2 Kms long and passes through three districts of Chhattisgarh viz. Bilaspur, Janjgir Champa and Korba. The tehsil covered by the project stretch are Bilaspur, Masturi, Akaltara, Baloda, Kahghora, Kartala, Korba and Chitapali.

10.3 DESCRIPTION OF THE ENVIRONMENT

The baseline data was generated during pre-monsoon season of 2018 i.e. March to May, 2018. The baseline data has been provided in chapter 3 of this report which shows the values of almost all of the parameters are well within the prescribed limits.

10.4 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

- Slight change in the micro-climate of the area is expected due to Heat Island Effect.
- There will be a marginal rise in PM levels during the construction activities, which shall again be within prescribed limit after the construction activities are over.
- The area is likely to experience a marginal increase in noise level due to increase in vehicle density after construction of the road.
- Contamination to water bodies may result due to spilling of construction materials, oil, grease, fuel and paint etc. This will be more prominent in case of locations where the project road crosses rivers, canals, nallahs, etc. Mitigation measures have been planned to avoid contamination of these water bodies.
- Diversion of forest land has been envisaged for this project. Hence, Forest Clearance under the purview of Forest (Conservation) Act, 1980 is required. The application of forest clearance is under process. Adequate compensatory afforestation has been planned as a mitigation measure.
- The project road doesn't cross any Protected Area. Since the project road is a green field project, acquisition of land shall be required.
- During the construction of the proposed project, the topography may change marginally due to cuts & fills for project road and construction of project related structures etc. Provision of construction yard for material handling will also alter the existing topography.

10.5 Analysis of Alternatives (Technology & Site)

Detailed analyses of the alternatives have been conducted taking into account both with and without project. Comparative analysis of all the alternatives has also been conducted. The proposed development of the road is likely to have a positive impact on the economic value of the region. However, there are certain environment and social issues that need to be mitigated for sustainable development.

Three alternatives were studies and the first one was found out to be most suitable.

10.6 ENVIRONMENTAL MONITORING PROGRAM

Regular monitoring of important and crucial environmental parameters is of immense importance to assess the status of environment during operation of the proposed project. With the knowledge of baseline conditions, the monitoring program can serve as an indicator for any deterioration in environmental conditions due to operation of the project and suitable mitigating steps could be taken in time to safeguard the environment. Monitoring is as important as that of control of pollution since the efficacy of control measures can only be determined by monitoring.

10.7 ADDITIONAL STUDIES

The various additional studies have been undertaken for the project including Public Consultation, Risk assessment and Social Impact Assessment/ R&R Action Plans.

Public consultation is a continuous process and has been carried out at all stages throughout the project road. To ascertain the views of the affected families to be recorded and has been included in the Social Impact Assessment report.

10.8 BENEFITS OF THE PROJECT

The benefits of the Project are multi-fold. It will substantially reduce the travel time between Bilaspur and Korba and the other remote areas falling on the alignment. In addition to the improved connectivity, it will also provide a boost to the economic status of the villages / towns falling in the dedicated Project area.

10.9 ENVIRONMENT MANAGEMENT PLAN

Project specific environmental management plan have been prepared for ensuring the implementation of the proposed measures during construction phase of the project, implementation and supervision responsibilities. The cost for environmental management during construction has been indicated in EMP. The project impacts and management plan suggested thereof are summarized in the chapter.

The Environmental Management Plan (EMP) has been designed within the framework of various regulatory requirements on environmental and Socio-economic aspects aiming at the following:

- Minimize disturbance to native flora and fauna, if any.
- Prevent and to attenuate air, water, soil and noise pollution, if any.
- Encourage the socio-economic development.

The environmental management plan (EMP) would, therefore, consists of following main components:

- To integrate potential impacts (positive or negative), environmental mitigation measures, implementation schedule, and monitoring plans.
- To describe the potential environmental impacts and proposed management associated with each stage of the project development.
- To control environmental impacts to levels within acceptable standards, and to minimize possible impact on the community and the workforce of foreseeable risks during the construction and subsequent operational phases of the project.

10.10 CONCLUSION

Based on the EIA study and surveys conducted for the Project, it can be safely concluded that associated potential adverse environmental impacts can be mitigated to an acceptable level by adequate implementation of the measures as stated in the EIA Report. Adequate provisions shall be made in the Project to cover the environmental mitigation and monitoring requirements, and their associated costs as suggested in environmental budget. The proposed project shall improve Road efficiency and bring economic growth. In terms of air and noise quality, the project shall bring considerable improvement to possible exposure levels to population.

11 DISCLOSURE OF CONSULTANT

11.1 Introduction

Feedback Infra Private Limited is a leading professional and technical services firm in the infrastructure sector in India. From concept to commissioning, it offers an integrated suite of services across all sectors of infrastructure. Its infrastructure focus enables to provide these services through a seamless multidisciplinary team that brings expert skills and deep sector knowledge. The team comprises of Engineers, Planners, MBAs, Chartered Accountants, Social & Environmental Scientists and Transaction Advisory experts who support clients to address specific infrastructure procurement challenges. Headquartered in Gurgaon, Feedback has six regional offices and over 165 project offices nationally. Besides India, Feedback Infra has its international offices in Abu Dhabi, Dubai, Jakarta and Kathmandu and is adding value to projects in Afghanistan, Africa, Australia, Bangladesh, Bhutan, Europe, Indonesia, Malaysia, Middle East, Nepal, Singapore, Sri Lanka and Syria. Its mission is to make infrastructure happen and improve people's lives by supporting the development process that impact communities.

Feedback is involved in:-

- Supporting governments and private organizations in the development of core Infrastructure
- Facilitating the development of over 15,000 km of road network
- Advising on more than 35,000 MW of new power generation capacity
- Advising to over 330 kilometres of metro rail projects being implemented in the country
- Taking its project management experience of 100,000 acres of residential development and more than 35 million square feet of township development to Tier II cities
- Advising on over 650 hospital beds and developing the education and skill base of local communities
- Facilitating over 350 Public Private Partnership projects by giving unique local perspectives on delivery models that are implementable and help solve complexities of transactions
- Structuring innovative projects in the Public Private Partnership model

11.2 Accreditation

Feedback Infra Pvt. Ltd. is an ISO 9001:2015 and NABET certified organization vide certificate no. NABET/EIA/1821/RA0116 dated 11th January, 2019. Certificate is valid till 26-08-2021.

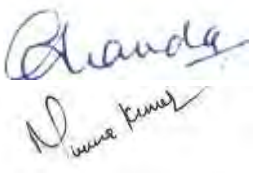
11.2.1 Declaration by the Experts

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA Coordinator

Name of EIA Coordinator	:	Dr. R.K.Singh
Signature	:	
Date	:	15.12.2018
Period of Involvement	:	June, 2018 to till date
Contact Information	:	Dr. R.K.Singh General. Manager Feedback Infra Pvt. Ltd. 15th Floor, Tower 9B, DLF Cyber City Phase III, Gurgaon

Functional Area Experts

S. No.	Functional Areas	Name of the expert/s	Involvement (Period & Task)	Signature & Date
1	**AP**	Dr. R. K. Singh/ Navneet Kumar	June, 2018 to till date **Task:** a) Preparation of Scope for baseline study b) Crosschecking of monitoring c) Impact assessment for air quality d) Mitigation measures for air pollution	
2	**SE**	Dr. Gandikota Ananda / Munna Kumar	June, 2018 to till date **Task:** a) Socio-economic survey of the area b) Impact on inhabitants c) Management plan	
3	**EB**	Arijit Choudhury	June, 2018 to till date **Task:** a) Ecology & biodiversity survey of the study area b) Preparation of inventory of flora and fauna	

S. No.	Functional Areas	Name of the expert/s	Involvement (Period & Task)	Signature & Date
			c) Consultation with institutional and community d) Impact and mitigation measures for ecology	
4	**HG**	Dinesh Kumar Verma	June, 2018 to till date **Task:** a) Review of Hydro-geological pattern of the area b) Assessment of project impacts c) Development of Management plan	
5	**Noise / Vibration**	Saurabh Kumar Garg / Arijit Choudhury	June, 2018 to till date **Task** a) Noise monitoring scoping b) Noise impact analysis c) Preparation of management plan	
6	**RH**	Pintu Kumar	June, 2018 to till date **Task:** a) Hazard Identification b) Risk Assessment c) Preparation of management plan	
7	**WP**	Pintu Kumar	June, 2018 to till date **Task:** a) preparation of Scope for baseline study b) Crosschecking of monitoring c) Impact assessment for water quality d) Mitigation measures for water pollution	
8	**AQ**	Pintu Kumar/ Saurabh Kumar Garg	June, 2018 to till date **Task:** a) preparation of Scope for baseline study b) Crosschecking of monitoring c) Impact assessment for water quality d) Mitigation measures for water pollution	
9	**SC**	Dr. Raj Kumar Singh	June, 2018 to till date **Task:** a) preparation of Scope for	

S. No.	Functional Areas	Name of the expert/s	Involvement (Period & Task)	Signature & Date
			baseline study b) Crosschecking of monitoring c) Impact assessment for water quality d) Mitigation measures for Soil pollution	
10	**EIA Expert & Report Reviewer**	Dr. Raj Kumar Singh	June, 2018 to till date **Task:** a) Project Management b) Report Review	

Declaration by authorized person of the accredited consultant organization

I, Pranav Ranjan, hereby, confirm that the above mentioned experts prepared the EIA report for Development of Economic Corridors, Inter Corridors, Feeder Routes to improve the efficiency of freight movement in India (Lot-3/Chhattisgarh/Package-1) under Bharatmala Pariyojana: Bilaspur-Urga section of NH-130A (Raipur- Dhanbad Economic Corridor). I also confirm that EIA Coordinator (EC) has gone through the report, and the consultant organization shall be fully accountable for any misleading information.

It is certified that no unethical practices, plagiarism involved in carrying out the work and external data / text has not been used without proper acknowledgement while preparing this EIA report.

Signature: 

Name: Pranav Ranjan

Designation: Chief Operating Officer

Name of the EIA consultant organization: Feedback Infra Pvt. Ltd.

NABET Certificate No. & Issue Date: **NABET/EIA/1821/RA0116 dated 11th Jan 2019**

Annexure I: Terms of Reference

F. No. 10-59/2018-IA.III
Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)

Indira Paryavaran Bhawan,
Jor Bagh Road, Aliganj
New Delhi - 110 003

Dated: 9th October, 2018

To

The Project Director
Project Implementation Unit, Bilaspur
D-61, HIG-I, Abhilasha Parisar
Behind Hitech Bus Stand
Tifra, Bilaspur (C.G.) 495 001

Sub: Development of Bilaspur–Urga section of NH-130A (Raipur–Dhanbad Economic Corridor) start at Junction with NH-130 & NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH149B & SH-4 near Urga in the State of Chhattisgarh (approx. 70.2 km) by M/s National Highways Authority of India–**Terms of Reference regarding.**

Sir,

This has reference to your letter No. 27011/7/2018/PD-BSP/BILASPUR-URGA/FOREST/2397 submitting above mentioned proposal online on 31st July, 2018, for seeking Terms of Reference (TOR) as per the provisions of the Environment Impact Assessment (EIA) Notification, 2006 and subsequent amendments under the Environment (Protection) Act, 1986.

2. The proposal for 'Development of Bilaspur–Urga section of NH-130A (Raipur–Dhanbad Economic Corridor) start at Junction with NH-130 & NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH149B & SH-4 near Urga in the State of Chhattisgarh (approx. 70.2 km) by M/s National Highways Authority of India' was considered by the Expert Appraisal Committee (EAC) for Industrial Estate/Area, SEZ and Highways projects in its 195th meeting held on 30th - 31st August, 2018 in the Ministry of Environment, Forest and Climate Change, New Delhi.

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[Proposal No. IA/CG/MIS/**75543**/2018]

3. During the above meeting, the project proponent, along with EIA Consultant M/s Feedback Infra Private Limited, made a presentation and provided following information to the Committee:

(i) The proposal involves the Development of Economic Corridor to improve the efficiency of freight movement in India under Bharatmala Pariyojana, Bilaspur – Urga section of NH-130A (Raipur – Dhanbad Economic Corridor). The proposed project traverses through Bilaspur, Korba and Janjgir Champa districts in the state of Chhattisgarh.

(ii) **Location:** The proposed alignment shall start near Dhuma Village, Bilaspur and terminate at existing SH4 near Urga.

(iii) **Proposed RoW:** 70m.

(iv) **Land use of the site and around the site up to 10 km radius:** The landuse around the proposed stretch is mostly agricultural with patches of settlements and forest area.

(v) **Rehabilitation involved, if any:** The identification of the private and government structures are in progress and the drafting of Rehabilitation and resettlement plan shall be commenced after the identification of structures and consultation with stakeholders. Land acquisition shall be undertaken as per the provision of LARR, 2013 and NH Act 1956 (with its amendments). Rehabilitation and resettlement plan will be prepared after detailed census survey during EIA Study and will be submitted in EIA Report.

(vi) **Justification for selection of the site:** Three alternatives were considered for the project. The proposed alignment is finalized due to the following benefits:

- Major part of the alignment Passing through the agricultural and barren land with patches of Forest
- No ESZ areas in the RoW
- Least forest area involved
- Shortest Distance. Hence least time required for commuting
- Least land to be acquired
- Least number of settlements to be affected
- Least number of Sensitive Features

Moreover, the current route between Bilaspur and Jashpur measures about 252 Km which shall be reduced to 222 Km i.e. 12 % reduction which shall lead to save the fuel and time of the commuters.

(vii) **Habitation in and around:** The proposed stretch passes through about 45 villages and approx. 190 structures shall be demolished in the proposed road.

(viii) **Total water requirement and its source:** Total requirement of water for construction is estimated to about 15,08,891 Kl during construction.

(ix) **Waste water generation, treatment and disposal:** Waste water shall be treated in septic tanks or bio-toilets provided in the construction site.

(x) **Water bodies, diversion if any:** The proposed road stretch passes through 3 Rivers and 2 Canals. No diversion is required as bridges are proposed above them.

(xi) **Whether the project is in Critically Polluted area:** No

(xii) **Municipal solid waste generated disposal facility:** The approximate quantity of wastes to be generated from the project is 450 Kg per day.

(xiii) **Tree cutting, types, numbers, girth size etc.**: The details of tree cutting shall be provided in the EIA report as the application of forest clearance is under process and the joint survey is yet to be done.

(xiv) **National Park/ Wild Life Sanctuary in 10 km radius area & Eco-Sensitive Zone in 10 km radius area:** Not Applicable.

(xv) **If the project involves diversion of forest land, extend of the forest land:** Yes, the project passes through forest area and thus requires diversion of land. The details of the forest area are:-

Design Chainage		Length In km	Proposed ROW (m.)	LHS/RHS	Required Area in (Sq. m.)	Remark
From	To					
21+327	21+357	0.030	70	Both	2502.5405	Dalha PF
21+357	21+466	0.109	70	Both	7820.4979	
21+466	21+689	0.223	70	Both	15776.7545	Dalha PF
21+689	21+763	0.074	70	Both	6181.1149	
21+763	21+787	0.024	70	Both	1515.047	
21+787	22+000	0.213	70	Both	14744.5195	
22+000	22+533	0.533	70	Both	38218.7854	Dalha PF
22+533	22+915	0.382	70	Both	25334.1432	
42+690	44+500	1810	70	LHS	65061.5706	Chhata PF
43+180	47+281	4101	70	RHS	184581.5589	
44+600	45+700	1100	70	LHS	26767.3626	
46+100	46+540	440	70	LHS	4953.5191	
47+163	47+281	118	70	LHS	2841.8621	
48+334	48+524	190	70	Both	15066.3878	RF
Total					**411365.664**	

The application of forest diversion is under process.

(xvi) **Investment/Cost of the project:** INR 1,053 crore.

(xvii) **Benefits of the project:**

- Better connectivity to economic, social and political hubs of Chhattisgarh and Odisha
- Faster growth and outreach to better and improved facilities
- Fast and safe connectivity resulting in savings in fuel, travel time and total transportation cost
- Reduction in accidents
- Better approach to medical & educational services
- Faster transportation of perishable goods like fruits, vegetables, and dairy products
- Better opportunities for transporting, processing and marketing of agricultural products
- Development of local agriculture and handicrafts
- Development of tourism and pilgrimage
- Opening up of opportunities for new occupations and trade on the route
- Indirect and direct employment opportunity to people from all skilled, semi-skilled and unskilled streams
- Improved quality of life for people and so on
- Development of backward areas through rapid industrialization and access to distant markets
- Creation of ancillary ecosystem through highway amenities, support services and industrial / manufacturing areas

(xviii) **Employment potential:** 900 jobs.

(xix) **If any court case pending for violation of the environmental laws:** No.

4. Based on the deliberations in the meeting and information provided by the proponent in support of the project, the EAC recommended for grant of TOR. As per the recommendation of the EAC, the Ministry of Environment, Forest and Climate Change hereby accords TOR for 'Development of Bilaspur–Urga section of NH-130A (Raipur–Dhanbad Economic Corridor) start at Junction with NH-130 & NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH149B & SH-4 near Urga in the State of Chhattisgarh (approx. 70.2 km) by M/s National Highways

Authority of India' and for preparation of EIA/EMP report with public consultations subject to compliance of all conditions as notified in the standard ToR applicable for highways and specific conditions, as mentioned below:

A. Project Specific Conditions: EAC recommended the following additional ToR to this project in addition to standard ToR:

(i) Cumulative Impact Assessment to be carried for the proposed project.

(ii) Water bodies along proposed alignment needs to be surveyed for their conservation and sustainability. Each water body should be clearly identified with its size, any important and threatened species associated with it, its usage by local community along with shape file of each of water body. Impact of proposed project on these water bodies to be identified along with mitigation measures. Emphasis should be given to avoid alignment passing through/over water bodies.

(iii) Certificate from the Chief Wildlife Warden of the state of Chattisgarh stating that no protected area/animal corridors are situated within the 10 km range of the proposed alignment.

(iv) Source of water availability to be ascertained for construction and domestic need. Necessary permissions to be obtained from State Authority/ CGWA if any.

(v) Social Indicators need to be developed for understand the socio-economic profile of the society/people living around the proposed alignment.

(vi) The proposed 4-lane alignment is passing through the coal belt region, where heavy load of traffic is quite common, therefore EAC suggested to find out the possibilities of developing a broader highway with additional lanes (6-lanes or more) based on the projected traffic density in the region.

(vii) Provide compilation of road kill data on existing roads (national and state highways) in the vicinity of the proposed project.

(viii) The alignment of road should be such that the cutting of trees is kept at bare minimum and for this the proponent shall obtain permission from the competent authorities.

B. General Conditions

(i) A brief description of the project, project name, nature, size, its importance to the region/state and the country shall be submitted.

(ii) In case the project involves diversion of forests land, guidelines under OM dated 20.03.2013 shall be followed and necessary action be taken accordingly.

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(iii) Details of any litigation(s) pending against the project and/or any directions or orders passed by any court of law/any statutory authority against the project to be detailed out.

(iv) Detailed alignment plan, with details such as nature of terrain (plain, rolling, hilly), land use pattern, habitation, cropping pattern, forest area, environmentally sensitive areas, mangroves, notified industrial areas, sand dunes, sea, rivers, lakes, details of villages, teshils, districts and states, latitude and longitude for important locations falling on the alignment by employing remote sensing techniques followed by "ground truthing" and also through secondary data sources shall be submitted.

(v) Describe various alternatives considered, procedures and criteria adopted for selection of the final alternative with reasons.

(vi) Land use map of the study area to a scale of 1: 25,000 based on recent satellite imagery delineating the crop lands (both single and double crop), agricultural plantations, fallow lands, waste lands, water bodies, built-up areas, forest area and other surface features such as railway tracks, ports, airports, roads, and major industries etc. alongwith detailed ground survey map on 1:2000 scale showing the existing features falling within the right of way namely trees, structures including archaeological & religious, monuments etc. if any, shall be submitted.

(vii) If the proposed route is passing through any hilly area, the measures for ensuring stability of slopes and proposed measures to control soil erosion from embankment shall be examined and submitted.

(viii) If the proposed route involves tunneling, the details of the tunnel and locations of tunneling with geological structural fraction should be provided. In case the road passes through a flood plain of a river, the details of micro-drainage, flood passages and information on flood periodicity at least of the last 50 years in the area shall be examined and submitted.

(ix) If the project is passing through/located within the notified ecologically sensitive zone (ESZ) around a notified National Park/Wildlife Sanctuary or in the absence of notified ESZ, within 10 km from the boundary of notified National Park/Wildlife Sanctuary, the project proponent may simultaneously apply for the clearance for the standing committee of NBWL. The EC for such project would be subject to obtaining the clearance from the standing committee of NBWL.

(x) Study regarding the animal bypasses/underpasses etc. across the habitation areas shall be carried out. Adequate cattle passes for the movement of agriculture material shall be provided at the stretches passing through habitation areas. Underpasses shall be provided for the movement of Wild animals.

(xi) Study regarding in line with the recent guidelines prepared by Wildlife Institute of India for linear infrastructure with strong emphasis on animal movement and identifying crossing areas and mitigation measures to avoid wildlife mortality.

(xii) The information shall be provided about the details of the trees to be cut including their species and whether it also involves any protected or endangered species. Measures taken to reduce the number of the trees to be removed should be explained in detail. The details of compensatory plantation shall be submitted. The possibilities of relocating the existing trees shall be explored.

(xiii) Necessary green belt shall be provided on both sides of the highway with proper central verge and cost provision should be made for regular maintenance.

(xiv) If the proposed route is passing through a city or town, with houses and human habitation on either side of the road, the necessity for provision of bypasses/diversions/under passes shall be examined and submitted. The proposal should also indicate the location of wayside amenities, which should include petrol stations/service centres, rest areas including public conveyance, etc.

(xv) Details about measures taken for the pedestrian safety and construction of underpasses and foot-over bridges along with flyovers and interchanges shall be submitted.

(xvi) The possibility that the proposed project will adversely affect road traffic in the surrounding areas (e.g. by causing increases in traffic congestion and traffic accidents) shall be addressed.

(xvii) The details of use of fly ash in the road construction, if the project road is located within the 100 km from the Thermal Power Plant shall be examined and submitted.

(xviii) The possibilities of utilizing debris/waste materials available in and around the project area shall be explored.

(xix) The details on compliance with respect to Research Track Notification of Ministry of Road, Transport and Highways shall be submitted.

(xx) The details of sand quarry and borrow area as per OM No.2-30/2012-IA-III dated 18.12.2012 on 'Rationalization of procedure for Environmental Clearance for Highway Projects involving borrow areas for soil and earth" as modified vide OM of even No. dated March 19, 2013, shall be examined and submitted.

(xxi) Climate and meteorology (max and min temperature, relative humidity, rainfall, frequency of tropical cyclones and snow fall); the nearest IMD

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meteorological station from which climatological data have been obtained to be indicated.

(xxii) The air quality monitoring shall be carried out as per the notification issued on 16th November, 2009. Input data used for Noise and Air quality modelling shall be clearly delineated.

(xxiii) The project activities during construction and operation phases, which will affect the noise levels and the potential for increased noise resulting from this project shall be identified. Discuss the effect of noise levels on nearby habitations during the construction and operational phases of the proposed highway. Identify noise reduction measures and traffic management strategies to be deployed for reducing the negative impact if any. Prediction of noise levels shall be done by using mathematical modelling at different representative locations.

(xxiv) The impact during construction activities due to generation of fugitive dust from crusher units, air emissions from hot mix plants and vehicles used for transportation of materials and prediction of impact on ambient air quality using appropriate mathematical model, description of model, input requirement and reference of derivation, distribution of major pollutants and presentation in tabular form for easy interpretation shall be examined and carried out.

(xxv) The details about the protection to existing habitations from dust, noise, odour etc. during construction stage shall be examined and submitted.

(xxvi) If the proposed route involves cutting of earth, the details of area to be cut, depth of cut, locations, soil type, volume and quantity of earth and other materials to be removed with location of disposal/ dump sites along with necessary permission.

(xxvii) If the proposed route is passing through low lying areas, details of filling materials and initial and final levels after filling above MSL, shall be examined and submitted.

(xxviii) The water bodies including the seasonal ones within the corridor of impacts along with their status, volumetric capacity, quality and likely impacts on them due to the project along with the mitigation measures, shall be examined and submitted.

(xxix) The details of water quantity required and source of water including water requirement during the construction stage with supporting data and also classification of ground water based on the CGWA classification, shall be examined and submitted.

(xxx) The details of measures taken during constructions of bridges across rivers/ canals/major or minor drains keeping in view the flooding of the rivers and the life span of the existing bridges shall be examined and

submitted. Provision of speed breakers, safety signals, service lanes and foot paths shall be examined at appropriate locations throughout the proposed road to avoid accidents.

(xxxi) If there will be any change in the drainage pattern after the proposed activity, details of changes shall be examined and submitted.

(xxxii) Rain water harvesting pit shall be at least 3 - 5 m above the highest ground water table. Provisions shall be made for oil and grease removal from surface runoff.

(xxxiii) If there is a possibility that the construction/widening of road may cause an impact such as destruction of forest, poaching or reduction in wetland areas, examine the impact and submit details.

(xxxiv) The details of road safety, signage, service roads, vehicular under passes, accident prone zones and the mitigation measures, shall be submitted.

(xxxv) IRC guidelines shall be followed for widening & upgradation of roads.

(xxxvi) The details of social impact assessment due to the proposed construction of the road, shall be submitted.

(xxxvii) Examine the road design standards, safety equipment specifications and Management System training to ensure that design details take account of safety concerns and submit the traffic management plan.

(xxxviii) Accident data and geographic distribution shall be reviewed and analyzed to predict and identify trends - in case of expansion of the existing highway and provide Post accident emergency assistance and medical care to accident victims.

(xxxix) If the proposed project involves any land reclamation, details shall be provided of the activity for which land is to be reclaimed and the area of land to be reclaimed.

(xl) Details of the properties, houses, business activities etc likely to be effected by land acquisition and an estimation of their financial losses, shall be submitted.

(xli) Detailed R&R plan with data on the existing socio-economic status of the population in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternative livelihood concerns/employment and rehabilitation of the displaced people, civil and housing amenities being offered, etc and the schedule of the implementation of the specific project, shall be submitted.

(xlii) The environment management and monitoring plan for construction and operation phases of the project shall be submitted. A copy of your corporate policy on environment management and sustainable development, shall also be submitted.

RK

(xliii) Estimated cost of the project including that of environment management plan (both capital and recurring) and source of funding. Also, the mode of execution of the project, viz, EPC, BOT, etc, shall be submitted.

(xliv) A copy of your CSR policy and plan for meeting the expenditure to address the issues raised during Public Hearing, shall be submitted.

(xlv) Details of blasting if any, methodology/technique adopted, applicable regulations/permissions, timing of blasting, mitigation measures proposed keeping in view mating season of wildlife.

(xlvi) In case of river/ creek crossing, details of the proposed bridges connecting on either banks, the design and traffic circulation at this junction with simulation studies.

(xlvii) Details to ensure free flow of water in case the alignment passes through water bodies/river/streams etc.

(xlviii) In case of bye passes, the details of access control from the nearby habitation/habitation which may come up after the establishment of road.

(xlix) Bridge design in eco sensitive area /mountains be examined keeping in view the rock classification hydrology etc.

(l) Details of litigation pending against the project, if any, with direction/order passed by any Court of Law against the Project should be given.

(li) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

(lii) In case of alignment passing through coastal zones

a. HTL/LTL map prepared by authorized agencies superimposed with alignment and recommendation of Coastal Zone Management Authority

b. Details of CRZ-I (I) areas, mangroves required to be removed for the project along with the compensatory afforestation, area and location with budget

c. Details of road on stilt in CRZ-I areas, design details to ensure free tidal flow

d. Details of Labour camps, machinery location

(liii) Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry website "http://moef.nic.in/Manual/Highways".

5. Following general guidelines shall be strictly adhered:

(i) The EIA document shall be printed on both sides, as for as possible.

(ii) All documents should be properly indexed, page numbered.

(iii) Period/date of data collection should be clearly indicated.

(iv) Authenticated English translation of all material provided in Regional languages.

(v) The letter/application for EC should quote the MoEF&CC File No. and also attach a copy of the letter prescribing the TOR.

(vi) The copy of the letter received from the Ministry on the TOR prescribed for the project should be attached as an annexure to the final EIA-EMP Report.

(vii) The final EIA-EMP report submitted to the Ministry must incorporate the issues in TOR and that raised in Public Hearing. The index of the final EIA-EMP report, must indicate the specific chapter and page no. of the EIA-EMP Report where the specific TOR prescribed by Ministry and the issue raised in the P.H. have been incorporated. Questionnaire related to the project (posted on MoEF&CC website) with all sections duly filled in shall also be submitted at the time of applying for EC.

(viii) Grant of TOR does not mean grant of EC.

(ix) Grant of TOR/EC to the present project does not mean grant of approvals in other regulations such as the Forest (Conservation) Act 1980 or the Wildlife (Protection) Act, 1972.

(x) Grant of EC is also subject to Circulars and Office Memorandum issued under the EIA Notification 2006 and subsequent amendments, which are available on the MoEF&CC website: www.envfor.nic.in.

(xi) The status of accreditation of the EIA consultant with NABET/QCI shall be specifically mentioned. The consultant shall certify that his accreditation is for the sector for which this EIA is prepared.

(xii) On the front page of EIA/EMP reports, the name of the consultant/consultancy firm along with their complete details including their accreditation, if any shall be indicated. The consultant while submitting the EIA/EMP report shall give an undertaking to the effect that the prescribed TOR (TOR proposed by the project proponent and additional TOR given by the MoEF) have been complied with and the data submitted is factually correct (Refer MoEF office memorandum dated 4th August, 2009).

(xiii) While submitting the EIA/EMP reports, the name of the experts associated with/involved in the preparation of these reports and the laboratories through which the samples have been got analysed should be stated in the report. It shall clearly be indicated whether these laboratories are approved under the Environment (Protection) Act, 1986 and the rules made there under (Please refer MoEF office memorandum dated 4th August, 2009). The project Coordinator of the EIA study shall also be mentioned.

(xiv) All the TOR points as presented before EAC shall be covered.

RK.

6. A detailed draft EIA/EMP report shall be prepared in terms of the above additional TOR and should be submitted to the State Pollution Control Board for Public Hearing. Public Hearing to be conducted for the project in accordance with the provisions of Environmental Impact Assessment Notification, 2006 and the issues raised by the public should be addressed in the Environmental Management Plan. The Public Hearing shall be conducted based on the TOR letter issued by the Ministry and not on the basis of Minutes of the Meeting available on the website.

7. The project proponent shall submit the detailed final EIA/EMP report prepared as per TOR including issues raised during Public Hearing to the Ministry for considering the proposal for environmental clearance within 3 years as per the MoEF&CC OM No J-11013/41/2006-IA-II(I) (Part) dated 29th August, 2017.

8. The consultants involved in preparation of EIA/EMP report after accreditation with Quality Council of India/National Accreditation Board of Education and Training (QCI/NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other Organization(s)/Laboratories including their status of approvals etc. vide notification of the MoEF dated 19th July, 2013.

9. The prescribed TOR would be valid for a period of three years for submission of the EIA/EMP Reports.

Reena 09/10/2018

(Raghu Kumar Kodali)
Director/Scientist F

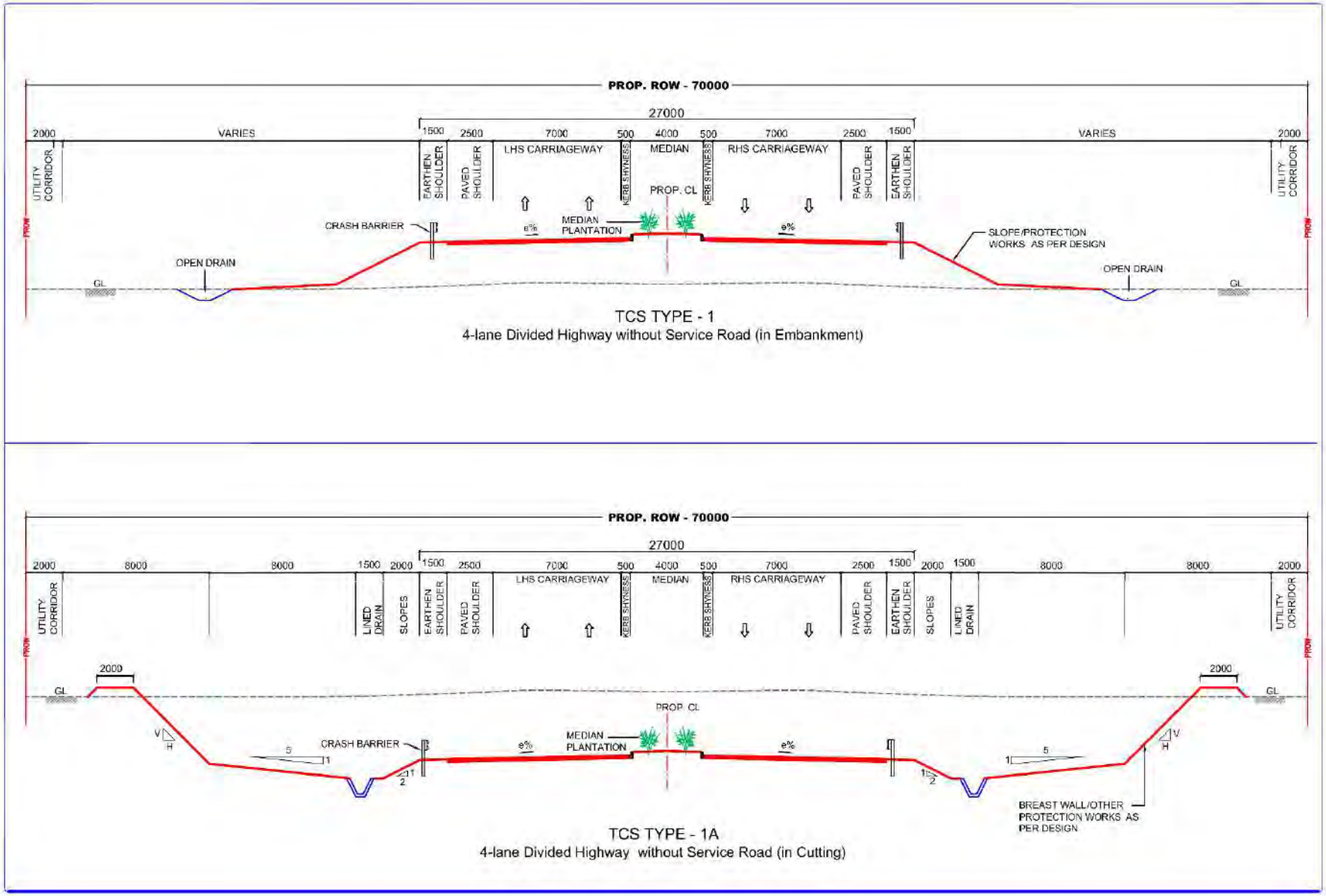
Copy to: The Member Secretary, Chhattisgarh Pollution Control Board, Paryavas Bhavan, North Block Sector-19, Atal Nagar Dist- Raipur (C.G.) - 492 002.

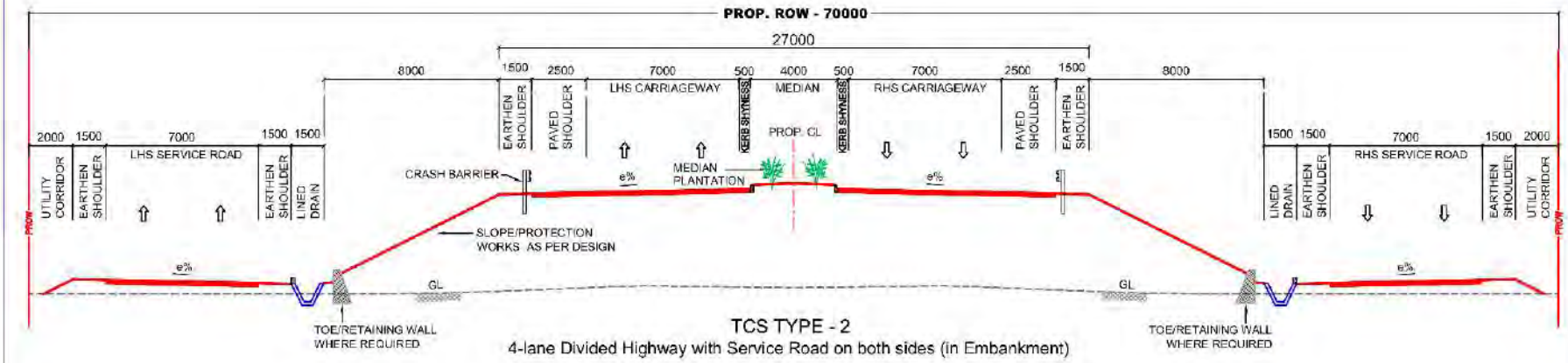
Reena 09/10/2018.

(Raghu Kumar Kodali)
Director/Scientist F

Annexure II: Typical Cross-section

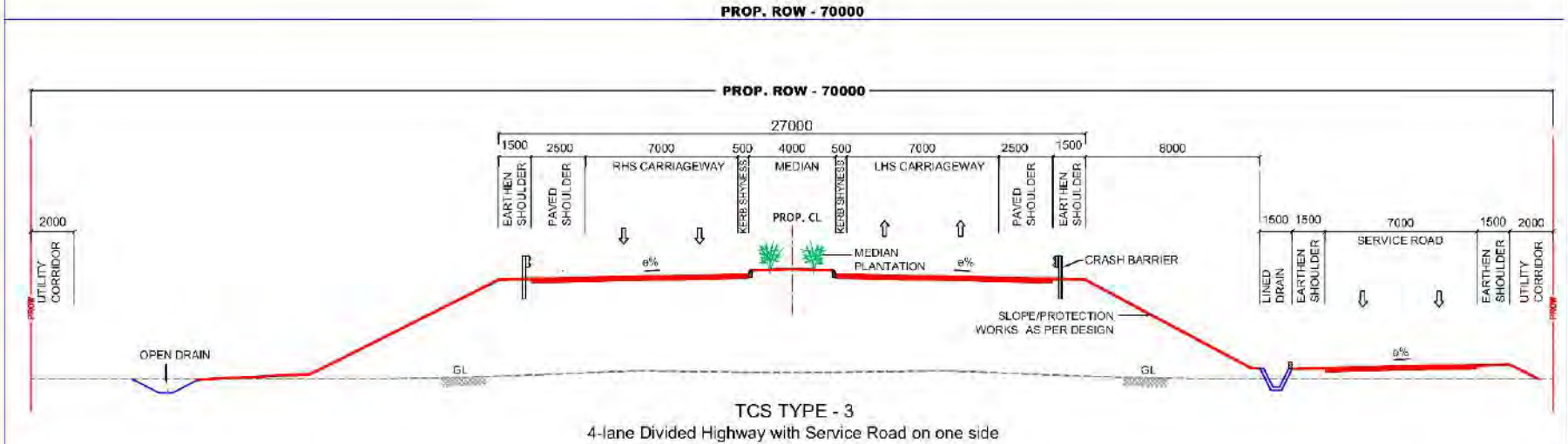
Annexure II- Typical Cross Section





TCS TYPE - 2

4-lane Divided Highway with Service Road on both sides (in Embankment)



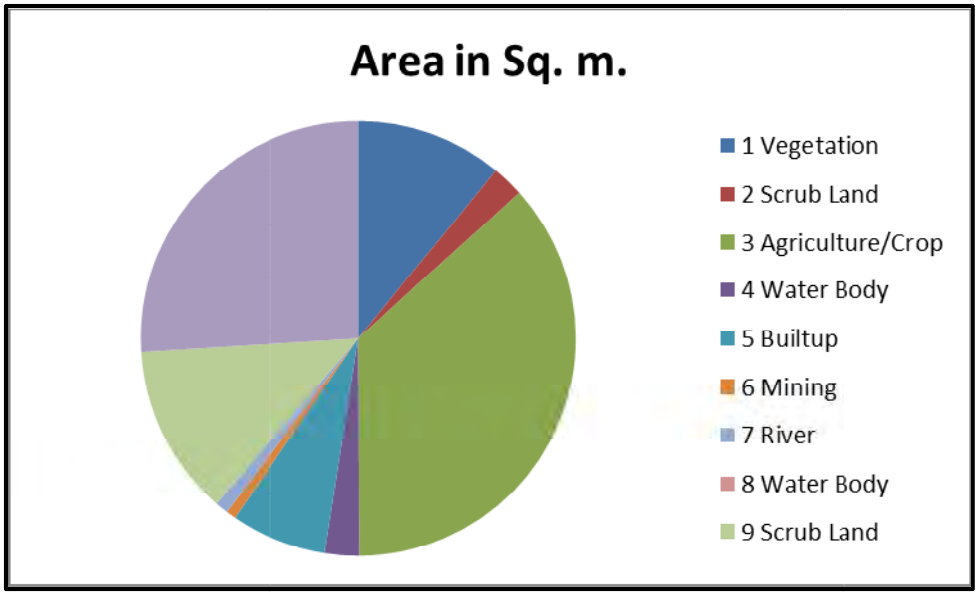
TCS TYPE - 3

4-lane Divided Highway with Service Road on one side

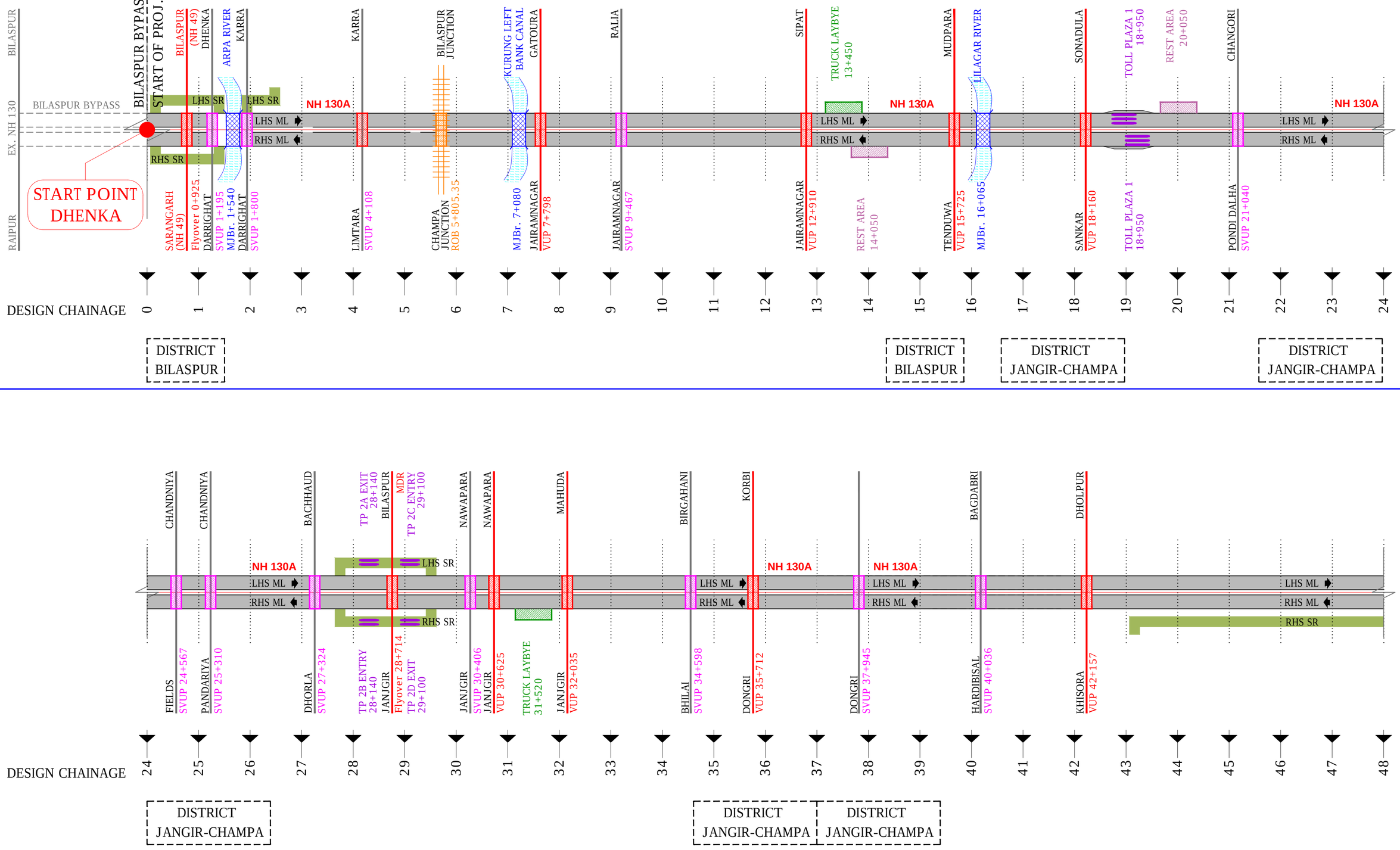
Annexure III: Land-use Pattern

Annexure III Land-use Pattern

Sr. No.	Category	Area in Sq. m.
1	Vegetation	8411871.481
2	Scrub Land	1820444.031
3	Agriculture/Crop	28217523.59
4	Water Body	1972603.273
5	Built-up	5497560.525
6	Mining	572069.2959
7	River	755885.8298
8	Water Body	6182.314108
9	Scrub Land	9762940.092
10	Fallow Land	20029288.45
	Total Area	**77046368.88**



Annexure IV: Strip-Plan



Rev.	Date	Description
R0	04-09-2018	DRAFT FEASIBILITY REPORT
R0	12-11-2018	FINAL FEASIBILITY REPORT
R1	19-08-2019	FINAL FEASIBILITY REPORT

Authority:
National Highways Authority of India
(Ministry of Road Transport & Highways)

Design Consultants:
Transys Consulting Pvt. Ltd. in association with Accrete Consulting Engineers Pvt. Ltd.
12th Floor, JMD Regent Square, MG Road, Gurugram - 122002,
e-mail - info@transysconsulting.co.in; web - www.transys.in

Project:
Bilaspur - Urga Section of NH-130A
Consultancy Services for preparation of Detailed Project Report for development of Economic Corridors, Inter Corridors, Feeder Routes to improve the efficiency of freight movement in India (Lot-3/Chhattisgarh/Package-1) under Bharatmala Pariyojna

DRAWN BY	SUMAN
DESIGNED BY	SANDEEP
CHECKED BY	KSN REDDY
APPROVED BY	BM SHRESTHA

FINAL FEASIBILITY REPORT

Date: AUG. 2019

Title: Strip Plan

Project Code	*Size*	*Scale*	*Drg. No*	*Rev:*
– – B U R D	A2	NTS	G E N 0 3	R1

Annexure V: Proposed Improvement Details

S. No.	Description	Unit	Total
1	Length of Main Road	Km	70.20
2	Length of Slip Road	Km	7.360
3	Length of Service Road	Km	8.130
4	Lane Configuration		4-lane
5	Proposed Crust thickness		
	MSA		120
	BC	MM	50
	DBM	MM	60
	WMM	MM	125
	CTWMM	MM	100
	GSB	MM	250
6	No. of Entry/Exits	Nos	3
7	Flyover (6x30x5.5)	Nos	2
8	Flyover (2x30x5.5)	Nos	1
9	**VUP (1x30x5.5)**	**Nos**	**1**
10	**VUP (1x15x5.5)**	**Nos**	**9**
11	**VUP (1x20x5.5)**	**Nos**	**5**
12	**LVUP (1x12x4)**	**Nos**	**12**
13	**SVUP (1x7x4)**	**Nos**	**12**
14	Total No. grade separated Structures	Nos	42
15	ROB	Nos	2
16	Major bridges	Nos	6
17	Minor bridges	Nos	13
18	Box culverts	Nos	125
19	Toll Plaza on Main road	Nos	1
20	Toll Plaza on Entry/exit	Nos	8
21	Bus bays	Nos.	12
22	Truck Lay Bye	Nos	4
23	Rest Area	Nos	4

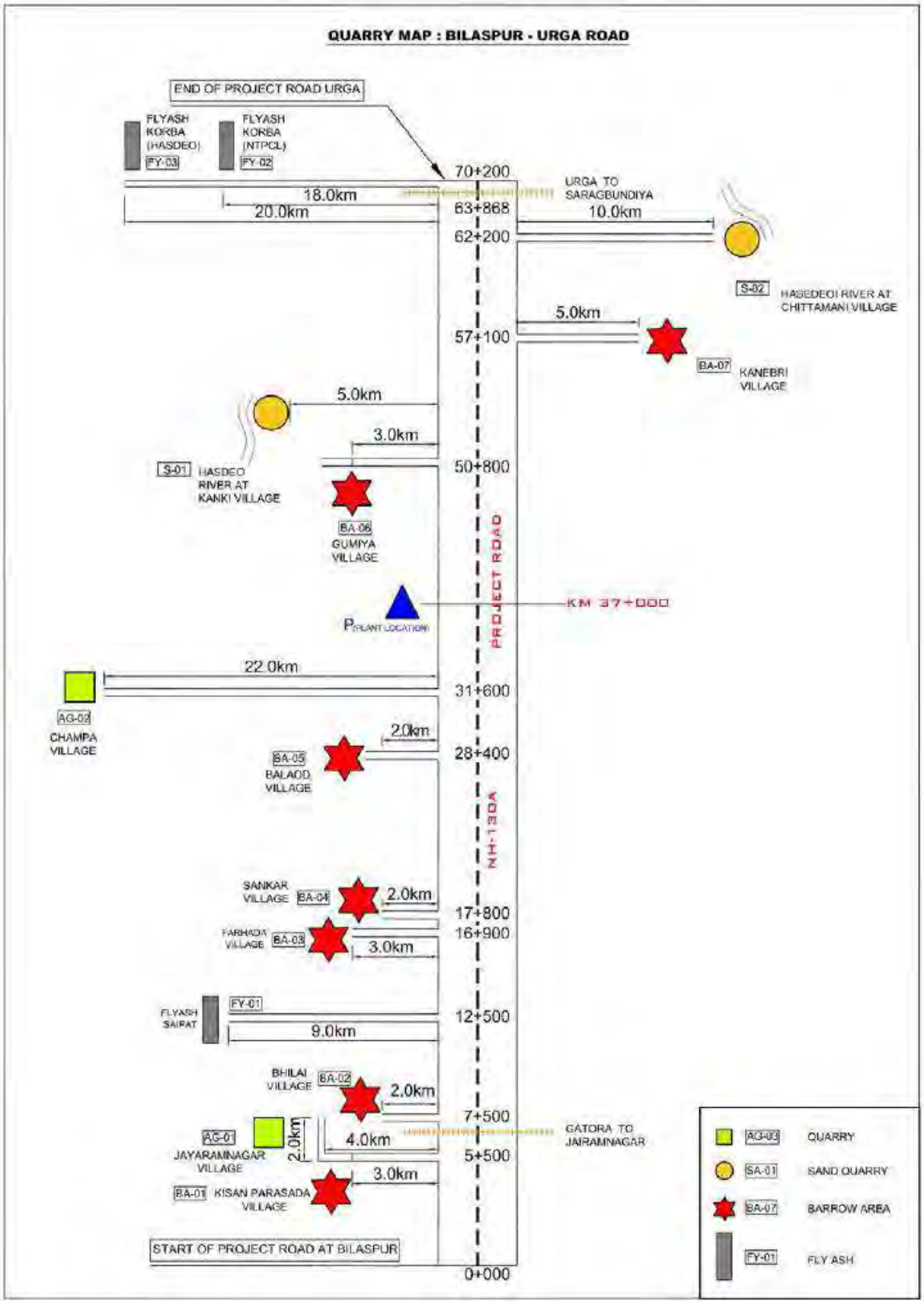
Annexure VI: Details of Quarry and Borrow Areas

Depending on the location of the quarries, the following average lead of materials for the project road were worked out and considered in the rate analysis

Sl. No.	Description	Unit	Total Lead	Source
1	Average lead from plan location to site	Km.	18.00	
2	Borrow earth	Km.	7.00	Private land
3	Sand			Kanki village - Hasdeo River
	Average lead from source to plant location	Km.	19.00	
	Average lead to site	Km.	25.00	
4	Stone Material - Boulder stone, aggregates, stone dust			Jayramnagar village, Champa village
	Average lead from source to plant location	Km.	28.00	
	Average lead to site	Km.	31.00	
5	Bitumen			Pradip refinery JagatsinghpurOdhisa
	Average lead from source to plant location	Km.	554.00	
6	Cement	Km.	47.00	Bilaspur
7	HYSD/TMT Bars	Km.	192.00	Bhilai, Durg
8	Fly ash	Km.	26.00	NTPC Sipat

Table: Details of Borrow Areas, Bilaspur to Urga Road

Sl. No.	Sample No.	Chainage (km)	Left/Right	Location	Lead (km)	Remarks
1	BA 01	5+500	Right	Kisan Parasada	2.0	Private Land
2	BA 02	7+500	Right	Bhilai Village	0.5	Private Land
3	BA 03	16+900	Right	Farhada Village	1.5	Private Land
4	BA 04	17+800	Right	Sankar Village	1.0	Private Land
5	BA 05	28+400	Right	Balaod Village	1.0	Private Land
6	BA 06	50+800	Right	Gumiya Village	2.5	Private Land
7	BA 07	57+100	Left	Kanebri Village	4.0	Private Land


QUARRY MAP : BILASPUR - URGA ROAD
END OF PROJECT ROAD URGA
FLYASH KORBA (HASDEO) FY-03
FLYASH KORBA (NTPCL) FY-02
70+200
URGA TO SARAGBUNDIYA
18.0km
20.0km
63+868
10.0km
62+200
S-02 HASEDEO RIVER AT CHITTAMANI VILLAGE
5.0km
57+100
BA-07 KANEBRI VILLAGE
5.0km
3.0km
S-01 HASDEO RIVER AT KANKI VILLAGE
50+800
BA-06 GUMIYA VILLAGE
PROJECT ROAD
KM 37+000
P PLANT LOCATION
22.0km
31+600
AG-02 CHAMPA VILLAGE
2.0km
BA-05 BALAOD VILLAGE
28+400
NH-130A
SANKAR VILLAGE BA-04
2.0km
17+800
FARHADA VILLAGE BA-03
3.0km
16+900
FLYASH SAIPAT FY-01
9.0km
12+500
BHILAI VILLAGE BA-02
2.0km
7+500
AG-01 JAYARAMNAGAR VILLAGE
2.0km
4.0km
GATORA TO JAIRAMNAGAR
5+500
3.0km
BA-01 KISAN PARASADA VILLAGE
START OF PROJECT ROAD AT BILASPUR
0+000
AG-03 QUARRY
SA-01 SAND QUARRY
BA-07 BARROW AREA
FY-01 FLY ASH

Annexure VII: List of Water bodies and Bridges

Details of Major Bridges

Sl.No	Design Chainage	Name of Nallah	Span (m)	Total Length (m)	Total Width of Structure (m)
1	1+540	Arpa River	10x30	300	2x16.0
2	7+080	Kurung Left Bank Canal	1x30 + 1x45 + 1x30	105	2x12.5
3	16+065	Lilaghar River	4x30	120	2x12.5
4	57+375	Hasdeo Right Bank Canal	1x30 + 2x40 + 3x30	200	2x12.5
5	58+890	Hasdeo River	26x30	780	2x12.5
6	59+975	Hasdeo Left Bank Canal	1x30 + 1x45 + 1x30	105	2x12.5

Details of Minor Bridges

Sl.No	Design Chainage	Name of Nallah	Span (m)	Total Width of Structure (m)
1	0+996	Nala	1x12	2x10.8
2	8+643	Nala	1x15	2x12.5
3	12+995	Nala	1x15	2x12.5
4	26+850	Nala	1x8	2x12.5
5	37+680	Nala	1x12	2x12.5
6	37+898	Nala	1x12	2x12.5
7	38+920	Nala	1x15	2x12.5
8	45+640	Nala	1x10	2x12.5 + 1x10.8
9	47+295	Nala	1x40	2x12.5 + 1x10.8
10	53+840	Nala	1x20	2x12.5
11	56+330	GangdelNala	1x40	2x12.5
12	63+556	TonhiNala	4x3x3	2x45
13	69+143	Canal	2x10	2x12.5
NH-49	0+994	Nala	1x24	2x12.5

Summary of cross-drainage structures

Culverts	Total
1x2	28
1x3	66
1x4	4
1x5	20
1x6	7

Culverts	Total
Total	**125**
Minor Bridges	13
Major Bridges	6

Annexure VIII: Construction Materials

Details of Raw Material Required

Sl. No.	Particulars	Unit	Compacted volume	Loose volume
1.	Embankment fill including median fill	Cum	40,20,172	56,28,241
2.	Selected fill on RE wall	Cum	24,892	34,849
3.	Sub grade fill	Cum	7,42,604	10,39,646
4.	Fly ash fill	Cum	9,63,403	13,48,765
5.	Granular shoulder	Cum	24,662	34,527
6.	Bitumen	MT	21,474	21,474
7.	Emulsion	MT	5,53,185	5,53,185
8.	Cement	MT	2,54,308	2,54,308
9.	Steel reinforcement	MT	39,304	39,304
10.	strand wire	MT	0	0
11.	Aggregates	cum	13,66,572	13,66,572
12.	sand	cum	4,92,539	4,92,539
13.	Stone	cum	0	0
14.	Water for concrete works	KL	1,27,154	1,27,154
15.	Water for earth works	KL	13,81,737	13,81,737
16.	Total requirement of water	KL		15,08,891

Annexure IX: Borrow area management Plan

SITING

Specific locations of borrow areas to be used (if any) will be identified by Contractor/ Concessionaire. In case the Contractor/ Concessionaire wants to open any new borrow areas and then the selection and recommendations for borrow areas will be based on environmental as well as civil engineering considerations. Location of source of supply of material for embankment or sub-grade and the procedure for excavation or transport of material shall be in compliance with the environmental requirements of the MoEF&CC, State Govt. and as specified in IRC:10-1961.

The Contractor/ Concessionaire shall establish a new borrow areas only with the prior consent of the Monitoring Consultant only in cases when:

- Lead from existing borrow area & quarries is uneconomical and
- Alternative material sources are not available.

The Contractor/ Concessionaire shall prepare a Redevelopment Plan for the borrow area and get it approved by the Monitoring Consultant.

Certain precautions have to be taken to restrict unauthorized borrowing by the Contractor/ Concessionaire. No borrow area shall be opened without permission of the Monitoring Consultant. The borrowing shall not be carried out in cultivable lands, unless and until, it shall be agreed upon by the Monitoring Consultant that there is no suitable uncultivable land in the vicinity for borrowing or private landowners are willing to allow borrowing on their fields.

The construction schedule and operations plans to be submitted to the Consultant prior to commencement of work shall contain a detailed work plan for procuring materials that includes procurement; transportation and storage of borrow earth material. The Contractor/ Concessionaire shall provide the following:

- Selection Criteria for Evaluation of Potential Borrow Areas
- A brief statement as to how the site was chosen
- Alternative sites that were considered to be mentioned
- Record any public consultations involved while choosing and what the public concerns were, if any
- Existing land use (Agricultural / Barren / Scrub / grazing / any other type)
- Vegetation / trees to be removed
- Erosion/degradation potential
- Distance and name of the nearest settlement
- Distance from the nearest surface water body
- Drainage pattern of the area
- Distance of the nearest Reserve Forest (if any) or any other ecologically fragile area
- Distance of the nearest Sacred Tree (if any)

- Distance from the nearest school / hospital / primary health center
- Daily / Occasional use of borrow area by the community
- Any schemes or avenues for generation of income for adjoining community
- Location and Layout
- Sketch plans and photographs to be provided along with adequate details:

A map and sketch plan of the area showing the location of the proposed site with respect to the project road, nearby villages and worker accommodation locations along with indicative distances of the different sites from each other and from the road.

Probable Borrow Areas data (to be filled by Contractor/Concessionaire)

Sample no.	Name of Village	Material type	Site identification			Approximate Quantity (Cum)				Available Land / Terrain	Surrounding Land/ Terrain	Remarks
			Nearest Chainage (Km.)	Left / Right	Offset from nearest Chainage (m)	Length (m)	Breadth (m)	Depth (m)	Total (Cum)			

REMOVAL OF TREES AND PLANTS

Contractor/Concessionaire to describe briefly the floral species that have had to be removed (it will be helpful give local names if English or scientific names are not known), and roughly how many.

MITIGATIONS & REHABILITATION OF BORROW AREAS

The soils to be used, as sub-grade, select sub-grade and shoulder materials need to be hauled from designated borrow areas. Similar to the identification of suitable quarries, suitable borrow areas for supply of soil to the new road formation were also identified. Based on the total requirement and availability of each soil type, estimates of soil quantity to be obtained from each of the borrow areas were worked out in accordance with IRC: 10-1961: Recommended Practice for Borrow Pits for Road Embankments constructed by Manual Operation. In the selection of the borrow areas, care was taken to ensure that:

- Sufficient quantity of suitable soil is available from the borrow areas;
- The borrow areas are as close to the project road as possible;
- The loss of productive and fertile agricultural soil is minimum; and
- There is minimum loss of vegetation.

For opening new borrow areas other than those identified the consultant shall follow above section. The borrowing shall not be carried out in cultivable lands, unless and until, it shall be agreed upon by

the Consultant that there is no suitable uncultivable land in the vicinity for borrowing, or there are private land owners willing to allow borrowing on their fields.

REHABILITATION

The objective of the rehabilitation programme is to return the borrow pit sites to a safe and secure area, which the general public should be able to safely enter and enjoy. Securing borrow pits sites in a stable condition should be a fundamental requirement of the rehabilitation process. This could be achieved by filling the borrow pit floor to approximately the access road level.

It is important to plan restoration from the outset and coordinate restoration activities. In addition to the bio-diversity issues, land planning considerations are also taken into account when defining a rehabilitation project in order both to preserve the environment and to generate income for the local communities. In this framework rehabilitation often leads to the creation of wetlands and or recreation areas.

Special borrow pit rehabilitation plan shall be specified according to the location and shaping of the mining slopes after exploitation and overburdened dump, with different subsequent uses e.g. forest, meadow, water body etc., the re-greening and replanting methods..

Other criteria which shall be followed for rehabilitation of quarry/ borrow pits are as given below:

- Borrow pits can be backfilled with rejected construction wastes and will be given a vegetative cover. If this is not possible, then slopes will be smoothed and depression will be filled in such a way that it looks more or less like the original ground surface.
- During works execution, the Contractor/Concessionaire shall ensure preservation of trees during piling of materials; spreading of stripping material to facilitate water percolation and allow natural vegetation growth; re-establishment of previous natural drainage flows; improvement of site appearance; digging of ditches to collect runoff; and maintenance of roadways where a pit or quarry is declared useable water source for livestock or people nearby. Once the works are completed, and at own expense the Contractor/Concessionaire shall restore the environment around the work site to its original splits.
- Appropriate plant species for the planting programme have to be selected in consultation with ecological consultant and local state forest department. Depending on the limitations on the availability of appropriate plant material, harsh growing conditions (lack of irrigation and hot summer) and ongoing quarry rehabilitation operations there may be substantial loss of plantation and the planting programme may have to be continued for over 3–5 years. As plantings are progressively established they should be monitored before undertaking the next stage to ensure maximum plant survival rates.
- The borrow pit immediate surroundings shall be developed as a low maintenance reserve, with significant areas of native trees and shrubs and areas of longer grass and tussocks forming the open spaces. Walkways around the borrow site may be constructed. Provision for a future drive-in picnic area and car parking area may be developed.

Annexure X: Road Accident Data

Accident Data Urga

वर्ष 2013

क्रमांक	अप.क्र.	धारा	घटनास्थल	आहतो की संख्या	मृतको की संख्या	कैफियत
1	18 / 13	304ए भा.द.वि.	उरगा		02	
2	21 / 13	279,337 भा.द.वि.	उरगा	01		
3	66 / 13	279,337,338,304ए भा.द.वि.	उरगा		01	
4	80 / 13	279 भा.द.वि.	उरगा	—	—	
5	99 / 13	279,337,338 भा.द.वि.	उरगा	01		
6	100 / 13	279,337,338 भा.द.वि.	उरगा	01		
7	105 / 13	279,337 भा.द.वि. 146 / 196,3 / 181 एम. व्ही.एक्ट	कुदुरमाल	01		
8	109 / 13	279,337,338 भा.द.वि.	उरगा	02		
9	125 / 13	279,337,338 भा.द.वि. 3 / 181 एम.व्ही.एक्ट	जुनवानी	01		
10	127 / 13	279,337 भा.द.वि.	जुनवानी	01		
11	158 / 13	279,337 भा.द.वि.	उरगा	01		
12	173 / 13	279,337 भा.द.वि.	भैसमा	01		
13	198 / 13	279,337 भा.द.वि.	भैसमा	01		
14	199 / 13	279,337 भा.द.वि.	उरगा	01		
15	234 / 13	279,337,304ए भा.द.वि.	सिलियारीभाठा		01	

वर्ष 2014

क्रमांक	अप.क्र.	धारा	घटनास्थल	आहतो की संख्या	मृतको की संख्या	कैफियत
1	41 / 14	279 भा.द.वि.	उरगा	–	–	
2	45 / 14	279,337,338 भा.द.वि.	भाठापारा रोड कुदुरमाल	01		
3	80 / 14	279 भा.द.वि.	उरगा रेल्वे क्रासिंग	–	–	
4	88 / 14	279,337,304ए भा.द.वि.	सिलियारीभाठा उरगा		01	
5	169 / 14	279,337 भा.द.वि. 146 / 196,3 / 181 एम. व्ही.एक्ट	सेमीपाली	01		
6	172 / 14	279,337 भा.द.वि. 39 / 192 एम.व्ही.एक्ट	जपेली	01		
7	248 / 14	279 भा.द.वि.	कनबेरी	–	–	
8	264 / 14	279,337 भा.द.वि.	देवरमाल	01		
9	297 / 14	279,337,304ए भा.द.वि.	उरगा		01	
10	304 / 14	304ए भा.द.वि.	तरदा		01	
11	326 / 14	279,337,338 भा.द.वि.	देवरमाल	01		
12	332 / 14	304ए भा.द.वि.	कुदुरमाल		01	
13	379 / 14	279,337,338,304ए भा.द.वि.	सिलियारीभाठा		02	
14	388 / 14	279,337,304ए भा.द.वि.	जुनवानी भैसमा		02	
15	436 / 14	279,337,304ए भा.द.वि.	सिलियारीभाठा	01		

वर्ष 2015

क्रमांक	अप.क्र.	धारा	घटनास्थल	आहतो की संख्या	मृतको की संख्या	कैफियत
1	20 / 15	279,337 भा.द.वि. 146 / 196,3 / 181 एम. व्ही.एक्ट	उरगा	01		
2	50 / 15	279,337,304ए भा.द.वि. 50 / 177,3 / 181 एम.व्ही.एक्ट	पहरीपारा भैसमा		01	
3	69 / 15	279,337,338 भा.द.वि.	सेमीपाली	01		
4	101 / 15	279,337,304ए भा.द.वि.146 / 196,3 / 181 एम.व्ही.एक्ट	जुनवानी		01	
5	122 / 15	279,337 भा.द.वि. 146 / 196,3 / 181 एम. व्ही.एक्ट	देवरमाल	01		
6	155 / 15	279,337,304ए भा.द.वि.	उरगा		01	
7	160 / 15	279,337 भा.द.वि.	उरगा	01		
8	170 / 15	279,337 भा.द.वि.	देवरमाल	01		
9	177 / 15	279,337,338 भा.द.वि.	तरदा	01		
10	196 / 15	279 भा.द.वि.	कुदुरमाल	—	—	
11	197 / 15	279,337 भा.द.वि.	भैसमा	01		
12	267 / 15	279,337,338 भा.द.वि.	कुदुरमाल	01		
13	274 / 15	279,337 भा.द.वि.	भैसमा कॉलेज के सामने	01		
14	275 / 15	279,337,338 भा.द.वि.	कुकरीचोली	01		
15	278 / 15	279 भा.द.वि.	कुदुरमाल	—	—	
16	287 / 15	304ए भा.द.वि.	पहरीपारा		01	
17	292 / 15	304ए भा.द.वि.	भैसमापावर ग्रिड के सामने		01	
18	360 / 15	279,337 भा.द.वि.	तरदा बैगापाली मंदिर	01		

वर्ष 2016

क्रमांक	अप.क्र.	धारा	घटनास्थल	आहतो की संख्या	मृतको की संख्या	कैफियत
1	04 / 15	279,337 भा.द.वि.	पावर ग्रिड भैसमा	01		
2	16 / 15	304ए भा.द.वि.	सिलियारीभाठा भैसमा रोड़		01	
3	19 / 15	279,337,338 भा.द.वि.	तरदा	01		
4	30 / 15	279 भा.द.वि.	देवरमाल	—	—	
5	39 / 15	304ए भा.द.वि.	भैसमा मेन रोड़		01	
6	44 / 15	279,337 भा.द.वि. 3 / 181,5 / 180 एम.व्ही. एक्ट	कुदुरमाल	01		
7	52 / 16	279,337 भा.द.वि.	कुदुरमाल	01		
8	72 / 15	304ए भा.द.वि.	भैसमा बाजार		01	
9	120 / 15	279,337,338 भा.द.वि.	उरगा	01		
10	126 / 15	279,337 भा.द.वि 146 / 196 एम.व्ही.एक्ट	भैसमा	01		
11	133 / 15	304ए भा.द.वि.	भलपहरी		01	
12	143 / 15	279,337,338 भा.द.वि.	भैसमा	01		
	192 / 15	279,337,338 भा.द.वि.	उरगा	01		

वर्ष 2017

क्रमांक	अप.क्र.	धारा	घटनास्थल	आहतो की संख्या	मृतको की संख्या	कैफियत
1	04 / 15	279,337 भा.द.वि.	सेमीपाली उरगा	01		
2	16 / 15	279 भा.द.वि.	कुदुरमाल		—	
3	19 / 15	304ए भा.द.वि.	भैसमा बाजार		01	

Annexure XI: SIA and RAP Study

Social Impact Assessment and Resettlement Action Plan (RAP)

Table of Contents

List of Tables

Abbreviations

BPL	:	Below Poverty Line
BSR		Building Schedule of Rates
CBO	:	Community Based Organization
CPR	:	Common Property Resources
DC	:	District Collector
DPR	:	Detailed Project Consultants
DRRO	:	District Resettlement and Rehabilitation Officer
EA	:	Executing Agency
ESDU	:	Environmental and Social Development Unit
FGDs	:	Focus Group Discussions
GoCG	:	Government of Chhattisgarh
GRC	:	Grievance Redress Committee
Ha	:	Hectare
IA	:	Implementing Agency
LA	:	Land Acquisition
LAA / LA Act	:	Land Acquisition Act
M&E	:	Monitoring and Evaluation
NGO	:	Non-Governmental Organisation
NH Act	:	National Highway Act
NHAI	:	National Highway Authority of India
NHDP	:	National Highway Development Programme
PA		Project Authority
PAF	:	Project Affected Family
PAP	:	Project Affected Person
PC	:	Project Consultant
PIU	:	Project Implementation Unit
RAP	:	Resettlement Action Plan
R&R	:	Rehabilitation and Resettlement
RoW	:	Right of Way

Chapter-1 Executive Summary

1.1 Background

The Ministry of Road Transport & Highways (MoRT&H), Gov. of India, has announced a comprehensive programme to improve road connectivity across the nation under proposed Bharatmala Pariyojana. Economic corridors are integrated networks of infrastructure within a geographical area designed to stimulate economic development.

Along with all positive economic impacts of the road projects, there may also be some detrimental social impacts on nearby communities. Present report is an effort for screening of social issues associated with proposed development and the applicable resettlement policy guidelines.

1.2 Corridor Description

Project is a development of 70.200 km long Greenfield Highway with 70m RoW. Proposed highway alignment starts at out-skirts of Bilaspur City near Dheka Village in Bilaspur Tehsil & District and terminates near Devarmal Village in Korba Tehsil & District of Chhattisgarh State.

1.3 Resettlement Action Plan: Objectives

The RAP is prepared to ensure that the affected persons are: (i) informed about their options and rights pertaining to resettlement; (ii) provided prompt and effective compensation at full replacement cost for loss of assets caused due to the project; (iii) provided assistance (such as shifting allowance, transition allowance, etc.) during relocation and for a transition period, to restore their livelihood and standards of living; and, (iv) provided with skill development assistance such as training, in addition to compensation. The Objectives of RAP are:

- To identify adverse impacts and determine mitigation measures;
- To present the entitlements and action plan for the affected persons for payment of compensation and assistance for restoring livelihoods, and improving or at least retaining the living standards in the post resettlement period.

1.4 Right of Way and Corridor of Impact

The proposed project is a green field project with PRoW is 70m.

1.5 Legal Framework for Land Acquisition

The land required for the project will be acquired under the **National Highways Act, 1956**. The provisions for land acquisition under this act are as follows:

- **Section 3(a) –** Publication of notification mentioning 'intention' & 'competent authority'
- **Section 3A –** Notification to landowners informing interest of Government to acquire the notified land

- **Section 3B –** Provides power and right to the person authorized by Central Government to conduct surveys, inspections, measurements, valuation, digging or boring
- **Section 3C –** Under this section any person interested in the land can object within 21 days from the publication of 3A notification
- **Section 3D –** Declaration of acquisition, if no objections has been made to the competent authority
- **Section 3E –** Provides power to take possession of land once the amount determined by the competent authority has been deposited under Section 3H
- **Section 3F –** Right to enter the land where land has vested in the Central Government
- **Section 3G –** Determination of amount payable as compensation
- **Section 3H –** Provision for deposit of payment determined under section 3G

The process of land acquisition under this act is detailed out in the figure below:

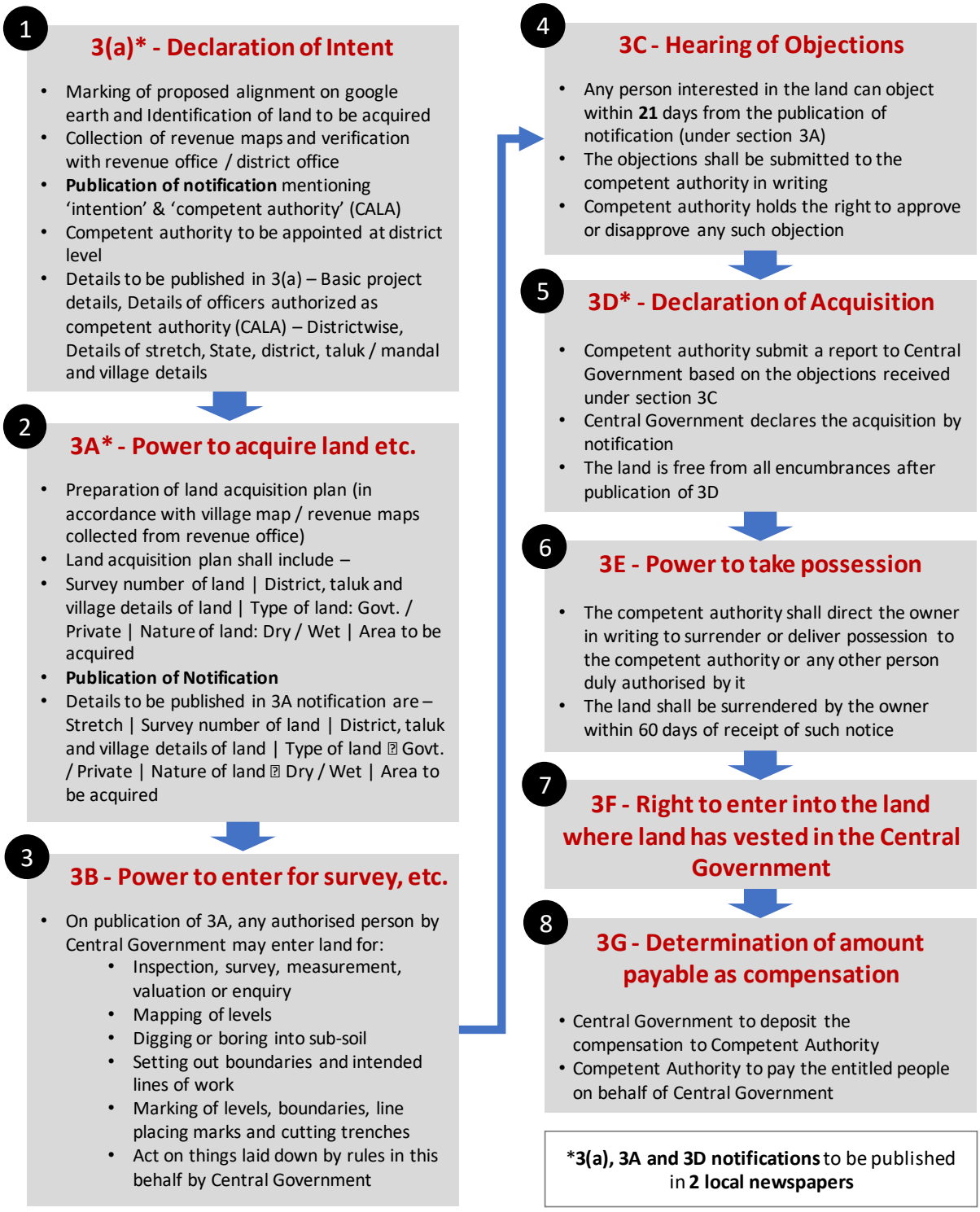


Figure 1-1: Legal Framework for Land Acquisition

Sections 41 & 42 of the RFCTLARR Act, 2013 deals with special provisions and reservations and other benefits to Scheduled Castes & Tribes. Contents of these sections are presented below:

Section 41 - Special provisions for Scheduled Castes and Scheduled Tribes

(1) As far as possible, no acquisition of land shall be made in the Scheduled Areas.

(2) Where such acquisition does take place it shall be done only as a demonstrable last resort. (3) In case of acquisition or alienation of any land in the Scheduled Areas, the prior consent of the concerned Gram Sabha. or the Panchayats or the autonomous District Councils, at the appropriate level in Scheduled Areas under the Fifth Schedule to the Constitution, as the case may be, shall be obtained, in all cases of land acquisition in such areas, including acquisition in case of urgency, before issue of a notification under this Act, or any other Central Act or a State Act for the time being in force: Provided that the consent of the Panchayats or the Autonomous Districts Councils shall be obtained in cases where the Gram Sabha does not exist or has not been constituted.

(4) In case of a project involving land acquisition on behalf of a Requiring Body which involves involuntary displacement of the Scheduled Castes or a Scheduled Tribes families, a Development Plan shall be prepared, in such form as may be prescribed, laying down the details of procedure for settling land rights due, but not settled and restoring titles of the Scheduled Tribes as well as the Scheduled Castes on the alienated land by undertaking a special drive together with land acquisition.

(5) The Development Plan shall also contain a programme for development of alternate fuel, fodder and, non-timber forest produce resources on non-forest lands within a period of five years, sufficient to meet the requirements of tribal communities as well as the Scheduled Castes.

(6) In case of land being acquired from members of the Scheduled Castes or the Scheduled Tribes, at least one-third of the compensation amount due shall be paid to the affected families initially as first instalment and the rest shall be paid after taking over of the possession of the land.

(7) The affected families of the Scheduled Tribes shall be resettled preferably in the same Scheduled Area in a compact block so that they can retain their ethnic, linguistic and cultural identity.

(8) The resettlement areas predominantly inhabited by the Scheduled Castes and the Scheduled Tribes shall get land, to such extent as may be decided by the appropriate Government free of cost for community and social gatherings.

(9) Any alienation of tribal lands or lands belonging to members of the Scheduled Castes in disregard of the laws and regulations for the time being in force shall be treated as null and void, and in the case of acquisition of such lands, the rehabilitation and resettlement benefits shall be made available to the original tribal land owners or land owners belonging to the Scheduled Castes.

(10) The affected Scheduled Tribes, other traditional forest dwellers and the Scheduled Castes having fishing rights in a river or pond or dam in the affected area shall be given fishing rights in the reservoir area of the irrigation or hydel projects.

(11) Where the affected families belonging to the Scheduled Castes and the Scheduled Tribes are relocated outside of the district, then, they shall be paid an additional twenty-five per cent. Rehabilitation and resettlement benefits to which they are entitled in monetary terms along with a one-time entitlement of fifty thousand rupees.

1.6 Cut of Date

Cut-off date i.e. start date of Census survey for non-titleholders is 5th October 2018.

1.7 Impact on Land and Structures

Census and socio-economic surveys were conducted along the proposed project stretch, considering the RoW of 70 m. Minimum acquisition and disturbance to the existing features is the prime objective of design. Impacts on sensitive features and settlement areas are minimized within the RoW.

Land Acquisition: It's a green field project and land acquisition is envisaged where widening or geometric improvements are proposed within RoW of 70 m.

Categories of Impact: The proposed road improvement will impact 122 private, 2 government and 3 common/ cultural properties along the corridor. All structures will have fully impacts belongs to titleholder. Only one encroacher (residential structure) found.

Impact on Cultural Properties and government Assets: 3 religious and 2 government structures will be impacted due to the project.

1.8 Socio-Economic Profile

Total number of PAHs are 31 are titleholders (TH). Total 31 PAHs comprises 145 PAPs. There are BPL-26, Aged-5, WHH-5, SC-40 and ST-6 households among the affected households.

1.9 Public Consultations

Public consultation meetings were held in 10 locations (Sankar, Chandaniya , Dheka village Bhilai , Baksara , Parsa Bhata , Akhrapali , Urga, Bagbuda, Bhainsma villages along the project corridor to obtain their views and suggestions regarding the proposed project interventions. The consultations have provided inputs towards mitigation of impacts, improvement in designs, and preparation of resettlement plan and its implementation.

1.10 Implementation Arrangement

NHAI PIU will be overall responsibility for policy guidance, coordination and planning, internal monitoring and overall reporting.

1.11 Implementation Support by NGO/RAP Implementing Agency

RAP will be implemented by the NHAI, PIU with support from a Non-Governmental Organisation (NGO) which will be selected as part of the project. The roles and responsibilities of NGO are summarized as follows:

- Explain to DPs/PAPs about the potential adverse impacts and proposed mitigation measures and, R&R entitlements;
- Distribute the dissemination materials including pamphlets on RAP and other aspects;
- Facilitate NHAI PIU in organizing public information campaign at the commencement of R&R activities;
- Prepare the micro plans;

- Participate in the meetings organized by NH PIU;
- Provide support for implementation of RAP;
- Prepare and issue identity cards to identified PAFs;
- Facilitate opening of joint bank accounts (PAPs and his/her spouse) for individual PAPs;
- Assist PAPs in receiving compensation, focusing on vulnerable PAPs to ensure that they get their dues on time;
- Generate awareness about the productive use of compensation money and R&R grants;
- Explain the resource base and other opportunities to enable them to make informed choices and participate in their own development;
- Ensure that vulnerable PAPs are given their dues both for payment of compensation and rehabilitation assistance;
- Submit monthly progress reports to NH PIU;
- Identify training needs of PAPs for income generating activities and ensure they are adequately supported during the post-training period on respective income generating activities, and,
- Ensure that the grievances and problems faced by PAPs are presented to the Grievance Redress Committee for their resolution.

1.12 Grievance Redress Mechanism

A Grievance Redress Committee (GRC) at the district level will be constituted to hear the complaints of project affected persons and resolve the same. The process will promote settlement of disputes and reduce litigation. GRC will be set up at the district level with District Collector as head. The following persons will be the members of GRC:

- District Collector or his designated representative of at least the rank of Assistant District Collector (preference would be given to women officers);
- The District Development Officer of the Department of Revenue;
- The Executive Engineer, PIU; and
- Representative from Social Sector/Local NGO (not involved with implementation) /Person conversant with similar issues and he/she should be widely respected and having problem solving skills (to be selected by DM / Collector)

GRC will be responsible for the following: (i) Support PAPs in resolving issues related to R&R and LA; (ii) Record grievance and resolve them within stipulated time; and (iii) Inform PIU about any serious cases.

1.13 Monitoring and Evaluation

Internal monitoring of the implementation of social safeguards will be carried out by the PIU with support of Project Management Consultant/Supervision Consultant. Towards enhancing the quality of RAP implementation, in addition to the internal monitoring by the PIU, external monitoring will be done by a third-party agency or Project Management Consultant (PMC) for technical as well as environmental/social aspects.

1.14 RAP Implementation Schedule

The construction tenure of the corridor is 24 months. The on-ground rehabilitation and resettlement exercises and handing over the encumbrance free stretch for civil works will take 5 months and afterwards, the NGO will carry out awareness programmes on road safety, HIV/AIDS prevention campaign, repeat training for PAPs, facilitate overall monitoring etc.

Table 1-1: RAP Implementation Schedule: Major Activities

Sl.No.	Major Activities	Months
1	NGO in place	1st month
2	GRC in place	2nd month
3	Information campaign and community consultation	2nd month onwards till 24th month [on 6-month interval]
4	Compensation / R&R Clearance	2nd month onwards – to complete by 5th month
5	Awareness on Road Safety	3rd month onwards – every alternate month till 24th month
6	External monitoring	2nd month onwards – every 6 month till 24th month

1.15 Resettlement Budget

The resettlement budgets include components such as compensation for structure (private property, cultural property and community assets), R&R assistance and contingency to cover unforeseen / unanticipated costs. The estimated total budget for the implementation of RAP for the corridor is INR 1655.4 crore.

Chapter-2 STUDY METHODOLOGY

2.1 OBJECTIVES

The overall objective of the study is to assess the adverse impacts of the project road on property and life of people and also prepare a time bound resettlement action plan to assist the project affected persons (PAPs) in getting their entitlements (compensation - for affected land, structure and other properties and assets and R&R assistances) to enable them in improving or at least restoring their living standards and income earning capacity.

The specific objectives of the study are as under:

- Collect information using information's from Govt of Chhattisgarh websites
- Differentiate the properties and assets likely to be affected by type of ownership and construction, etc;
- Assess the extent of loss of properties (land, structure and others) of individual as well as that of community and loss of livelihood;
- Conduct meaningful consultations with likely PAPs, community and other stakeholders;
- Establish a baseline profile of population, social structure, employment, sources of income, access to social services and facilities, etc.

The various activities that have been carried out as part of the study are summarized as under:

2.2 METHOD AND TOOLS USED FOR THE STUDY

This report has been based, largely, on primary data collected during field survey and is well supported by a review of available secondary data for preparation of baseline information. The field research includes detailed social survey of the project affected persons and properties within a perpendicular width of 70 meters (35mtrs on either side).

2.3 DATA COLLECTION FROM PRIMARY SOURCES

The objective, survey coverage and design of the schedule are as follows:-

2.3.1 Asset inventory

Objective: To assess the type and extent of loss on properties, enumeration of structures/properties within the RoW together with their area, type of construction, uses ownership and its location.

Survey Coverage: 100% census survey and 25% socio-economic survey of the properties falling within 70 meter (RoW) of the proposed road. This survey provides a baseline against which mitigation measures and support has been evaluated & measured.

Design of Schedule: The schedule developed for this survey was based on the requirements of the project's Terms of Reference, which spell out the documentation of all properties/structures

irrespective of their legal status at the initial stage in order to confine future influx of population along the project road.

2.4 DATA COLLECTION FROM SECONDARY SOURCES

Relevant baseline data on socio-economic and cultural conditions were collected from various available secondary sources, like Census Handbooks, official websites of Government of Chhattisgarh to understand the socio-economic context of the proposed project and for providing necessary inputs for social analysis of the project.

Chapter-3 SOCIAL IMPACT ASSESSMENT

3.1 Objectives

The objective of this study is to ensure that the project addresses the adverse impact on the project affected people and their livelihoods. The study highlights the impact of the project on people and suggests suitable mitigation measures. The specific objectives of social impact assessment for the project are as follows:

- Baseline data collection and analysis, to delineate the socio-economic scenario along the proposed alignment
- Identification of socio-economically significant areas
- Formulate a methodology to conduct surveys (census and socio-economic) and stakeholder consultations
- Assess the magnitude of social impacts and suggest suitable mitigation strategies
- Prepare a resettlement action plan for the R&R activities
- Prepare an entitlement framework for the project affected people
- Monitor and evaluate the R&R process

3.2 Methodology

The methodology adopted to conduct the initial social impact assessment is shown in the figure below:

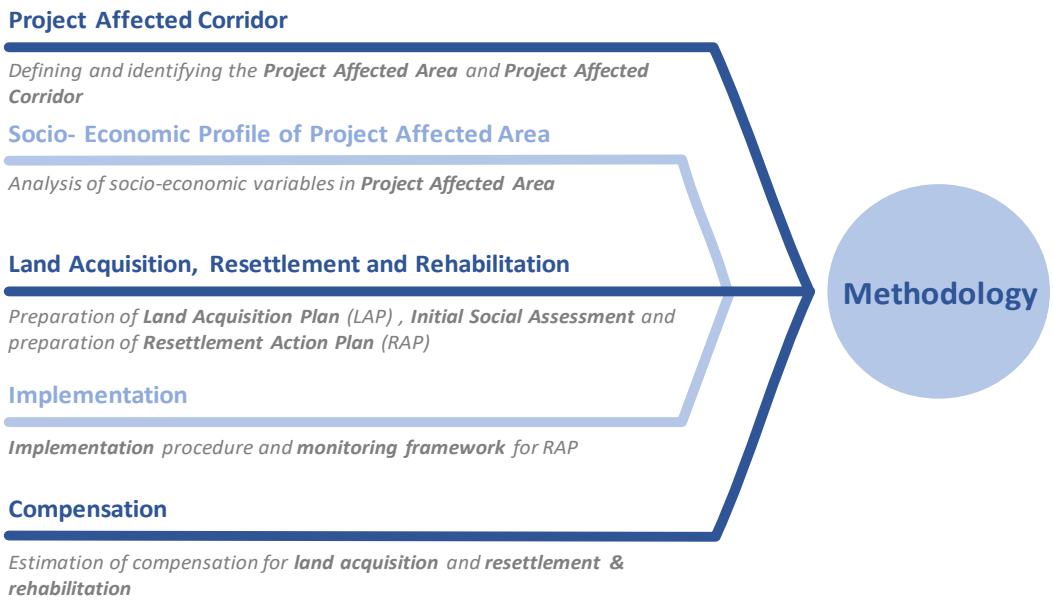


Figure 3-1: Methodology for Initial Social Impact Assessment

3.3 SOCIAL BENEFITS OF THE PROJECT

The proposed project corridors shall have tangible and non-tangible benefits. The project shall contribute to reduce in road traffic and road stress, fuel consumption, air pollution, travel time, vehicle operating cost, accidents and road maintenance. The proposed corridor shall increase mobility, better accessibility to facilitates the influence area, increase economic stimulation in

the micro region of infrastructure, increase business opportunities, improve aesthetics and image of the cities connectivity. The some social benefits are following below:

- The Bilaspur-Urga project would reduce the travel time as well as travel cost.
- It will provide the safe and fast journey to the local community.
- It will enhance the economic growth as well as employment opportunities.
- Farmer will be connected to the main cities, it will create the opportunity to the farmer; can sell their crops directly in the main market.
- After the construction of the proposed road the government transport system will be better.
- The student will be able to attain higher education at college as the time and travel cost will be reduced.
- More shops, markets will open within the village approach area as a result they will get quality leisure time at their disposal.
- Health status will improve as they have a shorter travel time to reach hospital especially for women who is pregnancy.
- Women from poor families will get job opportunity during road construction. Women can earn and operate individual through opening a small tea stalls, shops/eateries. This will enhance their family income as well as their entrepreneurial skill, which may be useful in future.

3.4 HIV / AIDS ALONG THE PROJECT ROAD

Prevention and control of HIV/AIDS transmission is one of the important social responsibilities of the project. Hence prevention and control of transmission of HIV/AIDS is an important component of SIA. For details on the proposed measures to control spread of HIV/AIDS in project road corridors and in order to know about these fatal highway/road diseases along the project area, Consultant has conducted discussion with the local community people. The discussion with different stakeholders emphasizes on the targeted intervention programs during project implementation and operation phase. Thus, awareness campaign will be required more at the time of construction of the road.

3.5 CONSULTATIONS

Public consultation meetings were held in 10 locations (Sankar, Chandaniya , Dheka village Bhilai , Baksara , Parsa Bhata , Akhrapali , Urga, Bagbuda, Bhainsma villages along the project corridor to obtain their views and suggestions regarding the proposed project interventions.

3.6 REPORT STRUCTURE

The present RAP document has been structured into the following chapters:-

Chapter-1 Executive Summary
Chapter-2 STUDY METHODOLOGY
Chapter-3 SOCIAL IMPACT ASSESSMENT
Chapter-4 SOCIO – ECONOMIC PROFILE OF PROJECT INFLUENCE AREA
Chapter-5 IMPACTS ON PEOPLE AND COMMUNITY ASSETS

Chapter-4 SOCIO – ECONOMIC PROFILE OF PROJECT INFLUENCE AREA

4.1 INTRODUCTION

The chapter presents the socio-economic profile of the state, districts and villages/settlements abutting the Bilaspur-Urga corridor. The project corridor passes through 45 villages of Bilaspur, Janjgir-Champa and Urga districts.

Socio-Economic analysis has been conducted for the primary and secondary influence area of the proposed project road. The secondary influence area refers to the state of Chhattisgarh (region) and districts along the proposed alignment and primary influence area refers to the project corridor passes through the villages.

4.2 Population

As per Census 2011, Chhattisgarh has population of 2.55 Cr. an increased by 0.47 Cr. (as per 2001 census) of which male and female population are 1.28 Cr. and 1.27 Cr. respectively. The decadal population growth is 22.59% as per 2011. The child population (0-6 age) is 3661689 (14.33% of total population) in 2011 compared to 3554916 (17.06% of total population) in 2001.

It is significant to note that Bilaspur district shows the highest decennial growth rate of 33.29% followed by Janjgir-Champa (22.94%) and lowest is Korba with 19.25% in the period 2001-2011.

Table 4-1: Percentage Decadal Variation in Population

Years	2001-11 (%)
Bilaspur	33.29
Janjgir-Champa	22.94
Korba	19.25
Chhattisgarh	**22.59**
India	**17.64**

Source: Census 2011 and 2001

4.3 Population Density

The total area of Chhattisgarh is 135191 Sq Km with a population density of 189 persons per Sq Km in 2011 compared with the national to 324 persons per Sq. Km. which shows that the population density is less than the national level.

Table 4-2: Population Density

District	Population Density (persons per sq. km.)
	2011
Bilaspur	322
Janjgir-Champa	420
Korba	183
Chhattisgarh	**189**
India	**324**

Source: Census 2011

Janjgir-Champa district having the most populated density with 420 persons per Sq. Km. followed by Bilaspur (322), and Korba (183). The population density gives the level of urbanisation of the districts and scope of future growth.

4.4 Sex Ratio

In 2011, the sex ratio in Chhattisgarh is 991 females for each 1000 males which have shown slightly improvement over the last decade of 989 females for each 1000 males in 2001. The child sex ratio stood at 969 females per 1000 males in 2011, with a decline from 975 females' children per 1000 male's children in 2001.

Table 4-3: Sex Ratio

Years	2001	2011
Bilaspur	971	971
Janjgir-Champa	998	986
Korba	964	969
Chhattisgarh	**989**	**991**
India	**933**	**943**

Source: Census 2011

The sex ratio of Korba district presented above has increased in 2011 with respect to the 2001 period and Bilaspur stood same but Janjgir- Champa has decline in 2011 with respect to the 2001 period. The above table shows that entire districts in terms of sex ratio are still behind with state of Chhattisgarh.

4.5 Literacy Rate

Literacy rate in Chhattisgarh has seen upward trend and is 70.28% as per 2011 out of which, male literacy stands at 80.27% while female literacy is at 60.24%. In 2001, literacy rate in Chhattisgarh stood at 64.66% of which male and female were 77.38% and 51.85% literate respectively.

Table 4-4: Number of Literates and Literacy Rate

State / Districts	Number of Literates*			Literacy Rate (%)		
	Persons	Male	Female	Persons	Male	Female
Bilaspur	1596560	932474	664086	70.78	81.54	59.71
Janjgir-Champa	1019634	593679	425955	73.07	84.72	61.31
Korba	748759	433391	315368	72.37	82.48	61.93
Chhattisgarh	**15379922**	**8807893**	**6572029**	**70.28**	**80.27**	**60.24**
India	**763638812**	**434763622**	**328875190**	**72.98**	**80.88**	**64.63**

**Literates exclude age group 0-6 years that were by definition in the Census of India 2011*

Among the districts, Janjgir-Champa district has the highest literacy rate of 73.07% in which 84.72% (Male) & 61.31% (Female) followed by Korba district the literacy rate of 72.37% in which 82.48% (Male) & 61.93% (Female) while Bilaspur district accounts for the lowest rate of 70.78% in which 81.54% (Male) and 59.71% (Female) respectively in the project influence area.

4.6 Work Participation Rate

The work participation rate in Chhattisgarh is 56.36% and 46.29% for male and female in the rural areas, while it is 53.09% and 17.42% for male and female in the urban areas respectively in 2011. The work participation rate is notably slightly less as compared to the national average in both rural and urban areas with similar geographical conditions, and also less than national average of 47.68%. The working population in Chhattisgarh increased from 9.68 million in 2001 Census to 12.18 million in 2011 Census, witnessing an annual compound growth rate of 2.58 percent.

Table 4-5: Workforce participation Rate

State	Rural			Urban			Combined		
	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female
Bilaspur	48.58	53.17	43.89	35.23	52.26	17.25	45.17	52.94	37.17
Janjgir-Champa	54.00	59.10	48.84	41.47	55.74	26.73	52.26	58.63	45.80
Korba	49.27	56.07	42.44	32.83	51.61	12.60	43.19	54.38	31.64
Chhattisgarh	51.32	56.36	46.29	35.66	53.09	17.42	47.68	55.59	39.70
India	**53.03**	**30.03**	**41.83**	**53.76**	**15.44**	**35.31**	**53.26**	**25.52**	**39.80**

Source: Census 2011

The male-female work participation rate at the districts of the project influence area is evident that women participate more in economically productive activities in rural areas than the urban areas. The gap between the men and women in rural and urban areas indicate that the women are still leg behind the men in terms of access to education, health care, jobs etc.

4.7 Employment Pattern

The Census 2011 further classifies the workers (both main and marginal) into four classifications namely cultivators, agricultural labourers, household industries and other workers. The four-fold classification revealed that there was a declining share of the cultivators and household industry but increasing share of the worker in agricultural labourers and other type of worker. The employment pattern is represented by the following Table 4-6.

Table 4-6: Employment Pattern of Main+Marginal Worker in Chhattisgarh

Industry Classification	2001 (millions)	% share	2011 (millions)	% share
Cultivators	4.31	44.54	4	32.88
Agricultural Labourer	3.09	31.94	5.09	41.80
Household Workers	0.2	2.05	0.19	1.54
Other Workers	2.08	21.47	2.89	23.78
Total Workers	**9.68**	**100**	**12.18**	**100.00**

Source: Census 2011

4.8 Demographic Profile of the Project Influence Area

The project corridor area comprises of 44 villages of Bilaspur, Jangir-Champa, and Korba districts. Tehsil-wise distribution of Project affected villages is presented in Table below.

Table 4-7: List of Affected Villages

Sl. No.	District	Tehsil	Village
District Bilaspur			
1	Bilaspur	Bilaspur	Dheka
2	Bilaspur	Masturi	Karra
3	Bilaspur	Masturi	Nimtara
4	Bilaspur	Masturi	Gataura
5	Bilaspur	Masturi	Parsada
6	Bilaspur	Masturi	Bhilai
7	Bilaspur	Masturi	Ralia
8	Bilaspur	Masturi	Kachhar
9	Bilaspur	Masturi	Hardadih
10	Bilaspur	Masturi	Earamsai
11	Bilaspur	Masturi	Nawagaon
12	Bilaspur	Masturi	Mudpar
District Janjgir-Champa			
1	Janjgir-Champa	Akaltara	Sankar
2	Janjgir-Champa	Akaltara	Sonadulla
3	Janjgir-Champa	Akaltara	Changori
4	Janjgir-Champa	Akaltara	Amlipali
5	Janjgir-Champa	Akaltara	Son
6	Janjgir-Champa	Akaltara	Piparda
7	Janjgir-Champa	Akaltara	Chandniya
8	Janjgir-Champa	Baloda	Dhorla
9	Janjgir-Champa	Baloda	Bachhoud
10	Janjgir-Champa	Baloda	Charpara
11	Janjgir-Champa	Baloda	Baloda
12	Janjgir-Champa	Baloda	Bhilai
13	Janjgir-Champa	Baloda	Korbi
14	Janjgir-Champa	Baloda	Dongari
15	Janjgir-Champa	Baloda	Hardibishal
16	Janjgir-Champa	Baloda	Khishora
17	Janjgir-Champa	Baloda	Angarkhar
18	Janjgir-Champa	Baloda	Pantora
19	Janjgir-Champa	Baloda	Baksara
District Korba			
1	Korba	Katghora	Birda
2	Korba	Katghora	Chainpur
3	Korba	Kartala	Gumiya
4	Korba	Kartala	Katharimaal
5	Korba	Kartala	Tarda
6	Korba	Kartala	Junwani
7	Korba	Korba	Akharapali
8	Korba	Korba	Samipali
9	Korba	Korba	Urga
10	Korba	Korba	Masan
11	Korba	Korba	Bagbuda
12	Korba	Korba	Bhaisma
13	Korba	Korba	Chitapali

Source: Published Section 3A

The socio-economic profile for all the villages within the project corridor has been drawn based on Census of India 2011 and summarised in Table below.

Table 4-8: Demographic Profile of the Project Affected Villages

S. No.	Description	Number	% to total
1	**Total Population - Gender wise**	95407	100
	Male	48226	50.55
	Female	47181	49.45
	Sex ratio (No. of females per 1000 males)		978
2	**Total Population (0-6 years) - Gender wise**	13699	14.36
	Male	6964	14.44
	Female	6735	14.27
	Sex ratio (No. of females per 1000 males)		967
3	**Total Population (Sector Wise)**	95407	**100**
	Rural	81777	85.71
	Urban	13630	14.29
4	**Total No. of Households**	22455	
	Average House hold size	-	4.25
	Lowest Household size (Village: Khisora)	-	3.56
	Highest Household size (Village: Karra)	-	4.83
5	**Total SC & ST Population**	39805	41.72
	Total Population (SC)	23415	24.54
	Total Population (ST)	16390	17.18
6	**Total Literates – Gender wise**	60337	73.84
	Male Literacy (with respect to the male population)	35162	85.22
	Female Literacy (with respect to the female population)	25175	62.24
	Literacy gap between male and female		22.97
7	**Total Workers & Work Participation Rate**	46911	49.17
	Male (Number and % with respect to the male population)	27106	56.21
	Female (Number and % with respect to the female population)	19805	41.98
	Gender gap in workforce (in percentage)		14.23
8	**Total Main Workers & percentage to total worker**	24254	51.70
	Male (Number and % with respect to the male working population)	17620	65.00
	Female (Number and % with respect to the female working population)	6634	33.50

S. No.	Description	Number	% to total
a)	Main Worker as Cultivator (Number and Percentage)	5915	24.39
b)	Main Worker as Agricultural Labour (Number and Percentage)	11283	46.52
c)	Main Worker as Household Industry Worker (Number and Percentage)	680	2.80
d)	Main Worker as Other workers (Number and Percentage)	6376	26.29
9	**Total Marginal Workers & percentage to total worker**	22657	48.30
	Male (Number and % with respect to the male working population)	9486	35.00
	Female (Number and % with respect to the female working population)	13171	66.50
a)	Marginal Worker as Cultivator (Number and Percentage)	2510	11.08
b)	Marginal Worker as Agricultural Labour (Number and Percentage)	18507	81.68
c)	Marginal Worker as Household Industry Worker (Number and Percentage)	317	1.40
d)	Marginal Worker as Other workers (Number and Percentage)	1323	5.84
10	**Number and Percentage of Marginal Worker (3-6 Months)**	17540	77.42
11	**Number and Percentage of Marginal Worker (0-3 Months)**	5117	22.58

4.8.1 Population

As per Census of India 2011, the total population of the project corridor is 95407 in which 48226 (50.55%) are males and 47181 (49.45%) are females. An average gender ratio of the project corridor is 978, which shows that there is imbalanced composition of male and female. 14.36% of population belongs to 0-6 age group. An average gender ratio of the 0-6 age group of the study area is 967 females' children per 1000 male children.

The Gender Ratio of the project corridor has been compared with the gender ratio of the district level which shows that the gender ratio of the study area is better than the gender ratio of Bilaspur and Korba district but lower with Janjgir-Champa district further it has been compared with state and national level which shows that the gender ratio is lower with the state level but better with the national level. Details of comparison are given in Figure 4-1:

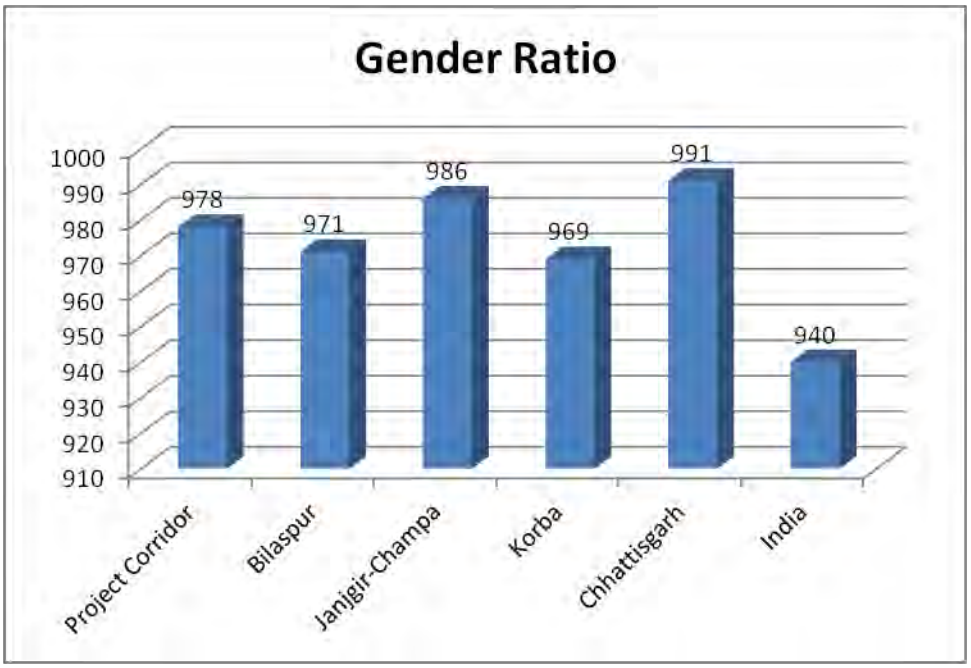


Figure 4-1: Gender ratio in the study area in reference to District level

4.8.2 Social Stratification

As per census 2011, in respect to the project corridor, an average SC and ST population constitute 41.72% in which 24.54% are schedule caste and 17.18% are schedule tribe.

4.8.3 Literacy and Literacy Rate

As per census 2011, an average literacy rate of the project corridor is 73.84% in which male literacy is 85.22% with respect to the male population and female literacy is 62.24% with respect to the female population reflects a gender gap of 22.97%.

The literacy rate of the project area has been compared with the literacy rate of district, state and national level which shows that literacy rate of the study area is better than the literacy rate of Bilaspur, Janjgir-Champa and Korba districts also it's better than the state level but lower than the national level. Details of comparison are given in Figure 4-2.

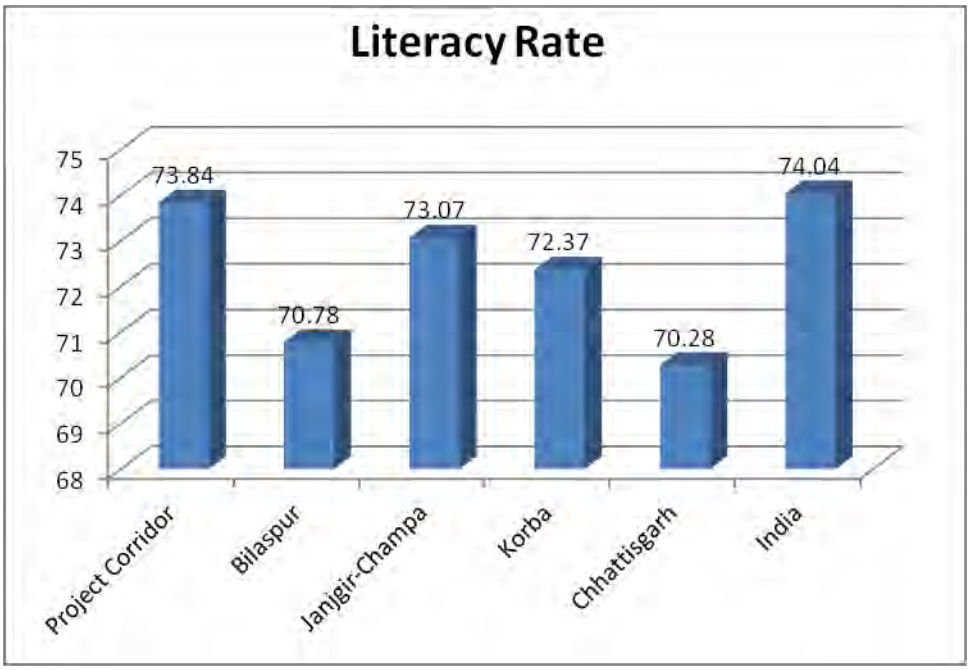


Figure 4-2: Literacy Rate

4.8.4 Workers and Work Participation Rate

As per Census of India 2011, the total number of workers in the project corridor is 46911 and the WPR is 49.17%, in which male's WPR is 56.21% with respect to male population and female's WPR is 41.98% with respect to the female population, reflects a gender gap of 14.23%.

4.8.5 Categorization of Main Workers on the basis of Occupation

As per census of India 2011, 46.52% of main workers are involved in agricultural labour followed by other work (26.29%), cultivation (24.39%) and 2.80% workers are involved in household industrial work.

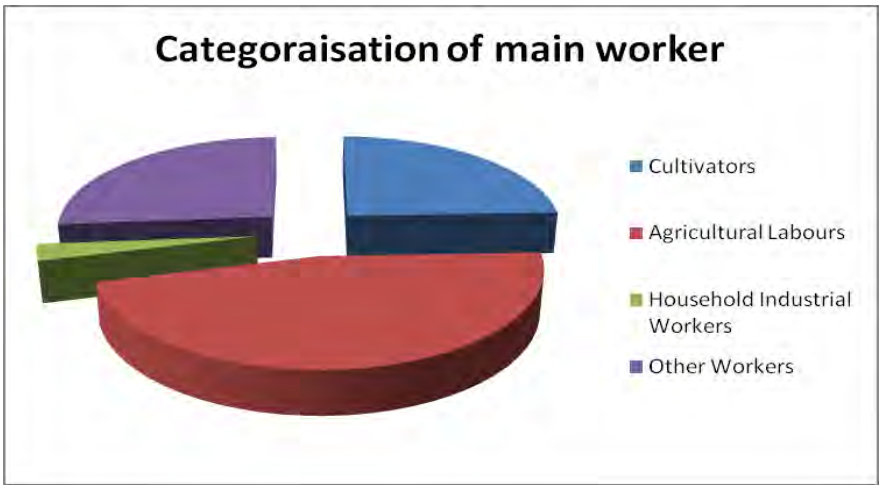


Figure 4-3: Categorization of Main workers

4.8.6 Categorization of Marginal Workers on the basis of Occupation

As per census of India 2011, 81.68% of marginal workers are involved in agricultural labour followed by cultivation (11.08%) and other work (5.84%). Only 1.40% workers are involved in household industrial work.

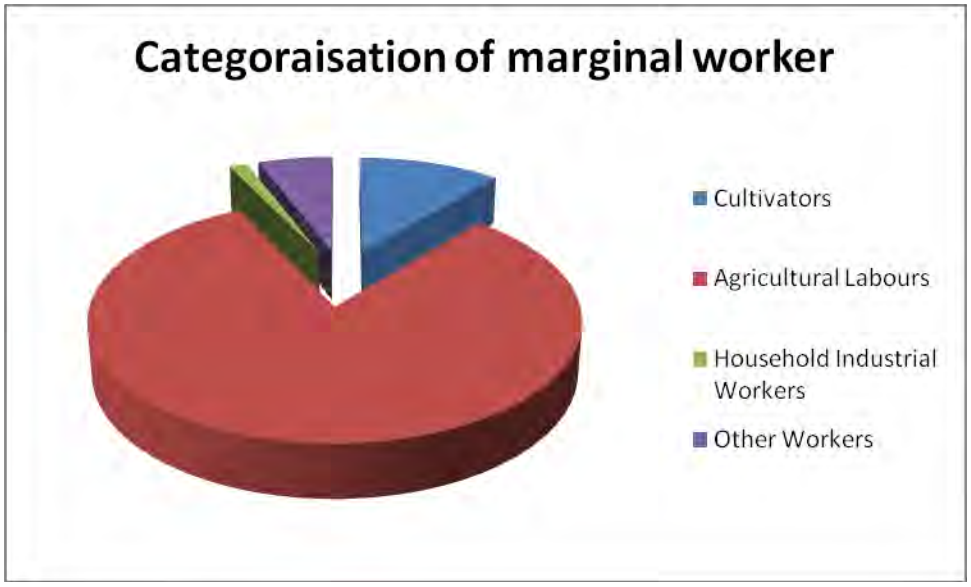


Figure 4-4 : Categorization of Marginal workers

4.8.7 Conclusion

Following are the major outcomes based on the above interpretation:-

- Average literacy rate of the project corridor is approximately 73.84% where male literacy is 85.22% and female literacy rate is 62.24% which shows a gender gap of 22.97%.
- The composition of Schedule Caste (SC) in respect to total population is 24.54% and Schedule Tribe (ST) is 17.18%.
- Work Participation Rate of the study area is 49.17% in which males are 56.21% and females are 41.98%, which shows a gender gap of 14.23%. Among the total workers 51.70% are main workers and remaining 48.30% are marginal worker.

Chapter-5 IMPACTS ON PEOPLE AND COMMUNITY ASSETS

5.1 MINIMISATION OF RESETTLEMENT IMPACTS

The proposed green field road project will be carried out within the proposed RoW of 70 Meter Therefore, land acquisition is envisaged. Efforts are made to minimise adverse impact on structures and other assets located within the proposed RoW of 70 M.

5.2 POTENTIAL IMPACTS

As stated above this is a green field project therefore total land will be acquired therefore, impact on land can be envisaged. A total of 122 private structures (1 is encroacher), 2 government & 3 religious properties will impact by the proposed green field project. All the structure will be fully impacted within the proposed 70 meter RoW.

5.3 CUT-OFF DATE

Cut off date for non-titleholders is 5thOctober 2018.

5.4 OVERVIEW OF DESIGN MODIFICATIONS

The concerns raised by the community have been documented during survey. The views and suggestions of the community have been integrated into the road design wherever feasible. This includes modifications in alignment to protect mainly structures of religious importance, road safety measures such as pedestrian crossings, warning signs, markings, etc within the existing RoW.

Efforts have been made by the social team with the design team to minimise any adverse impact on structures and other assets located within the RoW.

5.5 CENSUS AND SOCIO-ECONOMIC SURVEYS

The census survey covered 100% and socio-economic status of affected people conducted for 25% of project affected people. The collected data shall include the demography, sex ratio, occupational structure, literacy rates etc. Data was collected for each affected property, the details were documented. The list of impacted structures has been enclosed in Annexure 5.1.

5.6 Ownership of the Properties likely to be affected

Out of 127 properties that are likely to be affected, 122 (96.06%) are private properties (properties that are owned by individuals and do not have govt. or community ownership), while 3 (2.36%) are religious properties (Temple/Church) and 2 (1.57%) are government structures.

The project will also affect private land and government land. Details of properties with level of impacts have been presented in Table 5.1 and list of owners is given in Annexure 5.1

Table 5-1: Type of affected properties

Sl. No.	Type of Properties	Total	Total %
1	Private	122	96.06

2	Religious	3	2.36
4	Government	2	1.57
Total		127	100

Source: Census Survey, 2018

5.7 Type of Construction of the structure

Out of the 127 affected structures, 44 each are semi-pucca , 80 are pucca and 3 kutcha structures (including CPRs) likely to be impacted within the 70 meter RoW. The details of type of constructions of the structures are summarized in the Table 5-2.

Table 5-2: Typology of affected structure

Typology of Structure	Numbers	Total %
Pucca	80	62.99
Semi-pucca	44	34.65
Katcha	3	2.36
Total	**127**	**100**

Source: Census Survey, 2018

5.8 Private Properties to be affected

Built up structure will be affected for 103 residential, 9 commercial properties and 7 residential-cum-commercial with (5.74%), boundary wall with (2.46%) and cattle shed with (2.46%) structures identified.

Table 5-3: Type of affected structure

Type of structure	Numbers	Total %
Residential	100	81.97
Commercial	9	7.38
Resi-Cum-Commercial	7	5.74
Residential (Boundary Wall)	3	2.46
Cattle shed	3	2.46
Total	**122**	**100**

Source: Census Survey, 2018

5.9 Status of the Ownership of the properties/structure

The proposed green field project will impact 122 private properties in which 121 are title holder and remaining non-title holder (1). Details of properties with level of impacts have been presented in Table 5-4.

Table 5-4: Details of impacted Private Properties

Type of structure	Owners	Tenants/Leased	Squatter	Encroacher	Total Affected Properties	% age
Residential	99	-	-	1	100	81.97
Commercial	9	-	-	-	9	7.38
Resi-Cum-Commercial	7	-	-	-	7	5.74
Residential	3	-	-	-	3	2.46

Type of structure	Owners	Tenants/Leased	Squatter	Encroacher	Total Affected Properties	% age
(Boundary Wall)						
Cattle shed	3	-	-	-	3	2.46
Total	**121**	**-**	**-**	**1**	122	**100**

Source: Census Survey, 2018

5.10 IMPACT ON CULTURAL PROPERTIES AND COMMUNITY ASSETS

The proposed green field project will affect 3 religious and 2 govt structures. Religious structures include 2 Temples and one church where govt. structures include police station and check post of forest department. Details of the properties are presented in Table 5-5 and attached annexure 5.2&5.3.

Table 5-5: impact On Cultural/Community Assets

Type of Loss	Number
Religious structure	3
Govt. structure	2

Source: Census Survey, 2018

5.11 Social profile of the PAPs along the Project Road

Socio-economic survey has been carried out for 25% on the basis of random sample survey of the affected structures. Total 31 project affected households (PAHs) are surveyed. There are altogether 145 persons excluding children below the age of 6 years (family members of affected households). Out of 145 PAPs, 73 are male and 72 are female. The socio-economic profile of the affected population is analysed and presented in the following sections.

5.11.1 Total Number of sample populations

At this stage of study, only those households whose structures are losing are included in the sample survey. By the proposed green field project, 145 people from 31 households will be affected and in which 50.34% are male and 49.66% are female.

This figure does not include the affected persons of those households who were not available for survey, and the family members of the wage earners. At few locations, people were even reluctant in giving the details of their families. The detail of number of PAPs enumerated has been mentioned in Table 5-6.

Table 5-6: Number of sample population

Category	Number of Persons	Total %
Male	73	50.34
Female	72	49.66
Total	145	100

Source: Census Survey, 2018

5.11.2 Religious Category

Majority of the families belongs to Hindu population (93.55%) and remaining 6.45% families belongs to Muslim category respectively. The trend shows that Hindu communities dominate the project road. Table 5-7 delineates the religious category of the affected households.

Table 5-7: Religious Categories of the surveyed families

Religious Group	Number of families	Total %
Hindu	29	93.55
Muslim	2	6.45
Total	31	100

Source: Census Survey, 2018

5.11.3 Social Category

Out of the 31 PAFs, 16 belong to Other Backward Castes (OBC), 7 are Sc, 2 belong to ST and the remaining 6 are of General category. The details are given in Table 5.8.

Table 5-8: Social Stratification of surveyed families

Social Category	Number of families	Total %
General	6	19.35
OBC	16	51.61
SC	7	22.58
ST	2	6.45
Total	31	100

Source: Census Survey, 2018

5.11.4 Marital Status of the surveyed persons

Table 5-9 indicates that the most of the persons approx. 68.28% are married and 28.28% are unmarried, only 2.07% and 1.38% are widow and widower respectively. The details are presented in below table:

Table 5-9: Marital status of the persons

Category	Numbers	Total %
Married	99	68.28
Unmarried	41	28.28
Widow	3	2.07
Widower	2	1.38
Total	145	100

Source: Census Survey, 2018

5.11.5 Usual activity of the surveyed persons

Table 5-10 describes that most of them are employed (46 person) and involved in HH work. 32.41% persons are involved in HH work followed by employed persons 31.72%, student (23.45%) as well as 7.59% are old persons and only 4.83% are unemployed. It has been observed that female are involved in HH work and they are limited to agricultural work.

Table 5-10: persons involved in activities

Usual activities	Numbers	Total %
Employed	46	31.72
Unemployed	7	4.83
HH Work	47	32.41
Student	34	23.45
Old Person	11	7.59
Total	**145**	**100**

Source: Census Survey, 2018

5.11.6 Occupation pattern of the surveyed families

Out of 46 employed persons 28.26% are involved in labour and 28.26% are also involved in agriculture. Only 21.74% & 17.39% are involved in service and Business. Only 4.35% are self employed.

Table 5-11: Occupation Pattern

Occupation	Number of families	Total %
Self Employed	2	4.35
Agriculture	13	28.26
Business	8	17.39
Service	10	21.74
Labour	13	28.26
Total	**46**	**100**

Source: Census Survey, 2018

5.11.7 Economic condition of the Project affected households

The surveyed families have been classified as per the income slabs given in Table 5-13 and the table clearly reveals that 67.74% are non-poor families. Only 16.13% are poor families, as per the NRLM categorization of the poverty line. The poverty slabs has been considered as per the national rural livelihood mission. As per NRLM, annual income for non-poor family is more than 1 lakh for 4-5 members of each family.

Table 5-12: Annual Income of Affected household

Income slabs	Numbers	Total %
Up to 50000 per annum	5	16.13
More than 50000 <100000 per annum	5	16.13
More than INR 100000 per annum	21	67.74
Total	**31**	**100**

Source: Census Survey, 2018

5.11.8 Vulnerable Groups along the Project Road

Table 5-14 indicates that 70 households belong to vulnerable category out of which 64.29% are SC/BPL, 27.14% are WHH (2 WHH are belongs to SC category therefore included in SC category) and remaining 8.57% are ST household.

Table 5-13: Vulnerable Groups along the Project Road

Vulnerable category	Numbers	Total %
ST	6	8.57
SC/BPL	45	64.29
WHH	19	27.14
Total	70	100

Source: Census Survey, 2018

5.12 SUMMARY PROJECT IMPACTS

As per findings of the census survey of affected land and non-land assets, the project impacts can be broadly classified as (i) impacts on private land, (ii) impacts on private structures (iii) impacts on livelihoods due to loss of private properties and (iv)loss of common property resources. From the analysis of impacts, it is noted 127 structures including 122 private structures will be affected due to the proposed green field project road. As per the survey, total 122 household comprising of 677 people will be affected in the project. The details of project impacts are presented in the Table 5-14.

Table 5-14: Summary of Project Impacts

Sl. No.	Impacts	Number
1	Total Number of Vulnerable households affected	70
2	Total number of Affected persons (APs)	677
3	Total number of private structures affected (Excluded CPR's)	122
4	Total number of CPRs affected (including Govt. properties)	2
5	Total number of Religious properties affected	3

Source: Census Survey, 2018

5.12.1 Conclusion

The Socio-economic analysis of the project affected persons reveals their dependency on the project corridor. This dependency is either in the form of place for residence or for livelihood generation. Affected people shall be consulted at every stage of the project planning and implementation. Their worries and suggestions shall be taken into account and the negative impacts shall be mitigated.

Chapter-6 Public Consultation and Disclosure

6.1 Introduction

Project affected people were informed about the proposed road development and potential impacts during consultations. Consultations at new proposed green field projects were undertaken at 10 locations as part of the SIA. Peoples' representatives, affected people and common public participated in the consultations. Details of consultation are presented in Table 6.1. A format for consultation has been developed incorporating 'open-ended' discussion points to gather information. Copy of the consultation-format is given in Annexure 6.1. The list of participants is given in Annexure 6.2 and photographs of consultations are given in Figure 6.1.

- In general, the community welcomed the proposed project and was of the opinion that they have the obligation to part with their land or structures for a public cause. PAPs have requested for adequate time in case the structure requires to be removed.
- The people wanted to know more details about the project, the likely time of land and structure acquisition, the probable time of project initiation and completion and also more about compensation for affected structures

Table 6-1: Details of Consultation

Sr. No	Location & Dates	Stakeholders Participated	Target group
1.	At village market, Sankar village Date: 05/10/2018 & Time: 04:00 PM	Local community	Affected families, panchayat member and local people
2.	At Sarpanch house, Chandaniya Date: 06/10/2018 & Time: 11:30 AM	Local community	Sarpanch, affected families and local people
3.	At chowk, Dheka village Date: 06/10/2018 & Time: 03:00 PM	Local community	Affected families, labor and local people
4.	At Dashrath Yadav house, Bhilai Date: 09/10/2018 & Time: 11:30 AM	Local community	Sarpanch, affected families, women and local people
5.	At Karampal meri house, Baksara village Date: 09/10/2018 & Time: 01:00 PM	Local community	Affected families and local people
6.	At chowk, Tarda-Parsa Bhata village	Local community	Sarpanch, affected families, women and local people

Sr. No	Location & Dates	Stakeholders Participated	Target group
	Date: 09/10/2018 & Time: 02:40 PM		
7.	Near canal, Akhrapali village Date: 09/10/2018 & Time: 04:30 PM	Local community	Affected families and local people
8.	At Christ church, Urga Date: 10/10/2018 & Time: 10:10 AM	Committee of the church	Director and committee member of the church
9.	At satnami mohalla, Bagbuda village Date: 10/10/2018 & Time: 11:27 AM	Local community	Affected families and local people
10.	At chowk near Chandar Bai house, Bhainsma Date: 10/10/2018 & Time: 01:40 PM	Local community	Sarpanch, affected families, labor and local people

At the start of the consultation sessions, the project objectives, proposed improvements for the project were informed to the participants. It was informed to the participants that there was a conscious effort to minimize land acquisition and impacts on private lands and assets. Only at very constricted locations, where the safety and design standards shall warrant, the acquisition of land has been proposed in the project. Further, it was clarified that, the consultations will form inputs to further refine the project designs to minimize lands on private and community structures and assets.

Project Disclosure: Awareness about the Project

Public consultations meetings were conducted in project corridor villages. All the people expressed their full support in favor of the proposed road project as they aware that proposed project will improve the connectivity of the villages and there is an opportunity to generate direct and indirect employment. During public consultation it has been recorded that proposed project can impact residential, commercial, community and religious structures.

Consultation with Different Group of Persons

Public Consultation meetings were held with the randomly selected villagers, Sarpanch, influential person and affected persons. These groups encompass a wide age range, as well as both genders, and people from the entire communal spectrum. Natural group discussions were also conducted, where ever possible. Natural group discussions are interviews conducted with 'naturally' occurring groups. The method has the advantage of being interviewed at a time and

place of their convenience, and is suitable from the point of view of the interviewee. The result is honest and open discussion in a more relaxed and informal manner.

Consultation with Project Affected Families

The team has consulted with project affected families and discussed about their socio-economic conditions (their source of income, total income by agriculture and others sources, their expenditure, household size, literacy, socio-economic status of women etc). During public consultation it was recorded that affected families don't want to resettle from their native house. Their suggestion is to avoid their residential and commercial structure along the project road.

Consultation with the Local Labours

After consultation with the labours, it observes that most of the persons employed as a labour in agriculture field. They felt, construction of road will generate direct and indirect employment opportunities to the local.

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Consultation meetings with affected and local people at Dheka village (Ch- 1+300)</td><td>Consultation meetings with local people at Sankar village (Ch- 18+100)</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Consultation meetings with affected and local people at Sankar village (Ch- 18+100)</td><td>Consultation meetings with Panchayat Member at Sankar village (Ch- 18+100)</td></tr>
</table>

	
Consultation meeting with Sarpanch and affected people at Chandaniya village (Ch- 24+600)	Consultation meeting with Sarpanch and affected people at Bhilai village (Ch- 34+600)
	
Consultation meeting with affected women at Bhilai village (Ch- 34+600)	Consultation meeting with Sarpanch and affected people at Baksara village (Ch- 51+200)
	
Consultation meeting with affected people at Tarda-Parsa Bhata village (Ch- 56+600)	Consultation meetings with affected families and local people at Akhrapali village (Ch- 59+950)

	
Consultation with director and member of the Life in Christ Church at Urga village (Ch- 63+000)	Consultation meeting with affected and local people at Bagbuda village (Ch- 66+140)
	
Consultation meeting with affected people at Tarda-Parsa Bhata village (Ch- 67+860)	Consultation meeting with former Sarpanch, affected and local people at Bhaisma village (Ch- 68+080)

Figure 6-1: Consultation and Group Discussion with different stakeholders

Consultation with Youth

During general consultation with youth of the study area it is found that they are much conscious with their education, career and are seeking employment opportunity in metropolitan cities like Hyderabad, Bangalore, Mumbai and abroad. Numbers of youth were involved in preparation of govt. jobs like army, police and SSC. They are much ambitious.

Consultation with Women

Women in the study area consistently lag behind the men in terms of education, health care, jobs etc. Unless these basic measures are taken to improve female literacy, create skills and capability among women for enabling them to earn to survive in family.

During public consultation some issues were discussed, like safety of their children and animal, resettlement of their residential as well as commercial structure, gender based violence, human trafficking, benefits and constraints of the project.

Bilaspur-Urga project corridor basically influenced by male dominated society, during consultation it was observed that major decision is taken by men in the family. They are involved in agriculture or agricultural labor and cattle rearing. They showed their concern with respect to the safety of their children and animal. Beside safety issue they feels proposed project bring

employment opportunity and development of the region. They welcomed to the project they said it will reduce the travel time and can easily fulfill the daily requirement. Proposed project will help the villagers to easily avail the medical facility near Korba, Baloda and Bilaspur. It has been recorded that almost in every village women's are running self help group. They are investing the money earn from SHG group on cattle rearing but their more expectation from the government for economic/financial support. Their household work like stitching, making achar, papad etc. Mostly girls drop their education after 10th and 12th due to unavailability of colleges near the village/town. Also it has been recorded that women are aware of HIV/AIDS. No one area recorded as a known for gender based violence.

key Issues/concerns and suggestion

Though, the road project stretch passes through three different districts of Bilaspur, Janjgir-Champa and Korba, the settlement pattern as well as socio-economic profile along the project road of 72.200 Km length has a lot of uniformity. Even the issues that have emerged as a result of this consultative process are also quite common, with minor variations. The key Issues raised during Consultations are as follows:

- Resettlement was the main issue of the affected, local and influential person of the project corridor.
- Participants also suggested in detail in every meeting. General consensus was on replacement value for any immovable property acquired. Participants also suggested that compensation be paid in time bound and in one single installment so that the amount can be used in a fruitful manner.
- Safety issue (Children/Local person/Cattle) is the main concern along the project. Participants were informed that road safety provisions, extra wide road, footpath and drains will be provided in the settlement areas.
- Required drainage system along the project road.
- Due to proposed green filed project some plots were divided in two parts and it may affect their access, therefore agricultural farmers suggested to provide Pedestrian under Pass (PUP).
- Employment opportunity to be given to the affected families and local people in the construction period.

Table 6-2: Views and Suggestion

Sr. No	Date	Place	Issues discussed	Views and Suggestion
1.	05/10/2018	Sankar Village	Structures	Lose of residential structure, mean a psychologically disturbance to the affected families.
				PAFs asked to provide full resettlement and rehabilitation support to the affected families.
2.	06/10/2018	Chandaniya	Pension	Pension to be given to the affected families
			Compensation of	Compensation of tree should be calculate after consult with farmers

Sr. No	Date	Place	Issues discussed	Views and Suggestion
			tree and structure	Affected structure in the village were allotted by the gram panchayat and that are the only resident therefore they should be rehabilitate before construct of the road
3.	06/10/2018	Dheka village	Land Rate	Compensation for Land as per LARR act,2013
			Structure	Lose of residential structure, mean a psychologically disturbance to the affected families.
				PAFs asked to provide full resettlement and rehabilitation support to the affected families.
			Employment opportunity	Employment opportunity should be provided to the affected families or local people during construction phase
				Provide the government jobs to the families who are losing their livelihood completely due to acquisition of land
			Involvement of local institution	Local people suggest, involve gram panchayat during construction of work
			Drainage system	Drainage system is poor in the village therefore they requested for drainage system
4.	09/10/2018	Bhilai	Compensation of Borewell	Compensation of borewell should be provided
5.	09/10/2018	Baksara	Area development	Due to proposed green field project, other facilities will come as an infrastructure development.
			Resettlement	Loss of residential structure to be resettled with the proper economic support.
6.	09/10/2018	Tarda-Parsa Bhata	PUPs	Due to proposed green filed project some plots were divided in two parts and it may affect their access to field. Requested to construct PUP
7.	09/10/2018	Akhrapali Village	Structure	Lose of residential structure, mean a psychologically disturbance to the affected families.
				PAFs asked to provide full resettlement and rehabilitation support to the affected families.
			Compensation	Compensation should be calculated on market rate whichever is higher
8.	10/10/2018	Urga	Religious structure	Director of the church agreed to resettlement the structures and requested for better compensation.
9.	10/10/2018	Bagbuda	Toll Tax	Affected families requested to exempt from the toll tax on proposed road
10	10/10/2018	Bhainsma	SEZ (Special Economic Zone)	Local people asked to propose SEZ in the Urga or Bilaspur therefore area can be developed and youth may gain employment opportunity.
				If government developed the economic zone then priority to be given to the affected families
			Employment to the affected families	Affected families asked to provide govt. job to the affected families as they felt losing their livelihood due to land acquisition.

Sr. No	Date	Place	Issues discussed	Views and Suggestion
			Skill Training	Skill training should be provided to the youth as per the required employment opportunity
			Construction of road	Construction should be start after paying compensation to affected persons
			Land Rate	Land rate should be calculated on market rate with 2-4 of multiplication factor

Outcomes of Consultation

The outcomes of consultation were discussed below:-

Local Community

- Save or avoid the structure is major concern.
- Due to proposed green filed project some plots were divided in two parts and it may affect their access to field. Requested to construct PUP
- The land owners expected good compensation for affected land.
- PAFs suggested consult with the farmers during deciding the compensation rate.
- Farmers who are losing their livelihood due to the acquisition asked for government job.
- Expectation of employment opportunities from the project.
- Trauma center is not available near the proposed green field project therefore requested to proposed trauma center.
- Involvement of the local people during road construction.
- The people expressed concerns over movement of heavy traffic, as they fear safety of children and livestock which roam around freely in the area.

Village Panchayat/Municipality corporation

- The Gram Panchayat was observed to be supportive of the project. They felt that the proposed project can bring more opportunities in the area.
- They demanded engagement of local community and provide employment opportunities to local people.
- They asked to save the structure where as possible.
- Village *Panchayat* expect local benefits like enhancement of the local infrastructure, targeted social investment programme through government initiatives.
- The panchayat also expressed concerns over movement of heavy traffic, as they fear safety of children and livestock which roam around freely in the area.
- The Village *Panchayat* hinted at the contribution towards developmental activities of the area.

Thus on the basis of above consultation/ discussion with local community/ villagers/ village sarpanch/ village panchayat members/ influential person of the region/ government officials and various stake holders, we may conclude that proposed project will prove beneficial not only to local region but also up to state and national level for a long term.

Chapter-7 RELOCATION OF HOUSING AND SETTLEMENTS

A. Basic Provision for Relocation

The Entitlement Matrix formulated for the subproject has provision for adequate and appropriate cash compensation at full replacement cost for lost structures, adequate compensation for fully damaged structures, and relocation assistance. The EA will compensate to the non-title holders for the loss of assets other than land, such as dwellings, business structures and also for other improvements to the land, at full replacement cost. The entitlements to the non-titleholders will be given only if they occupied the land or structures in the subproject area prior to the cut-off date.

B. Need for Relocation

In this (Green field project) context, physically displacement will occur as there are residential structures and agricultural field is affected. In terms of economic displacement, there are one households (one encroacher) will be affected needs relocation. Some of these encroacher losing their business structures have their own land elsewhere and due to good access facility and business opportunity they are doing business within the subproject ROW. Most of the DPs have preferred for self relocation and opted for cash compensation when asked during the census survey.

C. Relocation strategy

All the commercial structures affected in the project as per provisions made entitlement matrix will be entitled for the followings:-

Compensation of structure will be paid at the replacement cost to be calculated as per LARR act, 2013 with the scattered nature of resettlement impacts. During the focused group discussion, while discussing about relocation options people were very much in favour of

resettlement within the village to avoid disruption of community life and problem with host community. Therefore cash compensation at market rate as more practical solution in this case is suggested for loss of structures.

To help the DPs losing structures in getting all above entitlements and relocating themselves following relocation strategy will be adopted in the project:

a) All compensation will be paid and other resettlement entitlements will be provided before physical displacement.
b) At least three month notice before demolition of structure
c) The NGO engaged for RAP implementation will assist DPs during verification of assets and will provide necessary counselling on payment of compensation and assistance.
d) The NGO will assist the subproject authorities in ensuring a smooth transition (during the part or full relocation of the DPs), helping the DPs to take salvaged materials and shift.
e) In close consultation with the DPs, the NGO will fix the shifting dates agreed with the DPs in writing and the arrangements desired by the DPs with respect to their entitlements.

Chapter-8 INCOME RESTORATION AND REHABILITATION

A. Loss of Livelihoods in the Subproject

The project impacts reveals that due to loss commercial structures some of the DPs losing their livelihoods and getting economically displaced. As per the findings of census survey, seven owners of commercial structures, losing their livelihood due to the subproject.

B. Provisions for Loss of Livelihood

The DPs losing their livelihoods involves titleholders having commercial structures within the proposed ROW. In the case of economically displaced persons, regardless of whether or not they are physically displaced, the EA will compensate for the loss of income or livelihood sources at full replacement cost. The EA will also provide assistance such as credit facilities, training, and employment opportunities so that they can improve, or at least restore, their income-earning capacity, production levels, and standards of living to pre- displacement levels.

The EA will ensure that no physical displacement or economic displacement will occur until:

(i) compensation at full replacement cost has been paid to each displaced person for subproject components or sections that are ready to be constructed;
(ii) other entitlements listed in the resettlement plan have been provided to displaced persons; and
(iii) A comprehensive income and livelihood rehabilitation program, supported by an adequate budget, is in place to help displaced persons improve, or at least restore, their incomes and livelihoods.

C. Income Restoration Measures

The entitlement proposed for the project has adequate provisions for restoration of livelihood of the affected communities. The focus of restoration of livelihoods is to ensure that the DPs are able to at least regain their previous living standards. To restore and enhance the economic conditions of the DPs, certain income generation and income restoration programs are incorporated in the RAP. To begin with providing employment to the local people during the construction phase will enable them to benefit from the project, reduce the size of intrusive work forces and keep more of the resources spent on the subproject in the local economy. It will also give the local communities a greater stake and sense of ownership in the subproject.

Among specific rehabilitation measures, capacity buildings of all the economically displaced persons will be carried out by the project authority. The NGO to be engaged for implementation of RAP will identify the eligible and most suitable candidate from the family by carry out training need assessment and prepare micro plan for rehabilitation of DPs. The NGO will impart training to the selected/eligible DPs for income restoration and skill upgradation as per the micro plan. The EA will also provide opportunities to displaced persons to derive appropriate development benefits from the project. The women headed households also will be taken care of in a case to case basis and the NGO will help them in forming Self help Groups (SHGs), establish linkages to available credit facilities, special

trainings, and linking them with ongoing govt. schemes. Budget for training in terms of assistance is provided to DPs losing livelihoods and the NGO will either organize training programs or link the DPs to various ongoing training schemes. Fund for training is provided in the R&R budget keeping in view the average expenditure for ongoing training programs in the subproject area.

D. Additional Support from Ongoing Poverty Reduction Programs

In addition to project-sponsored programs, the implementing NGO will play a proactive role to mobilize DPs to get benefits from various government schemes and ensure their accessibility particularly of vulnerable groups. In India, panchayat government systems at the village, block and district/zilla levels are now responsible for planning and implementation of all anti-poverty programs funded by the central and state governments. The implementing NGO will work with the panchayat governments to make available to the DPs benefits of some of the ongoing pro-poor programs for poverty reduction.

Chapter-9 GRIEVANCE REDRESSAL MECHANISM

A. Introduction

In the subproject RAP implementation there is a need for an efficient grievance redressal mechanism that will assist the DPs in resolving their queries and complaints. Therefore, formation of Grievance Redressal Committee (GRC) will be most important for grievance redressal and it is anticipated that most, if not all grievances, would be settled by the GRC.

B. Grievance Redress Mechanism

The EA will establish a mechanism to receive and facilitate the resolution of displaced persons‟ concerns and grievances about physical and economic displacement and other subproject impacts, paying particular attention to the impacts on vulnerable groups. The grievance redress mechanism will address affected persons‟ concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to the displaced persons at no costs and without retribution.

C. Constitution and Function of the GRC

The GRC will be established at the district level with the primary objective of providing a mechanism to mediate conflict and cut down on lengthy litigation. It will also provide people, who might have objections or concerns about their assistance, a public forum to raise their objections and through conflict resolution, address these issues adequately. The GRCs will continue to function, for the benefit of the APs, during the entire life of the subproject.

The GRC will be headed by the District Collector (DC) or his designated representative. The GRC will have representative from the NHAI-PIU field office, representatives of APs, particularly of vulnerable DPs, local government representatives, representative of local NGOs and other interest groups as felt necessary. The GRC will meet at least once in each 15 days. Other than disputes relating to ownership rights under the court of law, GRC will review grievances involving all resettlement benefits, compensation, relocation, and other assistance. All costs incurred in resolving the complaints will be borne by the subproject. A comprehensive record will be maintained by EA for all grievance proceedings and subsequent redress. Some of the specific functions of the GRC will be as following:

- To provide support for the DPs on problems arising out of land/property acquisition like award of compensation and value of assets;
- To record the grievances of the APs, categorize and prioritize the grievances that needs to be resolved by the Committee and solve them within a month;
- To inform PIU of serious cases within an appropriate time frame; and
- To report to the aggrieved parties about the development regarding their grievance and decision of PIU.

D. Operational Mechanisms of GRC

It is proposed that GRC will meet regularly (at least twice in a month) on a pre-fixed date. The committee will look into the grievances of the people and will assign the responsibilities to implement the decisions of the committee. The claims will be reviewed and resolved within 15 days from the date of submission to the committee. All Grievances will be routed through the NGO to the GRC. Through public consultations, the APs will be informed that they have a right to grievance redress. The APs can call upon the support of the NGO to assist them in presenting their grievances or queries to the GRC .The NGO will act as an in-built grievance redress body. The NGO will first of all register the grievances and take up with VLC for redress and any grievances not redressed at VLC level will be dealt in by the GRC. Grievances will be redressed within two to four weeks from the date of lodging the complaints, depending on severity of problem. The APs, who would not be satisfied with the decision of the GRC, will have the right to take the grievance to the NHAI-PIU Head Office for its redress. However an aggrieved person should have access to the country's judiciary at any stage of the project level grievance redress process. Taking grievances to Judiciary will be avoided as far possible and the NGO will make utmost efforts at reconciliation at the level of GRC.

Chapter-10 INSTITUTIONAL ARRANGEMENT

A. Institutional Requirement

For implementation of RP there will be a set of institutions involve at various levels and stages of the subproject. For successful implementation of the RP the proposed institutional arrangement with their role and responsibility has been outlined in this section. The primary institutions, who will be involved in this implementation process, are the following:

- NHAI Project Implementation Unit (NHAI-PIU)
- NHAI-PIU Field Office
- Non Government Organization (NGO)

B. Executing Agency

The Executing Agency (EA) for the Project is NHAI. This office will be functional for the whole Project duration. The EA, headed by PD will have overall responsibility for implementation and will also be responsible for the overall coordination.

C. Resettlement Management at ADB-PIU

For resettlement activities, NHAI-PIU will do the overall coordination, planning, implementation, and financing. The NHAI-PIU will create a Social and Resettlement Unit (SRU) within itself with appointment of a Resettlement Officer (RO) at the rank of Executive Engineer (EE) and required support staff for the duration of the Subproject to ensure timely and effective planning and implementation of resettlement activities. The candidate to be appointed as RO is desired to have similar earlier experience in resettlement and social development planning and implementation. The RO will be assisted by the respective NHAI-PIU Field Offices and NGO for planning and implementation of resettlement activities in the subproject. Some of the specific functions of the NHAI-PIU in regards to resettlement management will include:

- Overall responsibility of implementation and monitoring of R&R activities in the Subproject;
- Ensure availability of budget for R&R activities;
- Liaison lined agencies support implementation of R&R;
- Selection and appointment of the NGOs.
- Coordinating with line Departments, NHAI-PIU Field Offices, implementing NGO and Construction Supervision Consultant (CSC)

D. Resettlement Management at NHAI-PIU Field Office

NHAI-PIU Field Office will be established at district/subproject level for the implementation of sub-project resettlement activities. NHAI-PIU Field Office, will appoint/ designate an Assistant Resettlement Officer (ARO) in the rank of Assistant Engineer (AE) who will either be deputed to the PIU or engaged on contractual basis having adequate land acquisition implementation/resettlement experience. The staffs at the NHAI-PIU Field Office level will be provided with the training by the social/ resettlement specialist of the supervision consultant for implementation of the RP. The NHAI-PIU Field Office will maintain all databases, work closely with APs and other stakeholders and monitor the day today resettlement activities. Some of the specific tasks to be performed by NHAI-PIU Field Office include:

- Translation of RAP in local language;
- Liaison with district administration for dovetailing government‟s income generating and developmental programs for the DPs;
- Ensure the inclusion of those DPs who may have not been covered during the census survey;
- facilitate the opening of accounts in local banks to transfer assistance to DPs, and organize the disbursement of cheque for assistance in the affected area in public;
- Monitor physical and financial progress on land acquisition and R&R activities;
- Participate in regular meetings in GRC; and
- Organize monthly meetings with the NGO to review the progress on R&R.

E. Nongovernment Organization (NGO)

Involuntary resettlement is a sensitive issue and strong experience in R&R matters along with community related skills will be required by the NHAI-PIU Field Office in order to build a good rapport with the affected community and facilitate satisfactory R&R of the DPs. To overcome this deficiency, experienced and well-qualified NGO in this field will be engaged to assist the NHAI-PIU Field Office in the implementation of the RAP. The NGO would play the role of a facilitator and will work as a link between the PIU and the affected community. NGO will assist AP in income restoration by preparing micro plan and guiding to access into various ongoing government development schemes and agencies providing financial assistance and loan. Taking into account the significant role of the NGO in RAP implementation, it is extremely important to select NGO that are capable, genuine and committed to the tasks assigned in order to ensure the success of the Plan.

The roles and responsibilities of various agencies to be involved in resettlement planning process and implementation of resettlement activities are summarized in Table 10.1.

Table 10.1 Agencies Responsible for Resettlement Implementation

Activity	Agency Responsible
Establishment of Social and Resettlement Unit in NHAI-PIU and appointment of Resettlement Officer (RO)	NHAI-PIU
Organizing resettlement training workshop	NHAI-PIU
Social Assessment and Preparation of land acquisition plan, Resettlement Plan (RAP)	NHAI-PIU through Design Consultant
Hiring of (Non Government Organization) NGOs	NHAI-PIU
Public consultation and disclosure of RP	NHAI-PIU Field Office / Design Consultant/NGO
Co-ordination with district administration for land acquisition	NHAI-PIU Field Office / Design Consultant
Declaration of cut-off date	NHAI-PIU/ NHAI-PIU Field Office
Review and obtaining of approval of resettlement plan form ADB	NHAI-PIU
Payment of replacement cost and allowance	NHAI-PIU Field Office
Notify the date of commencement of construction to APs	NHAI -PIU Field Office /NGO

Activity	Agency Responsible
Assistance in relocation, particularly for vulnerable groups	NHAI -PIU Field Office / NGO
Monitoring of RP Implementation	NHAI -PIU Field Office /NGO
External Monitoring	External Monitoring Expert

Chapter-11 IMPLEMENTATION SCHEDULE

A. Introduction

Implementation of RAP mainly consists of compensation to be paid for affected structures and rehabilitation and resettlement activities. The time for implementation of resettlement plan will be scheduled as per the overall subproject implementation. All activities related to the land acquisition and resettlement must be planned to ensure that compensation is paid prior to displacement and commencement of civil works. Public consultation, monitoring and grievance redress will be undertaken intermittently throughout the subproject duration. However, the schedule is subject to modification depending on the progress of the subproject activities. The civil works contract for each subproject will only be awarded after all compensation and relocation has been completed for subproject and rehabilitation measures are in place.

B. Schedule for Subproject Implementation

The R&R activities are divided in to three broad categories based on the stages of work and process of implementation. The details of activities involved in these three phases- Subproject Preparation phase, RP Implementation phase, Monitoring and Reporting period are discussed in the following paragraphs.

C. Subproject Preparation Phase

The major activities to be performed in this period include establishment of NHAI-PIU Field Office at subproject level; submission of RAP for approval; appointment of NGO and establishment of GRC etc. The information campaign and community consultation will be a process initiated from this stage and will go on till the end of the subproject.

D. RAP Implementation Phase

After the project preparation phase the next stage is implementation of RP which includes issues like compensation of award by EA; payment of all eligible assistance; relocation of DPs; initiation of economic rehabilitation measures; site preparation for delivering the site to contractors for construction and finally starting civil work.

E. Monitoring and Reporting Period

As mentioned earlier the monitoring will be the responsibility of NH-PIU, NH-PIU Field Office and implementing NGO and will start early during the subproject when implementation of RP starts and will continue till the complementation of the project. Keeping in view the significant involuntary resettlement impacts, an external monitoring and reporting expert will be hired for the subproject.

F. R&R Implementation Schedule

A composite implementation schedule for R&R activities in the project including various sub tasks and time line matching with civil work. However, the sequence may change or delays may occur due to circumstances beyond the control of the project and accordingly the time can be adjusted for the implementation of the plan. The implementation schedule can also

be structured through package wise. The entire stretch can be divided in to various contract packages and the completion of resettlement implementation for each contract package shall be the pre condition to start of the civil work at that particular contract package.

Table 11.1 R&R Implementation Schedule

ACTIVITY	MONTHS																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mobilising Personnel and Training																								
M&E Consultant in place		■																						
NGO in place	■																							
GRC in place		■																						
Training for PIU Personnel	■																							
Training for NGOs	■																							
Information Campaign and Community Consultation		■	■						■						■						■			
Compensation / R&R / Clearance of CoI																								
Verification of DP/PAPs, listing of assets affected, measurement of structures, categorization of DPs/PAPs		■	■																					
ID Card distribution			■																					
Preparation of Micro Plan and approval			■	■																				
Opening joint account of DPs/PAPs				■																				
Payment of compensation				■																				
Payment of R&R assistance				■																				
Clearance of RoW for civil works					■																			
Consultations (intermittant)		■		■		■		■		■		■		■		■		■		■		■		■
Skill and training needs assessment			■	■																				
Identification of government schemes				■																				
Enrollment into government schemes					■																			
Training of DPs/PAPs for income restoration schemes					■																			

Consultation for relocation/rehabilitation of Community assets/Cultural properties	
Awareness programmes with respect to HIV/AIDS	
Awareness on Road Safety	
Repeat training of DPs/PAPs for new vocation	
Monitoring and Evaluation	
Internal Monitoring	
External Monitoring and Evaluation	
Project Completion Survey	
Project Completion Survey Report	

Chapter-12 RESETTLEMENT BUDGET AND FINANCING PLAN

A. Introduction

The resettlement cost estimate for this project includes eligible compensation, resettlement assistance and support cost for RAP implementation. The support cost, which includes staffing requirement, monitoring and reporting, involvement of NGO in project implementation and other administrative expenses are part of the overall subproject cost. Contingency provisions have also been made to take into account variations from this estimate.

B. Legal Framework for R&R

Resettlement and Rehabilitation of project affected people will be carried out based on the guidelines provided under Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Abbreviation used for R&R calculation is given below:-

Project Affected Person is the one affected by involuntary resettlement and who stands to lose all or part of their physical assets such as productive land, commercial/business structure, access to common properties and sources/means of livelihood and income;

Project Displaced Person is the one who has lost homestead/shelter and or commercial/business structure and has to be relocated. A Project Displaced Person is generally a Project Affected Person also;

Titleholder is a person who has legal title/Patta/document to support his/her claim/right towards ownership of land and all assets on the land – residential, commercial/business, crops, trees etc.

Squatter, a non-title holder, is a person who has settled on Government/public land without permission and has built residential and/or commercial structure, or has illegally occupied Government/public structures prior to the Cut-Off-Date;

Encroacher is a person who has trespassed into Government/public land adjacent to his/her own land and using it for residential, rental, commercial and business purposes and deriving income prior to the Cut-Off-Date; and

Cut-Off-Date is the date on which notification for acquisition of private land is issued under The Right to Fair Compensation and Transparency in Land Acquisition, Resettlement and Rehabilitation Act (RFCTLAR&R) Act, 2013 for acquisition of private titled land. For those without title, the Cut-Off Date shall be the date on which census socio-economic survey is being undertaken.

C. Entitlement Framework

The land, built-up structures and assets falling in the project affected corridor will be compensated for the loss. The compensation to be provided across different categories is referred as entitlement. The entitlement matrix across different categories of project affected people as per Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 is detailed out in the table below:

Table 12-1: Entitlement Matrix for Project Affected Families (PAFs)

Entitlement Matrix		
Impact type	**Entitled entity**	**Entitlement based on The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013**
1. Loss of Land (Titleholders)		
1A. Loss of Agricultural Land	Affected Family (Titleholder)	➢ Cash compensation at replacement cost as determined according to The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013 or replacement of land if available ➢ If the residual plot is not viable and PAP becomes a marginal farmer, then any of the following three options are to be given to the PAP, subject to PAP's acceptance. • Acquire the required land and pay compensation and assistance for the same. • If PAP so wishes acquire the remaining portion of the plot and pay compensation and assistance for the entire plot including residual part. • If PAP is from vulnerable group, compensation for the entire land by means of land for land will be provided, if PAP wants so, provided that land of equal productive value is available. • If the land for land option is exercised, then an additional INR 50,000/- per acre will be paid for land preparation. • An amount of INR 25,000/- will be provided for each PAP towards building cattle shed etc. ➢ If the PAP wishes to buy land with the compensation amount, then an additional INR 50,000/- per acre will be paid for land preparation. ➢ Subsistence Grant of INR 50,000/- ➢ One-time resettlement allowance of INR 50,000/- ➢ All fees, stamp duties, taxes and other charges, as applicable under the relevant laws, incurred in the relocation and rehabilitation process, are to be borne by the IA.
1B. Loss of Residential/ Commercial land	Affected Family (Titleholder)	➢ Cash compensation at replacement cost as determined according to The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013 or replacement of land if available. ➢ Subsistence Grant of INR 50,000/- ➢ One-time resettlement allowance of INR 50,000/- ➢ All fees, stamp duties, taxes and other charges, as applicable under the relevant laws, incurred in the relocation and rehabilitation process, are to be borne by the IA.
2. Loss of Structures (Titleholders)		
2A. Loss of Residential Structures	Affected Family (Titleholder)	➢ Compensation of structure will be paid at the replacement cost to be calculated as per latest prevailing Basic Schedule of Rates (BSR) without depreciation ➢ Assistance of INR 30,000/- towards temporary

Entitlement Matrix		
Impact type	**Entitled entity**	**Entitlement based on The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013**
		accommodation or Rental assistance as per the prevalent rate in the form of grant to cover maximum six-month rentals, whichever is higher. ➢ Subsistence Grant of INR 50,000/- ➢ Transportation assistance of INR 50,000/- ➢ One-time resettlement allowance of INR 50,000/ ➢ Relocation assistance under existing Government schemes/programs. ➢ Right to salvage material from demolished structure and frontage etc.
2B. Loss of Rental Accommodation (Residential/ Commercial	Tenants	➢ Rental assistance for both residential & commercial tenants: Assistance of INR 30,000/- towards temporary accommodation or Rental assistance as per the prevalent rate in the form of grant to cover maximum six-month rentals, whichever is higher. ➢ Additional structures erected by tenants will also be compensated separately directly to the tenants. ➢ Transport/ Shifting assistance based on type of house and household assets, subject to a minimum of INR 50,000/-. ➢ Any advance deposited by the tenants will be refunded from owners total compensation package to the tenant on submission of documentary evidence. ➢ Right to salvage material from demolished structure and frontage etc. erected by tenants.
3. Loss of Structures Residential/Commercial (Non-Titleholders)		
3A. Loss of Immovable and Pucca Structures (Residential/ Commercial)	Squatters/ Encroachers	➢ Squatters and Encroachers will be notified and given one-month time to remove their assets or enough time to harvest their present crops. ➢ Compensation for loss of structures at replacement cost. All asset/structures impacted will be compensated irrespective of the notice time. ➢ Subsistence Grant of INR 50,000/- ➢ Transport/ Shifting assistance of INR 50,000/-. ➢ One-time resettlement allowance of INR 50,000/- ➢ Relocation assistance under existing Government schemes/programs ➢ For Squatters and Encroachers right to salvage material from the demolished structure.
1. Loss of Crops and Trees	• Titleholders Share • Croppers • Lease Holders • Non-title holders	➢ Advance notice to all to harvest crops, fruits and remove trees. ➢ In case of standing crops, cash compensation at current market prices for mature crops based on average production. ➢ For fruit bearing trees compensation at average fruit production for next 15 years to be computed at current market value.

Entitlement Matrix		
Impact type	**Entitled entity**	**Entitlement based on The Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013**
		➢ For timber trees compensation at market price based on kind of trees.
4. Loss of livelihood		
4A. Loss of Primary Source of Income/ Livelihood	• Titleholders • Non-Titleholders • Agricultural Labourers • Share Croppers	➢ Subsistence Grant of INR 50,000/- ➢ INR 25,000/- for cattle shed or petty shop ➢ One-time grant of INR 25,000/- to artisans, small traders and certain others ➢ Employment opportunity for PAPS in the sub- project construction work, if available and if so desired by them. ➢ National/State level job card under National Rural Employment Guarantee Program. ➢ Income generation skill upgrading vocational training of their choice at a rate of INR 10,000/- ➢ For Agricultural Labourers and Share Croppers an assistance of 500 days of wages at prevailing minimum wage rate ➢ One-time resettlement allowance of INR 50,000/-
5. Common Property Resources		
5A. Loss of Common Property Resources	• Community	➢ Reconstruction as per latest norms and guidelines, Commissioning and handing over to concerned departments/ community of all affected community property resources with community consultation and participation
6. Vulnerable		
6A. Vulnerable PAPs	Women headed households, Widows, STs, Chronically ill, old persons etc.	➢ A onetime assistance of INR 50,000/- over and above other entitlements. ➢ Handholding for ensured access to other government subsidies, schemes and services
7. Other Unforeseen/ Unanticipated Impacts		
7A. Unforeseen/ Unanticipated Impacts		➢ Any unforeseen/ unanticipated impacts due to the sub-projects will be documented and mitigated based on the spirit of the principle agreed upon in this framework.

Note: This is tentative entitlement matrix, actual matrix will vary depending upon the census, socio-economic surveys, consultations and assessment

12.1.1 Entitlement Components (based on RFCTLARR Act, 2013)

The entitlement components for the affected families are provided below, based on Second Schedule of RFCTLARR Act, 2013:

- **Housing Unit** → In rural areas, a constructed house shall be provided as per the Indira Awas Yojana specifications

  Note: *No family affected by acquisition shall be given more than one*

		house
• **Employment**	→	• In cases where jobs are created through the project → Provision for employment at a rate not lower than the minimum wages, to at least one member per affected family in the project or arrange for a job in such other project as may be required (or) • One-time payment of INR 5 lac per affected family (or) • Annuity policy →Minimum payment of INR 2,000/month/ family for 20 years (with appropriate indexation to the Consumer Price Index for Agricultural Labourers)
• **Subsistence Grant**	→	• Monthly subsistence allowance of INR 3,000/month for a period of one year from the date of award • SCs and STs to be paid an additional amount of INR 50,000
• **Transportation Cost**	→	One-time financial assistance of INR 50,000/family as transportation cost for shifting family, building materials, belongings and cattle
• **One-time Resettlement Allowance**	→	One-time resettlement allowance of minimum INR 50,000/family
• **Stamp Duty and Registration Fee**	→	Stamp Duty and other fees payable as registration of the land or house allotted to be borne by the requiring authority

12.1.2 Land Acquisition

The amount payable as compensation for land acquisition will be determined as per First schedule of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 are applicable for determination of compensation for land acquisition.

Components of Compensation for Land Acquisition

The amount payable as compensation for land acquisition for national highway will be determined based on the components mentioned in First schedule of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. The parameters are as follows:

a) Market value of land	–	Highest of the value specified in Indian Stamp Act / Average Sale Price for similar type of land / State Government specified minimum price per unit area
b) Multiplication Factor	–	1.0 for the state projects rural areas 2.0 for Central projects in rural areas
c) Value of assets attached to land or building	–	Assets like trees, plants, standing crops and immovable assets
d) Solatium	–	100% * (a*b + c)
e) Additional amount on market value	–	@ 12% p.a. on market value *(from date of publication of notification under section 3A till the date of payment of compensation or date of possession of land,*

		whichever is earlier)
f) Other components	–	If any

D. Tentative Budget for Resettlement and Rehabilitation

It has already been stated that the list of affected properties is yet to be finalized. However, a tentative estimate of cost for Rehabilitation & Resettlement has been worked out to Rs. 1655.4 crores which covers all components of land acquisition, compensation, assistance and entitlements.

Sl. No	Particulars	Amount (Rs.) in Crores
A	**Compensation for Land Acquisition**	
1	Compensation for Structure/Agriculture/barren land (Hect)	6962356694
2	Structure (sqm)@ 122 structures*	226099096
3	Solatium(100% of Sl.1& 2)*	7188455789
	Total	**14376911578**
B	**R&R Entitlements**	
4	Subsistence allowance for Residential owners=36000 x structures	3816000
5	Shifting Allowances =36000 x structures	3816000
6	Resettlement Allowances 50000x structure	6100000
	Total	**13732000**
C	**Others Services**	
7	N.G.O Service Charges	2000000
8	Administrative Cost	1000000
9	M & E consultant Lump sum	1500000
10	HIV/AIDS awareness	500000
	Total	**5000000**
	A+B+C	**14395643578**
10	Contingency 15%	**2159346537**
11	**Grand Total**	**16554990115**

*Source: - Central Valuation Board, Raipur & MoRTH Notification (Annexure 12.1 & 12.2)

Bilaspur-Urga

Annexures to RAP

Annexure XII: Public Hearing MoM

संलग्नक-04

कार्यवाही विवरण

M/s National Highways Authority of India, Development of Bilaspur द्वारा जिला–बिलासपुर एवं जिला–जांजगीर–चांपा के Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Juction with NH-130 and NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattigarh (approx. 70.2 km) के लिए पर्यावरणीय स्वीकृति बाबत् दिनांक 25/02/2019 दिन–सोमवार, समय–11:00 बजे, स्थान–ग्राम पंचायत भवन अमलीपाली के समीप खुले मैदान, तहसील–अकलतरा, जिला–जांजगीर–चांपा (छ.ग.) में आयोजित लोकसुनवाई का कार्यवाही विवरण :–

भारत शासन पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली की ई.आई.ए. नोटिफिकेशन 14.09.2006 के अंतर्गत M/s National Highways Authority of India, Development of Bilaspur द्वारा जिला–बिलासपुर एवं जिला–जांजगीर–चांपा के Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Juction with NH-130 and NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattigarh (approx. 70.2 km) के लिए पर्यावरणीय स्वीकृति के संबंध में लोक सुनवाई हेतु उद्योग के आवेदन के परिप्रेक्ष्य में स्थानीय समाचार पत्र नवभारत, बिलासपुर में दिनांक 23.01.2019 के अंक में तथा राष्ट्रीय समाचार पत्र द टाईम्स ऑफ इंडिया, नई दिल्ली में दिनाक 23.01.2019 के अंक में लोक सुनवाई संबंधी सूचना प्रकाशित करवाई गई थी। तदानुसार लोक सुनवाई दिनांक 25/02/2019 दिन–सोमवार, समय–11:00 बजे, अपर कलेक्टर, जिला–जांजगीर–चांपा की अध्यक्षता में स्थान–ग्राम पंचायत भवन अमलीपाली के समीप खुले मैदान, तहसील–अकलतरा, जिला–जांजगीर–चांपा (छ.ग.) में आयोजित की गई। इ.आई.ए. अधिसूचना 14.09.2006 के प्रावधानों के अनुसार ड्राफ्ट ई.आई.ए. रिपोर्ट एवं कार्यपालक सार की प्रति एवं इसकी सी.डी. जन सामान्य के अवलोकन हेतु कार्यालय कलेक्टर, जांजगीर–चांपा, जिला पंचायत कार्यालय, जांजगीर–चांपा, जिला व्यापार एवं उद्योग केन्द्र कार्यालय चांपा, जिला– जांजगीर–चांपा, क्षेत्रीय कार्यालय, छत्तीसगढ़, पर्यावरण संरक्षण मंडल बिलासपुर, कार्यालय ग्राम पंचायत सांकर, कार्यालय ग्राम पंचायत सोनादुल्ला, कार्यालय ग्राम पंचायत चंगोरी, कार्यालय ग्राम पंचायत अमलीपाली, कार्यालय ग्राम पंचायत सोन, कार्यालय ग्राम पंचायत पिपरदा, कार्यालय ग्राम पंचायत चंदनिया, कार्यालय ग्राम पंचायत धोरसा, कार्यालय ग्राम पंचायत बछौद, कार्यालय ग्राम पंचायत चारपारा, कार्यालय ग्राम पंचायत बलौदा, कार्यालय ग्राम पंचायत भिलाई, कार्यालय ग्राम पंचायत कोरबी, कार्यालय ग्राम पंचायत डोंगरी, कार्यालय ग्राम पंचायत हरदीबिशाल, कार्यालय ग्राम पंचायत खिसोरा, कार्यालय ग्राम पंचायत अगारखार, कार्यालय

ग्राम पंचायत पंतोरा, कार्यालय ग्राम पंचायत बयसरा, जिला–जांजगीर–चांपा (छ.ग.), डायरेक्टर पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, इंदिरा पर्यावरण भवन, जोरबाग रोड, नई दिल्ली, मुख्य वन संरक्षक, क्षेत्रीय कार्यालय (डब्लयू.सी.जेड.) पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, ग्राऊण्ड फ्लोर ईस्ट विन्ग, न्यू सेक्रेटरियेट बिल्डिंग, सिविल लाईन्स, नागपुर (महाराष्ट्र), मुख्यालय छत्तीसगढ़ पर्यावरण संरक्षण मंडल, पर्यावास भवन, नार्थ ब्लॉक, सेक्टर–19, नया रायपुर (छ.ग.) में रखी गई थी। उक्त परियोजना के संबंध में सुझाव, विचार, टीका– टिप्पणियां एवं आपत्तियां इस सूचना के जारी होने के दिनांक से 30 दिन के अंदर क्षेत्रीय कार्यालय, छत्तीसगढ़ पर्यावरण संरक्षण मंडल, पं. दीनदयाल उपाध्याय पार्क के पास, व्यापार विहार, जिला–बिलासपुर में मौखिक अथवा लिखित रूप से कार्यालयीन समय में प्रस्तुत करने हेतु आमंत्रित किया गया था। लोक सुनवाई की निर्धारित तिथि तक क्षेत्रीय कार्यालय, छ.ग. पर्यावरण संरक्षण मंडल, पं. दीनदयाल उपाध्याय पार्क के पास, व्यापार विहार, जिला–बिलासपुर में मौखिक अथवा लिखित रूप से उक्त परियोजना के संबंध में पत्र प्राप्त हुए नहीं हैं। दिनांक 08.02.2019 को श्री जयंत बोहिदार इस कार्यालय में उपस्थित होकर प्रस्तावित परियोजना की ईआईए रिपोर्ट व हिन्दी/अंग्रेजी कार्यपालकसार का अवलोकन किया गया।

लोक सुनवाई हेतु निर्धारित तिथि **दिनांक 25/02/2019 दिन–सोमवार, समय–11:00 बजे, अपर कलेक्टर,** जिला–जांजगीर–चांपा की अध्यक्षता में **स्थान–ग्राम पंचायत भवन अमलीपाली के समीप खुले** मैदान, तहसील–अकलतरा, **जिला–जांजगीर–चांपा (छ.ग.)** में लोक सुनवाई की कार्यवाही आरंभ की गई।

सर्वप्रथम **श्री ए. के. धृतलहरे, अपर कलेक्टर,** जिला–जांजगीर–चांपा द्वारा लोक सुनवाई की कार्यवाही आरंभ करने की अनुमति के साथ क्षेत्रीय अधिकारी, छत्तीसगढ़ पर्यावरण संरक्षण मंडल, बिलासपुर द्वारा भारत शासन, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली द्वारा जारी ई.आई.ए. नोटिफिकेशन 14.09.2006 के परिपेक्ष्य में लोक सुनवाई के महत्व एवं प्रक्रिया के संबंध में विस्तृत जानकारी जनसामान्य को दी गई।

तत्पश्चात् परियोजना प्रस्तावक की ओर से श्री भूपेन्द्र मानसुखा एवं श्री अनूप कुमार चौधरी, M/s National Highways Authority of India, Development of Bilaspur द्वारा जिला–बिलासपुर एवं जिला–जांजगीर–चांपा के Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Juction with NH-130 and NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattigarh (approx. 70.2 km) परियोजना के संबंध में संक्षिप्त जानकारी जनसामान्य को दी गई।

अपर कलेक्टर द्वारा उपस्थित जनसमुदाय को जनसुनवाई संबंधी विषय पर अपने सुझाव, आपत्ति, विचार, टीका–टिप्पणी मौखिक अथवा लिखित रूप से प्रस्तुत करने हेतु आमंत्रित किया गया।

तत्पश्चात उपस्थित लोगों ने मौखिक रूप से सुझाव, विचार, टीका–टिप्पणियां दर्ज कराया। जिसका विवरण निम्नानुसार हैं :–

1. श्री किर्ती कुमार राजपूत, अमलपाली :–इस रोड में जितने किसान की जमीन रोड में आ रही है। उनको उचित मुआवजा दिया जाये। इससे हम सहमत है। किसानो की जमीन जा रही है उनको उचित मुआवजा दिया जाये। रोड में जितने पेड़ कटते है, उससे अधिक पेड लगाये जाये। इतना ही आग्रह करना चाहूंगा।

2. श्रीमती प्रभा सिंह राजपूत, अमलीपाली :– किसानों की मूल पूंजी खेती है। किसान खेती करके रोजगार चलाते है। खेती चले जाने से वो जीविका कैसे चलायेंगे। उनको नौकरी देने की महान कृपा करें।

3. श्री बंशीलाल कुर्रे, हरदीविशाल :– रोड में जमीन निकल रहा है। जिन किसानों को उनका उचित नाप कराया जाये। मुआवजा दिया जाये, गलत न होने पाये। बाल बच्चों को रोजगार दिलाया जाये। बाल बच्चों को नौकरी दे। किसान के हित में काम करें।

4. श्री बलराम यादव, कोरबी :–मेरी जमीन जा रही है। मेरी खेत में 14 आम पेड है मैं खेत बेचा हूँ पेड नहीं। पटवारी मानने को तैयार नहीं है। पटवारी नहीं मानता मुझे न्याय दिलाया जाये। उचित मुलायजा दिया जाये।

5. श्री अखिलेश कुमार ठाकुर, सोनडीह :– 3/75 एकड़ जमीन है, रोड में जो जमीन पड़ रहा है वह मेरी है। हमारी जमीन पिताजी एवं बड़े पिताजी के बीच नहीं बटा है। पेशी चल रहा है। हमको सही न्याय दियाला जाय, ताकि उचित मुआवजा मुझे मिलें।

6. श्री खोरबहरा बनर्जी, हरदीविशाल :– पटवारी से कोई जानकारी नहीं है। किस किसान का कितना जमीन निकला है। उसकी जानकारी दें।

7. श्री सुरेश कुमार महवाल, अमलीपाली :– सड़क निर्माण कर रहे है। उसका समर्थन हैं। प.ह.नं. 02 अमलीपाली हमारे यहां का मुआवजा क्या होगा। ट्यूबवेल भी आ रहा है उसका मुआवजा क्या होगा। आज तक किसी को क्लीयर पता नहीं है। मुआवजा देने वाले है उसकी जानकारी बतायें।

8. श्री अंतराम राज, हरदीविशाल :– मैं शासन से जवाब चाहता हूं। फोरलाईन सर्वे किये है। देखे सुने में आया है कि रोड कैंसल हो गया था। फोरलाईन रोड कैंसल हो जायेगा तो ज्यादा अच्छा रहेगा। मै शासन प्रशासन से पूछना चाहता हूं कि आधिकारी पटवारी ये नही बता रहे है कि कौन सा जमीन जा रहा है। जमीन का क्या–क्या रेट है, बताये। मेंढ में झाड है उसका रेट क्या तय किया गया है यह मै पूछना चाहता हूं। शासन प्रशासन जनता को कहता है पेड लगाओ लेकिन शासन के जमीन में पेड लगाता हूं तो वह मेरी होगी। लेकिन उस पेड़ का मुआवजा नहीं मिलेगा कहा जाता है। पटवारी के साथ मिलीभगत किया जाता है। इसकी तत्काल जांच की जाये।

9. श्रीमती कुमित कुमार बिंझवार, अंगारखार :– मै जमीन विभाजन के लिए 2018 में आवेदन दे चुकी हूं। 1.15 एकड जमीन है। राज मार्ग मे मेरी जमीन फंसी है। उसमें 7–8 लोग फंसे है। मै अपनी इच्छा से जमीन विभाजन नहीं करूंगी। जिस–जिस का जमीन लिया जाये उस–उस का नाम चढा दिया जाये। मेरी जमीन कितना डिसमिल है उसे मेरा नाम में चढा दिया जाये। पटवारी ने मेरा काम नहीं किया है। मेरा जमीन नपवा दिया जाये यही मेरा निवेदन है।

10. श्री राजकुमार सिंह, अकलतरा:–एनएच जो बन रहा है उसमें अमलीपाली ग्राम के जो युवा है। उसे योग्यता अनुसार कार्य करना चाह उनको प्राथमिकता दे। पेड़ काटकर उसे बंदरबाट किया जाता है वह न होने पाये पर्यावरण अधिकारी ध्यान दे।

11. पुन श्री किर्ती कुमार राजपूत, अमलपाली – रोड का निर्माण हो रहा है। इससे राज्य देश का विकास होगा। इसके हम समर्थक है। रोड बनने से वाहन के चलने से आसपास खेती प्रभावित होगा। उसका मुआवजा कैसे देंगे। हम किसान है हमको जो हानि होगा। उसका प्रतिवर्ष क्षतिपूर्ति कैसे करेंगे।

12. श्री हेमंत सिंह, चंदनिया :– मेरी जमीन है। कितना जा रहा है। उसका मापकर मुझे बताया जाये। मेरी गांव की सभी लोग की यही समस्या है। हमारी जीविका इसी से है। हमको उचित मुआवजा दिया जाये।

13. श्री रोहित कुमार, अंगारखार पंतोरा :– मेरा कहना है फोर लेन में जो जमीन निकल रहा है। वो मेरा है। हम तीन भाई है। जिसे मै बोता खाता हूं। जो निकल रहा है वो मेरा जमीन है। उसका राशि मेरे नाम से मिलना चाहिए। जो जमीन है उसका विभाजन किया जाये। मै उस ज़मीन को बहुत दिनों से बो–खा रहा हूं।

14. पुनः श्री खोरबहरा बनर्जी, हरदीविशाल :– हम लोग अपने जमीन को अपने मन से नहीं बेच रहे है। ये जमीन हमारी जा रही है। शासन से पैसा मिलेगा। हम उस पैसे के ब्याज से जीवन यापन करेंगे। उस पैसा का इन्कम टैक्स तो नहीं कटेगा, बताया जाये।

उपरोक्त वक्तव्यों के बाद अपर कलेक्टर तथा क्षेत्रीय अधिकारी द्वारा उपस्थित जन समुदाय से अपने विचार व्यक्त करने का अनुरोध किया गया किंतु जब कोई भी व्यक्ति अपने विचार व्यक्त करने हेतु उपस्थित नहीं हुआ तब लगभग 1.35 बजे अपर कलेक्टर द्वारा लोक सुनवाई के दौरान आये विभिन्न मुद्दों के निराकरण हेतु परियोजना प्रस्तावक को आमंत्रित किया गया।

परियोजना प्रस्तावक की ओर से श्री विमल कुमार, सहायक अभियंता, M/s National Highways Authority of India, Development of Bilaspur द्वारा जिला–बिलासपुर एवं जिला–जांजगीर–चांपा के Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Juction with NH-130 and NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattigarh (approx. 70.2 km) परियोजना के संबंध में लोक सुनवाई के दौरान उठाये गये मुख्य मुद्दों के निराकरण हेतु मौखिक रूप से उपस्थित जन समुदाय को अवगत कराया गया। लगभग 2.00 बजे अपर कलेक्टर द्वारा लोकसुनवाई सम्पन्न होने की घोषणा की गई।

लोकसुनवाई स्थल पर लिखित में 14 सुझाव/विचार/टीका–टिप्पणी एवं आपत्ति प्राप्त हुई। स्थल पर उपस्थित प्रत्येक व्यक्ति को आवेदक से परियोजना पर सूचना/स्पष्टीकरण प्राप्त करने का अवसर दिया गया। लोक सुनवाई के दौरान 14 व्यक्तियों के द्वारा मौखिक सुझाव/विचार/टीका–टिप्पणी एवं आपत्तियां अभिव्यक्त की गई, जिसे अभिलिखित किया गया। लोक सुनवाई में लगभग 200 व्यक्ति उपस्थित थे। उपस्थिति पत्रक पर कुल 52 व्यक्तियों द्वारा हस्ताक्षर किया गया। आयोजित लोक सुनवाई की वीडियोग्राफी एवं फोटोग्राफी कराई गई।

क्षेत्रीय अधिकारी
छ.ग. पर्यावरण संरक्षण मंडल,
बिलासपुर

अपर कलेक्टर
जिला–जांजगीर–चांपा

अंतर्गत–6.11

कार्यवाही विवरण

M/s National Highways Authority of India द्वारा जिला–बिलासपुर एवं जिला–जांजगीर–चांपा के Development of Bilaspur Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Junction with NH-130 and NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattigarh (approx. 70.2 km) के लिए पर्यावरणीय स्वीकृति बाबत् दिनांक 06/03/2019 दिन–बुधवार, समय–11:00 बजे, स्थान– राधा–स्वामी आश्रम के पास खाली मैदान पर, ग्राम–ढेका, तहसील व जिला–बिलासपुर (छ.ग.) में आयोजित लोकसुनवाई का कार्यवाही विवरण :–

भारत शासन पर्यावरण वन एव जलवायु परिवर्तन मंत्रालय, नई दिल्ली की ई.आई.ए. नोटिफिकेशन 14.09.2006 के अंतर्गत M/s National Highways Authority of India द्वारा जिला–बिलासपुर एवं जिला–जांजगीर–चांपा के Development of Bilaspur Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Junction with NH-130 and NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattigarh (approx. 70.2 km) के लिए पर्यावरणीय स्वीकृति के संबंध में लोक सुनवाई हेतु उद्योग के आवेदन के परिप्रेक्ष्य में स्थानीय समाचार पत्र दैनिक भास्कर, बिलासपुर में दिनांक 03.02.2019 के अंक में तथा राष्ट्रीय समाचार पत्र हिन्दुस्तान टाईम्स, नई दिल्ली में दिनांक 04.02.2019 के अंक में लोक सुनवाई संबंधी सूचना प्रकाशित करवाई गई थी। तदानुसार लोक सुनवाई दिनांक 06/03/2019 दिन–बुधवार, समय–11:00 बजे, अतिरिक्त जिला दण्डाधिकारी, बिलासपुर की अध्यक्षता में स्थान– राधा–स्वामी आश्रम के पास खाली मैदान पर, ग्राम–ढेका, तहसील व जिला–बिलासपुर (छ.ग.) में आयोजित की गई। ई.आई.ए. अधिसूचना 14.09.2006 के प्रावधानों के अनुसार ड्राफ्ट ई.आई.ए. रिपोर्ट एव कार्यपालक सार की प्रति एवं इसकी सी.डी. जन सामान्य के अवलोकन हेतु कार्यालय कलेक्टर जिला–बिलासपुर, जिला पंचायत कार्यालय, बिलासपुर, जिला व्यापार एवं उद्योग केन्द्र कार्यालय, जिला–बिलासपुर, क्षेत्रीय कार्यालय, छत्तीसगढ़ पर्यावरण संरक्षण मंडल, बिलासपुर, कार्यालय ग्राम पंचायत ढेका, कार्यालय ग्राम पंचायत करी, कार्यालय ग्राम पंचायत निमतरा कार्यालय ग्राम पंचायत गतौरा, कार्यालय ग्राम पंचायत परसदा, कार्यालय ग्राम पंचायत भिलाई, कार्यालय ग्राम पंचायत रलिया, कार्यालय ग्राम पंचायत कछार, कार्यालय ग्राम पंचायत हरदाडीह, कार्यालय ग्राम पंचायत एरमसाही, कार्यालय ग्राम पंचायत नवागांव, कार्यालय ग्राम पंचायत मुड़पार, जिला–बिलासपुर (छ.ग.), डायरेक्टर पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, इंदिरा पर्यावरण भवन, जोरबाग रोड, नई दिल्ली, मुख्य वन संरक्षक, क्षेत्रीय कार्यालय (डब्लू.सी.जेड.) पर्यावरण, वन एव जलवायु परिवर्तन मंत्रालय, भारत सरकार, ग्राऊण्ड फ्लोर ईस्ट विंग,

न्यू सैक्रेटरियेट बिल्डिंग, सिविल लाईन्स, नागपुर (महाराष्ट्र), मुख्यालय छत्तीसगढ़ पर्यावरण संरक्षण मंडल, पर्यावास भवन, नार्थ ब्लॉक, सेक्टर–19, नया रायपुर (छ.ग.) में रखी गई थी। उक्त परियोजना के संबंध में सुझाव, विचार, टीका–टिप्पणियां एवं आपत्तियां इस सूचना के जारी होने के दिनांक से 30 दिन के अंदर क्षेत्रीय कार्यालय, छत्तीसगढ़ पर्यावरण संरक्षण मंडल, पं. दीनदयाल उपाध्याय पार्क के पास, व्यापार विहार, जिला–बिलासपुर में मौखिक अथवा लिखित रूप से कार्यालयीन समय में प्रस्तुत करने हेतु आमंत्रित किया गया था। लोक सुनवाई की निर्धारित तिथि तक क्षेत्रीय कार्यालय, छ.ग. पर्यावरण संरक्षण मंडल, पं. दीनदयाल उपाध्याय पार्क के पास, व्यापार विहार, जिला–बिलासपुर में मौखिक अथवा लिखित रूप से उक्त परियोजना के संबंध में कोई पत्र प्राप्त नहीं हुआ है।

लोक सुनवाई हेतु निर्धारित तिथि दिनांक 06/03/2019 दिन–बुधवार, समय–11:00 बजे, अतिरिक्त जिला दण्डाधिकारी, जिला–बिलासपुर की अध्यक्षता में स्थान– राधा–स्वामी आश्रम के पास खाली मैदान पर, ग्राम–ढेका, तहसील व जिला–बिलासपुर (छ.ग.) में लोक सुनवाई की कार्यवाही आरंभ की गई।

सर्वप्रथम श्री बी. एस. उइके, अतिरिक्त जिला दण्डाधिकारी, जिला–बिलासपुर द्वारा लोक सुनवाई की कार्यवाही आरंभ करने की अनुमति के साथ क्षेत्रीय अधिकारी, छत्तीसगढ़ पर्यावरण संरक्षण मंडल, बिलासपुर द्वारा भारत शासन, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, नई दिल्ली द्वारा जारी ई.आई.ए. नोटिफिकेशन 14.09.2006 के परिपेक्ष्य में लोक सुनवाई के महत्व एवं प्रकिया के संबंध में विस्तृत जानकारी जनसामान्य को दी गई।

तत्पश्चात् परियोजना प्रस्तावक की ओर से श्री भूपेन्द्र मानशेता, परियोजना प्रभारी, एवं श्री अनूप चौधरी, M/s National Highways Authority of India द्वारा जिला–बिलासपुर एवं जिला–जांजगीर–चांपा के Development of Bilaspur Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Junction with NH-130 and NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattigarh (approx. 70.2 km) परियोजना के संबंध में संक्षिप्त जानकारी जनसामान्य को दी गई।

अपर कलेक्टर द्वारा उपस्थित जनसमुदाय को जनसुनवाई संबंधी विषय पर अपने सुझाव, आपत्ति, विचार, टीका–टिप्पणी मौखिक अथवा लिखित रूप से प्रस्तुत करने हेतु आमंत्रित किया गया।

तत्पश्चात उपस्थित लोगों ने मौखिक रूप से सुझाव, विचार, टीका–टिप्पणियां दर्ज कराया। जिसका विवरण निम्नानुसार है :–

1. **श्री श्यामलाल पटेल, ग्राम–भिलाई** :– दावा आपत्ति कहा पहुचाना था कैसे पहुचाना था हम नहीं जानते । हम किसान आदमी हैं। ग्राम भिलाई रलिया एवं गतौरा के मध्य स्थित है। गतौरा का मुआवजा राशि 12 लाख प्रति एकड़ जबकि भिलाई का 4 लाख है। इन दोनों का मुआवजा राशि समकक्ष किया जाये। कृपया ध्यान में रखते हुए गौर कीजिए। जब तक हमारा मुआवजा राशि तय नहीं हो जाता है तब हम अपनी जमीन नापने नहीं देंगे। पुनः नाप कराई जाये और जो भी राशि में अंतर है उसे समकक्ष कराई जाये।

2. **श्री खेम आनंद सिंह, लिमतरा** :– गतौरा और लिमतरा का मुआवजे में तीन गुना का अंतर है। जबकि दोनों लगे हुए गांव है। हमारे द्वारा तहसील में आवेदन दिया गया है। उसकी पावती हमारे पास है। हम लोग किसान आदमी है।

3. **श्री मनीष कुमार, ढेका** :– रोड में जो पेड़ कट रहे हैं उनका फिर से प्लांटेशन करेंगे। पूर्व में काटे गये पेड़ के बदले छोटे–छोटे फूल लगाये हैं। दस गुना पेड़ लगायेंगे बोले थे किन्तु केवल बड़े पेड़ की जगह छोटे फूल ही लगाये हैं तो केवल खानापूर्ति के लिए फूल लगायेंगे क्या ?

4. **श्री संतोष कुमार पात्रे, रलिया** :– मैं जानना चाहता हूं कि हमारे जमीन का अधिग्रहण कर रहे हैं, मुआवजा राशि प्रति एकड़ कितना देंगे ?

5. **श्री जितेन्द्र सिंह** :– मेरी यहां जमीन भी जा रही है यहा एक जंक्शन भी बन रहा था उसमें हमारा भी जमीन आ रही थी। मैं जानना चाह रहा हूं कि क्या वो जंक्शन बन रहा है कि नहीं। मुझे बताया गया कि यह जंक्शन नहीं बनने वाला है। यदि इस परियोजना पर रोक लग रहा है वह ठीक नहीं है। इस संबंध में मुझे वस्तुस्थिति की जानकारी चाहिए। यहां के गांव का लगभग 100 एकड़ का जमीन है यहां उस जमीन को न कोई खरीद नहीं सकता है और न ही बेच सकता है। यहा सड़क परियोजना पर रोक नहीं लगाना चाहिए। यहां विकास भी होगा। उसको कैंसिल नहीं होना चाहिए। संबंधित मुझे इसका जवाब दीजिए।

6. **श्री लखन टंडन, लिमतरा** :– दर्रीघाट, लिमतरा और गतौरा तीनों का जमीन का रेट अलग अलग क्यों? इसी रोड में किसी को चार गुना और किसी को दो गुना दिया गया है। जनता वही है और रोड भी वही है। सभी का रेट एक होना चाहिए।

7. **श्री परमानंद पटेल, लिमतरा** :– जो फोरलेन सडक जा रहा है इसमें मेरा दोफसली जमीन जा रही है जिसमें कुआ, ट्यूबवेल जमीन से लगा वृक्ष है उसका क्या प्रावधान है ? बताने का कृपा करें।

8. **मो. इलियास, कर्रा** :– जो जमीन हमारी कर्रा में है सड़क निर्माण में गयी है इसकी मुआवजा राशि का पता नहीं है उसकी जानकारी जल्द से जल्द दी जाये। 18 हेक्टेयर राजस्व भूमि है इसकी मुआवजा कितना मिलेगी। कितनी जमीन बची है हमे बतायें। हमारी जमीन को पूरा प्लेन कर दिया है इसको भी हमें बतायें।

9. श्री बलराम राठौर, लिमतरा :– हमारे जमीन को चिन्हांकित तो किया गया है परन्तु अभी तक प्रकाशन में नाम नहीं आया है। खंभा गाड़ दिया गया है ये बतायें कि इसे लिया है या नहीं इस संबंध में जानकारी दी जाये। मुआवजा के संबंध में जानकारी सक्षम अधिकारी द्वारा दी जाये। बिना किसी भी परेशानी के हमको मुआवजा दिया जाये।

10. श्री मुकेश कुमार पटेल, :– नेशनल हाईवे में हमारी जमीन भी आ रहा है। पटवारी को बोला गया था कि हमारी निजि जमीन में ट्यूबवेल है। उनके द्वारा बाद में जोड़ेंगे बाला गया था । उसे नहीं जोड़ा गया है। जमीन का मुआवजा दिया जाये। ऐरमसाही और हरदाडीह दोनों का मुआवजा राशि ऐरमसाही के हिसाब से दिया जाये।

11. श्री भागवत प्रसाद पटेल, परसाही :– ग्राम मुड़पार में मेरा जमीन है जमीन में ट्यूबवेल लगा है उसका क्या रेट मिलेगा यह जानना चाहता हूं।

12. श्री योगेन्द्र सिंह ठाकुर, लिमतरा :– जमीन का सर्वे का बहुत दिन से हो रहा है इसमें किसान फसे हुए हैं। आवेदन कहीं दे दिया जाता है आज तक पहुचा दिया गया है। किसका जमीन निकला है उसे फिर से पेपर में दिया जाये। आप लोग नहीं कर सकते तो किसान क्या करेगा। वे लोग कुछ कर नहीं पा रहे हैं बेचारे। मौसम भी खराब दिख रहा है बारह महिने पानी गिर रहा है।

13. श्री भागवत प्रसाद सूर्यवंशी, भिलाई :– मेरे दादी का जमीन को पटवारी ने नाप जोप किया । जमीन एक एकड़ है। नापने से इस जमीन का रकबा मेरे तरफ ज्यादा छूट गया है उसका सही नाप करके उचित हिसाब से लिया जाये। शासन फिर से नापने के लिए आदेश किया जाये। मेरा जमीन गवौरा एरिया में आता है लगभग वह जमीन 18 डिसमिल है जिसका लगभग दो या तीन डिसमिल छूट रहा है वह जमीन खेती के लायक है और वह जमीन रोड के चपेट में आ जायेगा। मेरा जमीन को पूरा लिया जाये।

14. श्री नाथूराम कैवर्त, हरदाडीह :– जो नेशनल हाइवे प्रोजेक्ट है उसमें मेरा जमीन जा रही है उसका रेट मैं जानना चाहता हूं। रलिया से हरदाडीह से में जो जमीन है उसके मुआवजा में जो डिफरेंस है वो सेम होना चाहिए।

15. श्री चंदन पटेल, भिलाई :– हमारे गांव का जो जमनी वह बहुत ही उपजाऊ जमीन है। जो नहर खुलेगा खूटाघाट का हमारे जमीन में पानी आयेगा। हमारे जो भिलाई में जमीन है उसमें पशु द्वारा जो नुकसान हो रहा है तो हमे समस्या हो जायेगी। हमारी जमीन का भौतिक सत्यापन नहीं हुआ है। इसलिए हम लो पूरी तरह से असहमत है। हम किसानों के समक्ष आकर पूरी तरह स्पष्टीकरण किया जाये। फैक्टी रोड बनाना सही है लेकिन कृषि भूमि को नुकसान करते हुए विकास नहीं किया जाता है। हमको जानकारी दे। हम अपनी जान भी दे सकते हैं।

16. श्री मनीष घोरे, सरपंच ढेका :– यहां जो नेशनल हाईवे का जक्शन बनने वाला है। इस वजह से जमीन की खरीदी नहीं हो रही है। हम जानना चाहते है कि जक्शन बनेगा कि नहीं बनेगा। यहां विकास होगा, गावे के लोग आस में है कि उनको मुआवजा मिलेगा तो अपने बच्चों की शादी करेंगे। इसके विषय में हम जानना चाहते हैं बनना है या नहीं बनना है उसकी सच्चाई लोगों के सामने आये।

17. श्री श्याम लाल मरकाम, नवागांव :– गतौरा और भिलाई को जो रेट वह हमारे गांव के जमीन का उचित रेट दिया जाये। गांव के जमीन को जो जमीन गया है उसका पटवारी के माध्यम से नपवाने की कृपा करें।

18. श्री चंदरान खाण्डे, गतौरा :– मेरे भाई का खेत 80 डिसमिल है। दो गुना निकल गया है एक गुना बचना चाहिए। हमारे जमीन को दुबारा नापा जाये। हमारे 4 डिसमिल जमीन में कुछ बच रहा है उसका निराकरण किया जाये।

19. श्री रतनलाल कुर्रे, गतौरा :– जो जमीन निकल रहा है फोरलेन के लिए उसके पहले पुनर्वास की व्यवस्था की जाये। इसमें भी पुनर्वास का नियम लागू होना चाहिए। रोजगार की व्यवस्था को भी ध्यान में रखा जाये। हमारी कृषि भूमि चले जाने हमे रोजगार का भी समस्या है।

20. श्री रामचरण वस्त्रकार, नवागांव :– हम लोगों को अभी तक कुछ नहीं मालूम है अतः हमें जानकारी देने का कष्ट करें।

21. श्री कुसान भाई, किसान परसदा :– गतौरा से लगा हुआ है तो हमारे गांव का रेट गतौरा से कम है। अतः हमारे गांव का रेट भी गतौरा के समान दिया जाये।

22. श्री सौरभ मौर्य, ढेका :– हमारे गांव में जो जमीन को पटवारी साहब नापा जा रहा है तो उसमें नापने का पैसा दिया जाता है क्या ? इसको बारे में बताया जाये। पटवारी के तरफ से पैसे का डिमांड किया जाता है।

उपरोक्त वक्तव्यों के बाद अपर कलेक्टर तथा क्षेत्रीय अधिकारी द्वारा उपस्थित जन समुदाय से अपने विचार व्यक्त करने का अनुरोध किया गया किंतु जब कोई भी व्यक्ति अपने विचार व्यक्त करने हेतु उपस्थित नहीं हुआ तब लगभग 01:38 बजे अतिरिक्त जिला दण्डाधिकारी, जिला–बिलासपुर द्वारा लोक सुनवाई के दौरान आये विभिन्न मुददों के निराकरण हेतु परियोजना प्रस्तावक को आमंत्रित किया गया।

परियोजना प्रस्तावक के द्वारा उठाये गये मुददों का जवाब देते समय 08–10 लोगों द्वारा एक साथ पेड़ कटाई के विरूद्ध रोपे गये फूल के संबंध में हो–हल्ला होने लगी। पेड़ वाले का जवाब दोगे तब आगे बढ़ोगे। परियोजना प्रस्तावक द्वारा पेड़ लगाये जायेंगे। उपस्थित जन समुदाय में 08–10 लोगों द्वारा पुनः सामूहिक रूप से पेड़ लगाये जाने के संबंध में हो–हल्ला किया जाने लगा। एक पेड़ के बदले कम से कम 10 पेड़ लगाईये। उसकी सुरक्षा की जिम्मेदारी भी लिया जाये। हम लोग कोई विरोध नहीं कर रहे हैं। जो पुराने पेड़ कटे हैं उसके विरूद्ध पेड़ लगाना ही होगा। पैड़ के बदले पेड़ ही लगेंगे। परियोजना प्रस्तावक द्वारा कहा गया कि – "सक्षम प्राधिकारी बिलासपुर द्वारा मुआवजे की निर्धारित राशि निर्धारित की गई है उसके अनुसार ही राशि का मुआवजा दिया जायेगा।"

परियोजना प्रस्तावक की ओर से श्री विमल कुमार, सहायक अभियंता, M/s National Highways Authority of India द्वारा जिला–बिलासपुर एवं जिला–जांजगीर–चांपा के Development of Bilaspur Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) Start at Juction with NH-130 and NH-130A, near Nehru Chowk, Bilaspur and terminate at junction with NH-149B & SH-4 near Urga in the state of Chhattigarh (approx. 70.2 km) परियोजना के संबंध में लोक सुनवाई के दौरान उठाये गये मुख्य मुद्दों के निराकरण हेतु मौखिक रूप से उपस्थित जन समुदाय को अवगत कराया गया। अपरान्ह लगभग 2:00 बजे अतिरिक्त जिला दण्डाधिकारी, जिला–बिलासपुर द्वारा लोकसुनवाई सम्पन्न होने की घोषणा की गई।

लोकसुनवाई स्थल पर लिखित में 57 सुझाव/विचार/टीका–टिप्पणी एवं आपत्ति प्राप्त हुई। स्थल पर उपस्थित प्रत्येक व्यक्ति को आवेदक से परियोजना पर सूचना/स्पष्टीकरण प्राप्त करने का अवसर दिया गया। लोक सुनवाई के दौरान 22 व्यक्तियों के द्वारा मौखिक सुझाव/विचार/ टीका–टिप्पणी एवं आपत्तियां अभिव्यक्त की गई, जिसे अभिलिखित किया गया। लोक सुनवाई में लगभग 300 व्यक्ति उपस्थित थे। उपस्थिति पत्रक पर कुल 94 व्यक्तियों द्वारा हस्ताक्षर किया गया। आयोजित लोक सुनवाई की वीडियोग्राफी एवं फोटोग्राफी कराई गई।

क्षेत्रीय अधिकारी
छ.ग. पर्यावरण संरक्षण मंडल,
बिलासपुर

अतिरिक्त जिला दण्डाधिकारी
जिला–बिलासपुर

भारत सरकार के पर्यावरण एवं वन मंत्रालय, नई दिल्ली द्वारा जारी अधिसूचना कमांक का.आ. 1533(अ), दिनांक 14 सितंबर 2006 के प्रावधानों के तहत् भारतीय राष्ट्रीय राजमार्ग (सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार) के जिला–कोरबा में प्रस्तावित राजमार्ग निर्माण Development of Bilaspur-Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) start at Junction with NH-130 & NH-130A, near Nehru Chouk, Bilaspur and terminate at junction with NH-149B & SH-4 near urga in the State of Chhattisgarh(approx 70.2 km) के पर्यावरणीय स्वीकृति हेतु लोक सुनवाई दिनांक 05.07.2019, दिन–शुकवार, स्थल–शासकीय हाईस्कूल, ग्राम–तरदा, तहसील–करतला, जिला–कोरबा के परिसर में आयोजित लोक सुनवाई का कार्यवाही विवरण निम्नानुसार है:–

भारत सरकार के पर्यावरण एवं वन मंत्रालय, नई दिल्ली द्वारा जारी अधिसूचना कमांक का.आ. 1533(अ), दिनांक 14 सितंबर 2006 के प्रावधानों के तहत् भारतीय राष्ट्रीय राजमार्ग (सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार) के जिला–कोरबा में प्रस्तावित राजमार्ग निर्माण Development of Bilaspur-Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) start at Junction with NH-130 & NH-130A, near Nehru Chouk, Bilaspur and terminate at junction with NH-149B & SH-4 near urga in the State of Chhattisgarh(approx 70.2 km) के पर्यावरणीय स्वीकृति के संबंध में सदस्य सचिव, छ.ग.पर्यावरण संरक्षण मंडल, मुख्यालय, रायपुर, अपर कलेक्टर कोरबा की अध्यक्षता में एवं क्षेत्रीय अधिकारी, छ.ग. पर्यावरण संरक्षण मंडल, कोरबा की उपस्थिति में दिनांक 05.07.2019 दिन–शुकवार, स्थल–शासकीय हाईस्कूल, ग्राम–तरदा, तहसील–करतला, जिला–कोरबा के परिसर में प्रातः 11:00 बजे लोक सुनवाई प्रारंभ हुई।

सर्वप्रथम श्री नरेन्द्र सिंह , परियोजना निदेशक, द्वारा भारतमाला परियोजना के तहत् बिलासपुर उरगा सेक्शन–एन.एच.–130A (रायपुर, धनबाद,

इकनोमिक कॉरिडोर) संबंध में पर्यावरण प्रभाव आकलन प्रतिवेदन (ड्राफ्ट ई.आई.ए. रिपोर्ट) के कार्यपालिक सार का प्रस्तुतीकरण उपस्थित जन समुदाय के समक्ष किया गया।

भारतीय राष्ट्रीय राजमार्ग (सड़क परिवहन और राजमार्ग मंत्रालय, भारत सरकार) के जिला–कोरबा में प्रस्तावित राजमार्ग निर्माण Development of Bilaspur-Urga section of NH-130A (Raipur-Dhanbad Economic Corridor) start at Junction with NH-130 & NH-130A, near Nehru Chouk, Bilaspur and terminate at junction with NH-149B & SH-4 near urga in the State of Chhattisgarh(approx 70.2 km) के पर्यावरणीय स्वीकृति प्राप्त करने बाबत् लोक सुनवाई के संबंध में लोक सुनवाई सूचना प्रकाशन तिथि से दिनांक 04.07.2019 तक क्षेत्रीय कार्यालय, छ.ग. पर्यावरण संरक्षण मंडल, कोरबा में लिखित एवं मौखिक में कोई भी चिंताएँ/ सुझाव/ विचार/ टीका–टिप्पणी एवं आपत्तियाँ प्राप्त नहीं हुई है। दिनांक 05.07.2019 को आयोजित लोक सुनवाई के दौरान लिखित में 31 चिंताएँ/सुझाव/विचार/ टीका–टिप्पणी एवं आपत्तियाँ प्राप्त हुईं। इस प्रकार लिखित में कुल 31 चिंताएँ/सुझाव/विचार /टीका–टिप्पणी एवं आपत्तियों के संबंध में आवेदन प्राप्त हुये। स्थल पर उपस्थित प्रत्येक व्यक्ति को परियोजना के संबंध में सूचना/स्पष्टीकरण प्राप्त करने का अवसर दिया गया। लोक सुनवाई के दौरान 28 व्यक्तियों के द्वारा मौखिक रूप से चिंताएँ/सुझाव/विचार/ टीका–टिप्पणी एवं आपत्तियाँ अभिव्यक्त की गईं। लोक सुनवाई के दौरान मौखिक रूप से अभिव्यक्त चिंताओं/सुझाव/विचार/टीका/टिप्पणी एवं आपत्तियों आदि को सुनकर अभिलिखित किया गया। लोक सुनवाई के दौरान लगभग 250–300 व्यक्ति उपस्थित थे। जिसमें से 135 व्यक्तियों द्वारा उपस्थिति पत्रक में हस्ताक्षर किये गये।

लोक सुनवाई में मौखिक रुप से निम्नलिखित व्यक्तियों द्वारा चिंताओं/सुझाव/विचार/टीका–टिप्पणी एवं आपत्तियाँ की गई :–

1. **श्री ओमप्रकाश साहू, ग्राम–गुमिया, तहसील–करतला, जिला–कोरबा –**
ग्राम गुमियां में जहॉ रोड कासिंग हो रही है वहां गांव वालों को रोड कासिंग के लिए क्या सुविधा होगी।

2. **श्री द्ववास राम पटेल, ग्राम–कुदुरमाल, तहसील–करतला जिला–कोरबा –**
जो जमीन अधिग्रहित हो रहा है, उसका मुआवजा कब तक मिलेगा।

3. **श्री तूल सिंह कंवर, ग्राम–भैसाम, तहसील–करतला, जिला–कोरबा –**
जो जमीन अधिग्रहित की गई है, उसका तो प्रकाशन हुआ है लेकिन बाद में जो सड़क के दोनों ओर 5–5 मीटर अतिरिक्त जमीन अधिग्रहित की गई है, उसे सम्मिलित कर लिया गया है कि नहीं। सीतापाली ग्राम– 0.142 हेक्टेयर अधिग्रहित हुई है, जो शेष जमीन बची है उसका अधिग्रहण क्यो नहीं दिया जा रहा है। मेड़ पर लगे पेड़ का मेजेरमेंट हुआ है कि नहीं बताएं।

4. **श्रीमती शांति बाई, ग्राम–तरदा, तहसील–करतला, जिला–कोरबा –**
मेरी जमीन को मंगली बाई, पति– लच्छन सिंह ने ले लिया है। मेरा नाम खातम में था । मेरे पिता का नाम इतवार दास है। कृपया मुझे मुआवजा मिलना चाहिए। उसमें पेड़–पौधा है। 37 डिसमिल जमीन मेरे नाम पर है, मुझे मुआवजा दिया जाए।

5. **श्री निर्मल कौशिक, ग्राम–तरदा, तहसील–करतला, जिला–कोरबा –**
जमीन अधिग्रहण के दौरान हमारे पेड़–पौधे कट जायेंगे, तो क्या हमारे लिए फलदार पेड़–पौधे लगाए जाएंगे या सिर्फ मुआवजा ही मिलेगा।

6. **श्रीमती राम बाई, ग्राम–तरदा, तहसील–करतला जिला–कोरबा –**
मै खेत को बेची हूॅ और टिकरा जमीन को शंकर लाल यादव(कोरबा) के द्वारा खरीदा गया है। मेरे को मुआवजा मिलना चाहिए।

7. **श्रीमती बुधकुंवर, ग्राम–तरदा, तहसील–करतला, जिला–कोरबा–**

जो जमीन अधिग्रहित की गई है उसमें से 35 डिसमिल जमीन मरे पिता भजनदास के नाम पर है, इसलिए मुझे मुआवजा मिलना चाहिए।

8. **श्री संतोष कुमार पटेल, ग्राम–चैनपुर, तहसील–करतला,जिला–कोरबा –**

हमारी जमीन जिस पर मेरे पूर्वजों का नाम है और उसे हम अभी भी बुवाई कर रहे है, लेकिन हमें पता चला है कि वो जमीन दूसरे के नाम चली गई है, हमे मुआवजा मिलना चाहिए।

9. **श्री धनीराम भार्गव, ग्राम–गुमिया, तहसील–करतला, जिला–कोरबा –**

मेरा जमीन अधिग्रहित हुआ है, लेकिन प्रकाशन नहीं हुआ है। जमीन मं 4 पेड़ भी है, उसका मुआवजा मिलेगा कि नहीं ।

10. **श्री गंगा प्रसाद आदिले,ग्राम–गुमिया, तहसील–करतला,जिला–कोरबा –**

मेरा जमीन भारतमाला प्रोजेक्ट में अधिग्रहित की गई है, लेकिन प्रकाशन नहीं हुआ है, प्रकाशन किया जाए।

11. **श्री हया खान, ग्राम–जुनवानी, तहसील–करतला, जिला–कोरबा –**

मैने घर बनाने के लिए जमीन ली थी, जो नेशनल हाईवे में चला गया। मुझे घर बनाने के लिए जमीन दिया जाए।

12. **श्री ओमप्रकाश रजवाड़े, ग्राम–पथरीमाल, तहसील–करतला जिला–कोरबा –**

मेरी जमीन राजमार्ग मे अधिग्रहित की गई है, लेकिन अभी तक यह नही बताया गया है कि कितना मुआवजा दिया जाएगा।

13. **श्री सईद मोहम्मद, ग्राम–जुनवानी, तहसील–करतला,जिला–कोरबा –**

अधिग्रति जमीन में बड़ी मुश्किल से 400 फीट में पानी मिला है, यहां भूमिगत जल की समस्या विकट है, इसलिए मुझे अन्यत्र पानी की व्यवस्था प्रदान करें।

साथ ही तालाब भी पट रहा है, इसलिए निस्तारी हेतु पानी की अतिरिक्त व्यवस्था की जाए।

14. **श्री द्वारिका प्रसाद जायसवाल, ग्राम–जुनवानी, तहसील–करतला, जिला–कोरबा –**

मैने जमीन अपने बेटे के लिए घर बनाने के लिए जमीन ली थी, इसलिए मुझे निजी जमीन के बराबर मुआवजा मिलना चाहिए।

15. **श्री इस्माईल खान, ग्राम–जुनवानी, तहसील–करतला,जिला–कोरबा –**

मेरी 6 डिसमिल जमीन और घर रोड में निकल रहा है, मेरे पास और कोई जमीन नहीं है, इसलिए मेरे लिए विशेष व्यवस्था की जाए।

16. **श्री समन सिंह कंवर, ग्राम–भैसमा, तहसील–करतला, जिला–कोरबा–**

मुझे घर के लिए एवं कुऑ के लिए मुआवजा दिया जाए।

17. **श्रीमती चन्दर बाई यादव, ग्राम–जुनवानी, तहसील–करतला, जिला–कोरबा –**

मेरी जमीन रोड में है, जिस पर घर, कुऑ भी है, जो कि आदिवासी जमीन है, उसका मुआवजा दिया जाए।

18. **श्री पुरषोत्तम कंवर, ग्राम–जुनवानी, तहसील–करतला, जिला–कोरबा –**

मैं सरपंच जुनवानी का हूॅ। सड़क के कारण धूल डस्ट होता है, अतः सामुदायिक भवन, बोर, आदि कराया जाए।

19. **श्री राहूल बघेल, ग्राम–बगबुड़ा, तहसील–करतला, जिला–कोरबा–**

नेशनल हाईवे के किनारे रोड पर पेड़ लगवाए जाए, पर्यावरण प्रदूषण ना हो, इसका जवाब दिया जाए।

20. **श्री शिवनारायण राजवाड़े, ग्राम–कथरीमाल,तहसील–करतला जिला–कोरबा –**

नेशनल हाईवे में हमारा 6 एकड़ जमीन जा रहा है, इसलिए हमें मुआवजा के साथ नौकरी एवं रहने के लिए घर की व्यवस्था की जाए।

21. **श्री मनहरण लाल पटेल, त्रग्राम–तरदा, तहसील–करतला, जिला–कोरबा –**

अधिग्रहण में हमारा घर, कुऑ, कोठार जा रहा है, इसलिए हमें मुआवजा के साथ नौकरी एवं रहने के लिए घर की व्यवस्था की जाए।

22. **श्री नंदकिशोर साहू, ग्राम–चैनपुर, तहसील–करतला,जिला–कोरबा –**

अधिग्रहित जमीन मेरे दादाजी के नाम पर है, वो खत्म हो गए है, मेरे पिताजी भी जीवित नहीं है, इसलिए मुआवजा मेरी मॉ दुखा बाई साहू के नाम पर आनी चाहिए।

23. **श्री आर मिंज, ग्राम–नकटीखार, तहसील–कोरबा, जिला–कोरबा –**

मेरी जमीन भैसमा में है, जो मेरी पत्नी के नाम पर है, 50 डिसमिल जमीन के लिए कितना मुआवजा मिलेगा।

24. **जीवन लाल राजवाड़े,ग्राम–कथरीमाल,तहसील–करतला,जिला–कोरबा –**

राजमार्ग के तहत हम लोगों की बहुत ज्यादा जमीन निकल रही है। खेत एवं तालाबों में बड़े पौधे निकल रहे है, तालाब, गॉव के लोगों के निस्तारी का मुख्य साधन है। सड़क बनने से पेड़ कटेंगे, तालाब प्रदूषित होगा, वाहन चलने से भी प्रदूषण होगा, जिससे बीमारी बढ़ेगी। सड़के के किनारे 1 या 2 डिसमिल जमीन बचेगी। उसका भी मुआवजा दिया जाए। कितना मुआवजा मिलेगा ये भी बताएँ। हमारी तालाब वाली जमीन जो हमोर जीवन यापन का साधन था, इसलिए हमारे परिवार के सदस्यों को नौकरी दी जाए।

25. **श्री सईद मोहम्मद, ग्राम–जुनवानी, तहसील–करतला, जिला–कोरबा –** हाईवे जुनवानी और भैसमा के बीच से जा रही है, जिससे वायु प्रदूषण एवं ध्वनि प्रदूषण होन की संभावना है, इसलिए रोड को गांव के बाहर की ओर डाइवर्ट किया जाए।

26. **श्री बलराम बंजारे, ग्राम–अखरापाली,तहसील–करतला, जिला–कोरबा –** अधिग्रहित जमीन के बगल में कुऑ है, राजमार्ग बनने से कुऑ का पानी प्रदूषित होगा। इसलिए हमें कुऑ के लिए मुआवजा दिया जाए। अधिग्रहित जमीन में 300 सौगोन के पेड़ है, इसके लिए भी मुआवजा दिया जाए।

27. **श्री आशुतोष कौशिक, ग्राम–तरदा, तहसील–करतला, जिला–कोरबा –** भारतमाला रोड ग्राम–परसाभांठा के बगल से जा रहा है, जिससे वायू प्रदूषण बढ़ने की संभावना है, इसलिए रोड को गांव से 200–250 मीटर दूर से निकालना चाहिए।

28. **श्री अरूण कुमार बंजारे, ग्राम–अखरापाली, तहसील–करतला, जिला–कोरबा –**

नहर किनारे हमारा घर है, जहॉ गुरूघासीदास जी का जैतखम्भ भी पड़ता है, इसलिए रोड को ग्राम से बाहर की ओर निकाला जाए ताकि घर और जैतखम्भ भी बच जाए।

लोक सुनवाई के पूर्व एवं लोक सुनवाई के दौरान लिखित रुप से निम्नानुसार चिंताओं/सुझाव/विचार/ टीका–टिप्पणी एवं आपत्तियाँ प्राप्त हुई है:–

1. **श्री जगदीश प्रसाद कौशिक, ग्राम–तरदा, तहसील–करतला,जिला–कोरबा –**
ग्राम –तरदा की भूमि जिसका खसरा नंबर–439/2, 439/3, 439/4 है का पुनः सर्वेक्षण करवाने की कृपा करें। उक्त खसरा नंबर भारतमाला रोड में अर्जित हो रही है।

2. **श्री हेतराम पटेल, ग्राम–तरदा, तहसील–करतला, जिला–कोरबा–**
मेरी 94 डिसमिल जमीन में से 58 डिसमिल जमीन भारत माला परियोजना में आ रही है, जो चार बंटवारा हो चुका है, मुझे 14 डिसमिल जमीन मिला है। इसके अलावा मेरे पास जमीन नहीं है। मेरे घर की आर्थिक स्थिति ठीक नहीं है। मै और मेरी पत्नी दोनों स्नातक एवं स्नातकोत्तर है। नौकरी चाहिए। कृपया मार्गदर्शन देने का कष्ट करें।

3. **श्री धनीराम, ग्राम–गुमिया, तहसील–करतला, जिला–कोरबा**
रोड चौडीकरण करने, भूमि अधिग्रहण कर, राजपत्र में प्रकाशित नहीं होने पर आपत्ति।

4. **श्री गंगा प्रसाद, ग्राम–गुमिया, तहसील–करतला, जिला–कोरबा –**
रोड चौडीकरण करने, भूमि अधिग्रहण कर, राजपत्र में प्रकाशित नहीं होने पर आपत्ति।

5. **श्री हर प्रसाद, ग्राम–गुमिया, तहसील–करतला, जिला–कोरबा**
ग्राम गुमिया, प.ह.नं.–01, के खाता धारक हर प्रसाद, पिता धीरसाय के नाम से भूमि है। जिसका खाता गुम हो गया है, उसका दूसरा खाता बनाया जाए।

6. **श्री व्यास नारायण कुर्मी एवं अन्य, ग्राम–तरदा, तहसील–करतला, जिला–कोरबा**
तालाब एवं खेतीहर भूमि तथा वृक्ष का उचित मुआवजा देने हेतु।

7. **श्रीमती अगहन बाई कंवर एवं अन्य, ग्राम– तरदा, तहसील–करतला जिला–कोरबा –**
राष्ट्रीय राजमार्ग में अधिग्रहित भूमि का मुआवजा प्रदाय करने बाबत।

8. **श्री रामनारायण राजवाडे, ग्राम–बिरदा, तहसील–करतला, जिला–कोरबा –**
मैं ग्राम का निवासी हूँ। हमारा पेड़ एवं जमीन रोड पर है। हम लोग बेराजगार है। हमें नौकरी एवं रोजगार दिलाने की महान कृपा की जाए।

9. **श्री सुखी राम पटेल एवं अन्य ग्राम–तरदा, तहसील–करतला, जिला–कोरबा –**
राष्ट्रीय राजमार्ग में अधिग्रहित की जाने वाली जमीन का मुआवजा राशि को बताने बाबत एवं राष्ट्रीय राजमार्ग के किनारे फलदार वृक्ष लगाया जाए तभी जमीन का अधिग्रहण करना सार्थक होगा।

10. **श्री महेश राम सतनामी, ग्राम–अखरापाली, जिला–कोरबा –**
पूर्व में मैन 9 डिसमिल जमीन विकय किया है। बांकी उसी केता के नाम पूरी अधिग्रहित जमीन 1.86 डिसमिल उसी के नाम दिखा रहा है। केता के पास 0.9 डिसमिल पंजीयन पेपर है। लेकिन अधिग्रहण पश्चात हमने पूरी जमीन का जांच कराया तो पूरी जमीन उसी के नाम दर्शा रहा है। वर्तमान केता के नाम 9 डिसमिल जमीन छोड़कर बांकी जमीन पूरी दस्तावेज पर मेरा नाम अंकित किया जावे।

11. **श्री सिंहदेव एवं अन्य ग्राम–कथरीमाल, जिला–कोरबा –**
दरशकुमारी पति–राधेलाल, जाति–कुर्मी ग्राम–कथरीमाल, प.ह.नं.–01, खसरानं. –133 हेक्ट. रकबा–0.987 हेक्टेयर से अर्जित जमीन का मुआवजा राशि को रोककर ट्रेजरी में जमा करने बाबत्।

12. **श्री धनऊ राम व सत्य नारायण, ग्राम–अखरापाली, तह. व जिला–कोरबा –**

हम ग्राम–अखरापाली, पटवारी हल्का नंबर, 16, जिला व तहसील–कोरबा का निवासी है, जो कि मेरे खातेदार लोग अपने हिस्से का जमीन बेचकर दूसरे गांव में चले गये है, वहां गये 40 वर्ष हो चुका है, और रोड लाईन में सिर्फ दो सह खातेदारों का जमीन निकल रहा है। अतः श्रीमान शिविर अधिकारी से निवेदन है कि हम दोनों के नाम पर मुआवजा मिल जाए।

13. **श्रीमती गायत्री, सरपंच ग्राम पंचायत, तरदा एवं श्री कोमल प्रसाद पटेल एवं अन्य ग्राम–तरदा , जिला–कोरबा –**

शासकीय हाईस्कूल तरदा में स्कूल भवन बनें 5 साल हो चुका है परन्तु आज दिनांक तक अहाता निर्माण नहीं हो पाया है। जिसके कारण शाला भवन में मवेशी प्रवेश कर जाते है एवं गांव में हसदेव नदी के किनारे पिचिंग कार्य एवं अन्य सामुदायिक कार्य कराये जाने की जरूरत है अतः अहाता निर्माण करने की कृपा करें।

14. **श्रीमती गायत्री, सरपंच ग्राम पंचायत, तरद एवं श्री रामलाल पटेल एवं अन्य ग्राम–तरदा जिला–कोरबा –**

ग्राम–तरदा, जिला–कोरबा में राष्ट्रीय माध्यमिक शिक्षा अभियान के तहत शासकीय हाईस्कूल संचालित है। यहॉ हायर सेकेण्डरी स्कूल नहीं होने के कारण विद्यार्थियों की आगे की पढ़ाई प्रभावित हो रही है खासकर बालिकाओं की आगे की पढ़ाई बुरी तरह प्रभावित होती है, क्योंकि यहां से आठ किलोमीटर की दूर पर क्रमशः कनकी विकास खण्ड करतला एवं कुदुरमाल विकासखण्ड–कोरबा में हॉयर सेकेण्डरी स्कूल है जो कि अधिक दूरी होने के कारण बालिकाए नहीं जा पाती एवं आगे की पढ़ाई से वंचित हो रही है। अतः श्रीमान से निवेदन है कि उक्त समस्या को देखते हुए शासकीय हाई स्कूल का हॉयर सेकेण्डरी में उन्नयन कराने की महान कृपा करें।

15. **श्री रामनारायण राजवाडे, ग्राम–कथरीमल, जिला–कोरबा –**

हमारी जमीन जो रोड में आ रही है, उस जमीन के बदले हमे नौकरी दी जाए। हम लोग उसी जमीन से अपना भरण पोषण करते है। हमारे पास कोई जमीन नहीं है।

16. **श्री अनंत कुमार धीवर, ग्राम–तिलकेजा, जिला–कोरबा –**
नेशनल हाईवे रोड, ग्राम– मसान, स्थित खसरा नं.–257/1 एंव 257/2 में से 0.40 एकड भूमि अर्जन किये जाने बाबत् आपत्ति।

17. **श्री ओंकार प्रसाद कौशिक, गाम–तरदा, जिला–कोरबा –**
भारतमाला परियोजना में अर्जित की जा रही है। भूमि में फदार विभिन्न प्रकार के पेड–पौधे है। उनकी मुआवजा के अतिरिक्त जितनी पेड़–पौधे अर्जित की जा रही है। उनकी दुगना पौधे निःशुल्क शासकीय नर्सरी के दिलायी जावे, जिससे पुनः बचत जमीन पर पौधा रोपड़ किया जा सके।

18. **श्री डोलनारायण राजवाडे, ग्राम–कथरीमाल, जिला–कोरबा –**
मेरे बड़े भाई व्यास नारायण के नाम से जमीन है, मेरे बटवारे मं 1.50 एकड़ का जमीन भारत माला परियोजना में निकल रहा है। अतः महोदय से निवेदन है कि मुझे मेरे बंटवारे की राशि का चेक डोल नारायण राजवाड़े के नाम से देने की कृपा करेंगे।

19. **श्री कामता प्रसाद पटेल, ग्राम–तरदा, जिला–कोरबा –**
ग्राम–तरदा, विकासखण्ड– करतला, जिला–कोरबा का मैं कामता प्रसाद पटेल है । मेरा भारतमाला परियोजना में मेरा 30 फीट का दो रूम बाउण्ड्रीवॉल एवं पेड़–पौधा आ रहा है, जिसका मुआवजा मिलना चाहिए।

20. **श्री फिरतराम एवं अन्य ग्रामवासी, ग्राम– तरदा, जिला–कोरबा –**
ग्राम–तरदा, के आश्रित मुहल्ला, जंगलपारा में पानी बिजली, गली कांक्रीटीकरण कराते हुए अधूरे शौचालय को पूर्ण कराने बाबत्।

21. **श्री गंगा राम कौशिक एवं अन्य, ग्राम–तरदा, जिला–कोरबा–**
वर्तमान बाजार भाव से मुआवजा राशि प्रदान करने बाबत्।

22. **श्रीमती तीज बाई एवं अन्य, ग्राम–तरदा, जिला–कोरबा –**
मंगली बाई, बेवा लछन सिंह के दामांद अमगांवाईया के द्वारा बलपूर्वक हमारे खसरा नं.– 527/1 रकबा–0.35 एकड़ भूमि भारत माता राजमार्ग संख्या क्रमांक 130 ए के लिए अधिग्रहित किया जा रहा है जो पैतृक भूमि है, उसमें धान बुआई करने पर लाठी के बल पर हमारे द्वारा धान बोआई के बाद उसके ऊपर धान बुआई करने के खिलाफ कार्यवाही करने के संबंध में।

23. **श्री दिल सिंह पटेल, ग्राम–अखरापाली, जिला–कोरबा –**
मैं ग्राम–अखरापाली का निवासी हूँ नाम दिलसिंह पटेल, जो कि मेरा घर मकान क्रमांक 73 जों कि शासकीय भूमि पर मकान बना है, जो कि मैं भूमिहीन हूँ। जो कि राष्ट्रीय राजमार्ग में मेरा मकान प्रभावित है। अतः अनुभवी अधिकारी के निवेदन है कि मुझे मेरी मकान का मुआवजा राशि दिलवाने की कृपा करें।

24. **श्री तेरसराम, ग्राम–अखरापाली, जिला–कोरबा –**
मेरी भूमि का शीघ्र हल्का पटवारी से सीमांकन(नापी) किये जाने के संबंध में।

25. **श्री नोहर साय एवं अन्य, ग्राम–तरदा, जिला–कोरबा –**
वर्तमान बाजार भाव से मुआवजा राशि प्रदान करने बाबत।

26. **श्री राधेलाल पटेल,ग्राम–अखरापाली, जिला–कोरबा –**
शासन द्वारा अधिग्रहित भूमि का मुआवजा राशि का विवरण, पेड़–पौधों का विवरण साथ ही किसानों की जमीन अब तक प्रेस में प्रकाशित नहीं हुआ है, जिसके चलते किसानों में भ्रम की स्थिति है। हमें इस बात का भय है कि शासन अपना काम चालू करें और हम दफ्तर का चक्कर काटते फिरें। शासन से मेरा अनुराध है कि उक्त तमाम विषयों पर पारदर्शिता के साथ शिविरों में इससे अवगत कराया जावे। ताकि अधिग्रहित किसान समूह किसी भी संदेह से बाहर निकले। शासन के इस कार्य को पूरा होने में खुशीमन से सहयोग करें।

27. **श्री तेरस राम पटेल, ग्राम–तरदा, जिला–कोरबा –**
मेरा जमीन(खेत) राष्ट्रीय राजमार्ग में निकल रहा है, जिसका कुल रकबा 42 डिसमिल है। जिसमें से कुछ जमीन राष्ट्रीय राजमार्ग में निकल रहा है। जिसमें मेरा जो जमीन शेष बच जा रहा है। मेरे जमीन को पूरा लिया जावे, ताकि मुझे पूरा मुआवजा मिल सके। कुछ जमीन के बचने से मेरे खेत की दशा बिगड़ जाएगी। जिससे मुझे किसी भी प्रकार का फायदा नहीं हो रहा है। अतः श्रीमान से निवेदन है कि 42 डिसमिल जमीन को पूरा अधिग्रहण किया जावे।

28. **श्री धनीराम रात्रे, ग्राम पंचायत–अखरापाली, जिला–कोरबा –**
भूमि खसरा नंबर–89, 90 व 91 पर काबिज लक्ष्मीनारायण वगैरह के नाम पर राजस्व अभिलेख दुरूस्त किए जाने के विरूद्ध आपत्ति दर्ज करने बाबत।

29. **श्री बुंदराम मांझी, ग्राम–तरदा, तहसील–करतला, जिला–कोरबा –**
मैं बूंदराम मांझी मुझे एक किश्त मिला है। दूसरा किश्त नहीं मिला है। अतः आप से अनुरोध है कि मुझे दूसरा किश्त दिलवाने की महान कृपा करें।

30. **श्री द्वास राम पटेल, ग्राम–कुदुरमाल, जिला–कोरबा –**
मेरे खेत के पास सीपत से उरगा रोड निर्माणधीन हो रहा है, रोड में पाईप डालकर पुल निर्माण किया गया है, जिसका निर्माण सुनील अग्रवाल ठेकेदार द्वारा किया गया है और पानी का निकासी के लिए श्री सुरेश अग्रवाल, श्री प्रवीण पाण्डेय एवं श्री सुनील शर्मा जगह देखने के लिए आये थे, उसके बाद उन्होने पुल के पास से खेत के किनारे से एक नाली निर्माण होने की बात कही गई थी, जो अभी तक इस पर कोई कार्य प्रारम्भ नही किया गया है। महोदय से निवेदन है कि बरसात लगने से पहले पुल से नाली निर्माण कराकर उचित स्थान में छोड़ा जाए, जिसके लिए ठेकेदार सुनील अग्रवाल को आदेशित कर उचित कार्यवाही करें।

31. **श्रीमती रामबाई पटेल, ग्राम–तरदा, जिला–कोरबा –**
श्रीमान कलेक्टर महोदय जी मैं रामबाई पटेल जो तरदा की निवासी हूँ। मेरी उक्त जमीन को उमा बाई पति श्री शंकर यादव जंगल कॉलोनी , कोरबा का निवासी है। वह मेरी जमीन को फर्जी रूप से अपने नाम में करवा लिया है, जो भारतमाला परियोजना कंपनी में अधिकृत हुआ है। अतः श्रीमान कलेक्टर महोदया से निवेदन है कि उक्त जमीन का मुआवजा रोकन की कृपा करें एवं उस जमीन का सही रूप से निराकरण करवाने की कृपा करें।

लोक सुनवाई दौरान मुख्य रुप से लिखित एवं मौखिक चिंताओं / सुझाव / विचार / टीका–टिप्पणी एवं आपत्तियाँ में उठाये गये मुख्य मुद्दों का समावेश निम्नाकिंत प्रश्नों में किया गया है, जिसके परिपेक्ष्य में श्री नरेन्द्र सिंह परियोजना निदेशक द्वारा दी गई जानकारी निम्नानुसार समावेशित प्रश्नों के साथ निम्नानुसार है :–

1. ग्राम–तरदा के खसरा नंबर 439 / 2, 439 / 3, 439 / 4 को पुनः सर्वेक्षण करवाने की कृपा करें ?

उ0 भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा निराकरण किया जायेगा एवं उचित कार्यवाही की जावेगी।

2. सड़क निर्माण में प्रभावित परिवार रोजगार की मांग कर रहा है, क्योंकि उनके पास कोई अन्य भूमि उपलब्ध नहीं है?

उ0 नियमानुसार सडक निर्माण से प्रभावित परिवारों को नौकरी / रोजगार देने का शासन का कोई प्रावधान नहीं है।

3. खसरा नं.– 615 / 1 का 3डी का प्रकाशन नहीं हुआ है। कृपया आवश्यक कार्यवाही करें ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

4. खसरा नं.– 556/2 का 3डी का प्रकाशन नहीं हुआ है। कृपया आवश्यक कार्यवाही करें ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

5. प्रभावित व्यक्ति के पिता का खाता गुम गया है। कृपया आवश्यक कार्यवाही करें।

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

6. प्रभावित व्यक्ति का तालाब एवं खेती वाली जमीन परियोजना में आ रही है। इसका उचित मूल्य प्रदान करें एवं परिवार के सदस्य को नौकरी दी जाए ?

उ0 तालाब एवं खेती वाली जमीन का भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा मूल्यांकन किया जावेगा। नियमानुसार प्रभावित परिवारों को नौकरी देने का कोई प्रावधान नहीं है।

7. संयुक्त परिवार का मुआवजा अलग–अलग हिस्सें में दिया जाए, ताकि हम लोगों में विवाद न हो ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

8. भू प्रभावित सदस्य को नौकरी दी जावे ?

उ0 शासन के नियमानुसार रोड निर्माण के दौरान भू–प्रभावित परिवारों को नौकरी देने का कोई प्रावधान नहीं है।

9. मुआवजा राशि कितना होगा हमें पता नहीं है। मुआवजा राशि बतान की कृपा करे , हमारे फलदार वृक्षों का क्या होगा ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी। फलदार वृक्षों का उनके द्वारा मूल्यांकन किया जावेगा।

10. भूमि विकेता का नाम हटाकर मेरा नाम अंकित किया जावे ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

11. खसरा , रकबा एवं क्षेत्रफल गलत डाला गया है। इसे ठीक करने की कृपा करें ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

12. जमीन मालिक जमीन बेचकर जा चुके हैं, इसलिए मुआवजा हम दोनों को दिया जाए ?

उ0. इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

13. हसदेव नदी शमशान घाट, पाठशाला भवन, विद्यालय परिसर एवं शाला भवन प्रभावित होगी। कृपया आवश्यक कार्यवाही होगी ?

उ0 शमसान घाट, पाठशाला भवन, विद्यालय परिसर एवं शाला भवन का अलग से मूल्यांकन किया जावेगा। इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया
जावेगा एवं उचित कार्यवाही की जावेगी।

14. गांव में शासकीय हॉयर सेकेण्डरी स्कूल नहीं है, उसे बनवाया जाये ?उ0 यह केन्द्रीय सरकार के भारतमाला परियोजना के तहत आता है एवं नियमानुसार इसमें स्कूल बनवाए जाने का कोई प्रावधान नहीं है।

15. परिवार के सदस्य को नौकरी दी जावे ?

उ0 शासन के नियमानुसार प्रभावित परिवार के सदस्यों को नौकरी देने का कोई प्रावधान नहीं है।

16. विक्रय की गई जमीन का अधिग्रहण न करें एवं विक्रेता के पक्ष में पंजीकृत बेनामा निष्पादित करें ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

17. पेड़–पौधों के मुआवजे के बदले उससे दो गुने पौधों को बची हुई जमीन पर लगाया जाए ?

उ0 पेड़–पौधों का भूमि अधिग्रहण के लिए सक्षम प्राधिकरण एवं वन विभाग के द्वारा मूल्यांकन किया जावेगा।

18. जमीन मेरे भाई के नाम पर है, जिसका कुछ हिस्सा मेरा है। अतः मेरे हिस्से की राशि मेरे नाम पर दिया जावे ?

उ0. इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

19. प्रस्तावित परियोजना में बाउण्ड्रीवाल , रूम एवं पौधे प्रभावित हो रहे है, उनका उचित मुआवजा मुझे मिले ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा।

20. गॉव में पीने का पानी, नहाने का पानी , बिजली एवं शौचालय का काम अधूरा है, इसे तत्काल पूरा किया जावे ?

उ0 यह केन्द्रीय सरकार की भारतमाला परियोजना के तहत आता है एवं नियमानुसार इन सब का कोई प्रावधान नहीं है।

21. किसी अन्य परियोजना में अर्जित की गई भूमि का मुआवजा मुझे नहीं मिला है, इसे दिया जावे ?

उ0. इसका इस परियोजना से कोई संबंध नहीं है।

22. मेरी जमीन को जबरन हथिया लिया गया है, इसका मुआवजा मुझे ही मिले एवं दामाद में कार्यवाही की जावे।

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

23. मेरा घर शासकीय भूमि में बना हुआ है एवं मैं भूमिहीन हूँ। अतः मुझे इस मकान का मुआवजा दिया जाए ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा।

24. हमारी कितनी भूमि अर्जित की जा रही है, यह हमें बताया जाए ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

25. किसी अन्य परियोजना में अर्जित की गई भूमि का मुआवजा मुझे नहीं मिला है, इसे दिया जावे ?

उ0. इसका इस परियोजना से कोई संबंध नहीं है।

26. मेरी भूमि का विवरण प्रकाशित नहीं किया गया है। इसे काम शुरू होने से पहले प्रकाशित किया जाए ?

उ0. इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

27. रोड निर्माण के लिए मेरा भूमि अधिग्रहण के उपरांत मेरा कुछ जमीन बच रही है, उसे पूरा अधिग्रहण किया जावे ?

उ0. इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

28. मेरी भूमि का विवरण प्रकाशित नहीं किया गया है। इसे काम शुरू होने से पहले प्रकाशित किया जाए ?

उ0. इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

29. मेरी जमीन को फर्जी तरीके से हथिया लिया गया है, इसमें उचित कार्यवाही की जावे ?

उ0. इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

30. हमारे गांव में पीने एवं नहाने के पानी , बिजली शौचालय की समस्या है, इसमें उचित कार्यवाही की जावे?

उ0 नियमानुसार पानी, बिजली एवं शौचालय का कोई प्रावधान नहीं है।

31. गुमिया गांव में जहॉ रोड क्रासिंग हो रही है, वहॉ लोगों के लिए क्या सुविधा होगी ?

उ0 लोगों की सुविधा के लिए उस जगह पर अण्डर पास दिया जावेगा।

32. अधिग्रहित भूमि का मुआवजा कब तक मिलेगा ?

उ0 भूमि अधिग्रहण प्रकियाधीन है, इसके खत्म होने के पश्चात ही मुआवजा दिया जावेगा।

33. भूमि अधिग्रहण के पश्चात 5 मीटर जमीन अधिक अधिग्रहण की गई है, पेड़ो के मुआवजा के विषय में बताएं ?

उ0 पहले 60 मीटर (Right of Way) प्रस्तावित थी, जिसे बाद में 70 मीटर कर दी गई है, जिसके कारण यह 5 मीटर का अंतर है। पेड़–पौधों का सी.ए.एल.ए. एवं वन विभाग द्वारा मूल्यांकन किया जावेगा।

34. मेरी भूमि को किसी और ने जबरन हथिया लिया गया है, उसमें 08 पेड़ है, उचित कार्यवाही की जावे ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

35. मेरी भूमि के कुछ पेड़ भी काटे जाएंगे। उसका मुआवजा दिया जाएगा या पेड़ लगाए जायेंगे ?

उ0 पेड़–पौधों का सी.ए.एल.ए. एवं वन विभाग द्वारा मूल्यांकन किया जावेगा।

36. मेरी भूमि को किसी और ने जबरन हथिया लिया गया है, उसमें 08 पेड़ है, उचित कार्यवाही की जावे ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

37. अधिग्रहण की 35 डिसमिल मेरे पिता के नाम पर है। इसका मुआवजा मुझे मिलना चाहिए ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

38. मेरे भूमि किसी और के नाम पर चली गई है, इसका मुआवजा मुझे मिल ?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

39. मेरी जमीन अधिग्रहित हुई है, लेकिन प्रकाशित नहीं हुई है, प्रकाशित की जावे?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

40. मेरी जमीन अधिग्रहित हुई है, लेकिन प्रकाशित नहीं हुई है, प्रकाशित की जावे?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

41. मैने घर बनाने के लिए जमीन ली थी, वह इस परियोजना में जा हरी है, मुझे इसके लिए अलग जमीन दी जाए ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा।

42. मेरी जमीन अधिग्रहित हुई है, लेकिन प्रकाशित नहीं हुई है, उचित कार्यवाही की जाए। इसका मुझे मुआवजा दिया जाए ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा।

43. भूमि अधिग्रहण में पानी के स्त्रोत अर्थात ट्यूबवेल एवं तालाब प्रभावित हो रहा है, इसलिए पानी के लिए नये स्त्रोंत का प्रबंध करें ?

उ0 केन्द्रीय सरकार के भारतमाला परियोजना के तहत आने के कारण इसमें ऐसा कोई प्रावधान नहीं है।

44. मैने जमीन को बेटे के नाम पर घर बनवाने के लिए ली थी।अतः इसका मुआवजा मुझे दिया जाए।

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

45. मैने घर बनाने के लिए जमीन ली थी। मुझे इसके लिए अलग जमीन दी जाए ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा।

46. मेरी अधिग्रहित जमीन में कुआँ है, जो इस परियोजना में आ रहा है, इसका उचित मुआवजा दिया जाए ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा।

47. मेरी अधिग्रहित जमीन में कुआँ है, जो इस परियोजना में आ रहा है, इसका उचित मुआवजा दिया जाए ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा।

48. नेशनल हाईवे के किनारे पेड़ लगाए जाएं, जिससे पर्यावरण प्रदूषित न हो, इसका जवाब दिया जावे ?

उ0 दिशानिर्देशा अनुसार ग्रीन बेल्ट का विकास किया जावेगा एवं वृक्ष के कटाव के लिए प्रतिपूरक वनीकरण भी किया जावेगा, जिससे आसपास का पर्यावरण दूषित नही होगा।

49. प्रभावित परिवार रोजगार की मांग कर रहा है, क्योकि उनके पास कोई अन्य भूमि उपलब्ध नहीं है, इसके अलावा पानी का स्त्रोत भी दिया जाए ?

उ0 नियमानुसार प्रभावित परिवारों को नौकारी देने का एवं जल के स्त्रोंत देने का कोई प्रावधान नहीं है।

50. प्रभावित भूमि में हमारा घर, कुआँ एवं कोठार जा रहा है, इसका उचित मुआवजा दिया जाए एवं नौकरी दिया जाए ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा। नियमानुसार प्रभावित परिवारों को नौकारी देने का कोई प्रावधान नहीं है।

51. अधिग्रहित भूमि मेरे दादाजी के नाम पर है। वह अब न हरहे। मेरे पिजाती भी न रहे। मेरे पिताजी भी नहीं रहे। इसलिए मुआवजा मेरी मॉ को दिया जाए?

उ0 इस मामले का निराकरण भूमि अधिग्रहण के लिए सक्षम प्राधिकरण द्वारा किया जावेगा एवं उचित कार्यवाही की जावेगी।

52. मेरी जमीन भैसमा में है जो मेरी पत्नी के नाम पर है, इसका कितना मुआवजा मिलेगा ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा।

53. राजमार्ग के तहत हम लोगों की बहुत ज्यादा जमीन निकल रही है। खेत, तालाब एवं पेड़ पौधे भी निकल रहे है। गाड़ी चलने के कारण प्रदूषण होगा एवं बीमारियॉ बढ़ेगी। बची हुई जमीनों का भी मुआवजा दिया जाये। प्रभावित परिवारों के सदस्यों को नौकरी भी जाये ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा। मौजूदा हाइवे के बनस्पत प्रस्तावित हाइवे में वायु एवं शोर प्रदूषण में कमी आयेगी। क्योंकि उस सड़क पर गाडियां करीब 100 किमी/घंटे की गति से चलेगी। मौजूदा सड़क कमी चौडी होने के कारण वायु एवं ध्वनि प्रदूषण ज्यादा हो रहा है।

54. प्रस्तावित परियोजना जुनवानी और भैसमा के बीच से गुजर रही है। इसलिए वायु और ध्वनि प्रदूषण होने की संभावना है। इसलिए रोड को गॉव से बाहर ले जाया जाए ?

उ0 मौजूदा हाइवे के बनस्पत प्रस्तावित हाइवे में वायु एवं शोर प्रदूषण में कमी आयेगी। क्योंकि उस सड़क पर गाडियां करीब 100 किमी/घंटे की गति से चलेगी। मौजूदा सड़क कमी चौडी होने के कारण वायु एवं ध्वनि प्रदूषण ज्यादा हो रहा है।

55. प्रस्तावित परियोजना में मेरा कुऑ और सौगोन का पेड़ प्रभावित हो रहा है, इसका मुआवजा दिया जाये ?

उ0 भूमि अधिग्रहण, पुर्नवास और पुर्नवास का उचित मुआवजा और पारदर्शित अधिकार अधिनियम 2013 के अनुसार उचित मुआवजा दिया जावेगा।

56. प्रस्तावित परियोजना जुनवानी और भैसमा के बीच से गुजर रही है। इसलिए वायु और ध्वनि प्रदूषण होने की संभावना है। इसलिए रोड को गॉव से बाहर ले जाया जाए ?

उ0 मौजूदा हाइवे के बनस्पत प्रस्तावित हाइवे में वायु एवं शोर प्रदूषण में कमी आयेगी। क्योंकि उस सड़क पर गाडियां करीब 100 किमी/घंटे की गति से चलेगी। मौजूदा सड़क कमी चौडी होने के कारण वायु एवं ध्वनि प्रदूषण ज्यादा हो रहा है।

57. नहर किनारे हमारा घर है जहॉ गुरूघासीदास जी का जैतखम्भ भी है। अतः इसे गॉव से बाहर से निकाला जावे ?

उ0 प्रस्तावित एलायमेंट को उचित सर्वेक्षण एवं क्षेत्र की स्थलाकृति उत्थान और जल निकासी पैटर्न जैसे विभिन्न कारको ध्यान में रखते हुए चुना गया है। अतः इसमें कोई परिवर्तन कारगर नहीं होगा।

उद्योग प्रतिनिधि द्वारा यह भी बताया गया कि प्राप्त चिंताओं/सुझाव/विचार/टीका–टिप्पणी एवं आपत्तियों पर समाधानकारक कार्यवाही करते हुए वर्तमान में बनाये गए प्रारूप ई.आई.ए. रिपोर्ट में समाहित किया जाकर अंतिम ई.आई.ए. रिपोर्ट बनाकर पर्यावरणीय स्वीकृति हेतु नियमानुसार कार्यवाही की जावेगी।

आयोजित लोक सुनवाई के समस्त कार्यवाहियों की विडियोग्राफी एवं फोटोग्राफी कराते हुए निर्धारित समयानुसार लोक सुनवाई की कार्यवाही पूर्ण की गई।

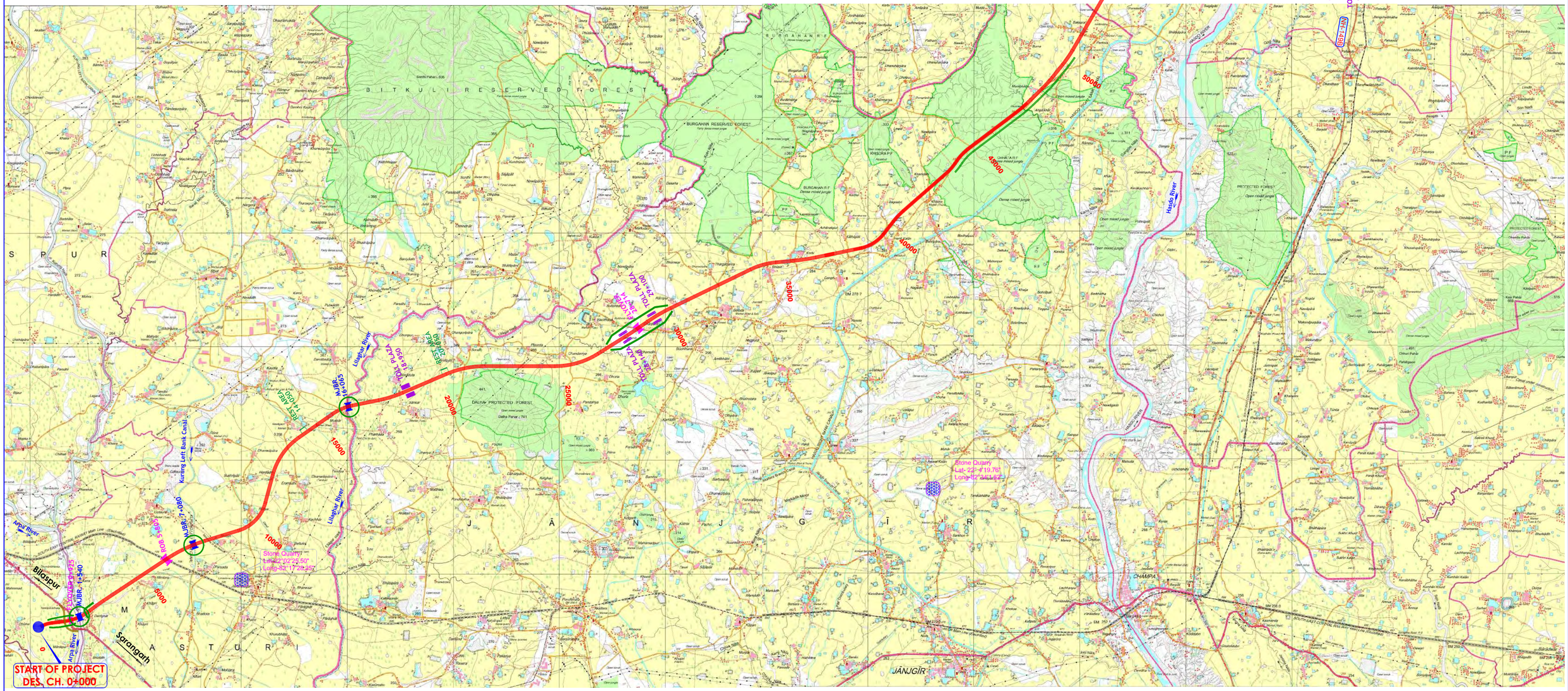
लोक सुनवाई के पूर्व कोई भी चिंताओं/सुझाव/विचार/टीका–टिप्पणी एवं आपत्तियां लिखित एवं मौखिक में प्राप्त नहीं हुई थी एवं लोक सुनवाई के दौरान कुल 31 लिखित में चिंताओं/सुझाव/विचार/टीका–टिप्पणी एवं आपत्तियां तथा लोक सुनवाई के दौरान 28 व्यक्तियों के द्वारा अभिव्यक्त चिंताओं/सुझाव/विचार/टीका–टिप्पणी एवं आपत्तियों का अभिलिखित पत्रक, लोक सुनवाई में उपस्थित व्यक्तियों का उपस्थित पत्रक, विडियो सी.डी. एवं फोटोग्राफ्स के साथ लोक सुनवाई कार्यवाही संलग्न कर विवरण सदस्य सचिव, छ.ग. पर्यावरण संरक्षण मंडल, नवा रायपुर, अटल नगर की ओर आगामी कार्यवाही हेतु अग्रेषित किया जा रहा है।

क्षेत्रीय अधिकारी छ.ग. पर्यावरण संरक्षण मंडल, जिला–कोरबा(छ.ग.)	अपर कलेक्टर, जिला–कोरबा(छ.ग.)	सदस्य सचिव छ.ग. पर्यावरण संरक्षण मंडल नवा रायपुर, अटल नगर

Annexure XIII: Surface Water Source alongside Project Highway

Bilaspur

Urga



LEGEND : PROPOSED ALIGNMENT

Rev.	Date	Description
R0	04–09–2018	ALIGNMENT PLAN

Authority:
National Highways Authority of India
(Ministry of Road Transport & Highways)

Design Consultants:
Transys Consultlng Pvt. Ltd.
in association with
Accrete Consulting Engineers Pvt. Ltd.
12th Floor, JMD Regent Square, MG Road, Gurugram - 122002,
e-mail - info@transysconsulting.co.in; web - www.transys.in

Project:
Bilaspur - Urga Section of NH-130A
Consultancy Services for preparation of Detailed Project Report for development of Economic Corridors, Inter Corridors, Feeder Routes to improve the efficiency of freight movement in India (Lot-3/Chhattisgarh/Package-1) under Bharatmala Pariyojna

DRAWN BY	SUMAN
DESIGNED BY	SANDEEP
CHECKED BY	KSN REDDY
APPROVED BY	BM SHRESTHA

ALIGNMENT PLAN

Date: **ARRIL. 2019**

Title: **Alignment Plan on Topo Sheet**

Project Code	*Size*	*Scale*	*Drg. No*	*Rev:*
– – B U R D	A2	NTS	A P 0 0 1	**R0**