

**File No. 10/38/2021-IA.III**  
**[Proposal No. IA/BR/NCP/224996/2021]**

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: 11<sup>th</sup> October, 2021

To

**Dr. B. Mukhopadhyay**  
General Manager  
National Highways Authority of India  
G-5 & 6, Sector-10, Dwarka, New Delhi-110 075

**Subject: Development of economic corridors, inter corridors, feeder routes and borders road to improve the efficiency of freight movement in India under Bharatmala Pariyojana (lot-7) for package-2 (Sasaram-Arrah) starts at village Gangauli and ends at village Dhanupara in Rohtas and Bhojpur district in the state of Bihar (Total Length – 130.8 Km) by M/s National Highways Authority of India (NHAI) - Terms of Reference**

Sir,

This has reference to your online proposal submitted to this Ministry on 20<sup>th</sup> August 2021, seeking Terms of Reference (TOR) for the aforementioned project as per the provisions of the Environment Impact Assessment (EIA) Notification, 2006 and subsequent amendments under the Environment (Protection) Act, 1986.

2. The above mentioned proposal was considered by the Expert Appraisal Committee (EAC) for Infrastructure, CRZ and other miscellaneous projects in its 273<sup>rd</sup> meeting during 16<sup>th</sup> - 17<sup>th</sup> September 2021, in the Ministry of Environment, Forest and Climate Change, New Delhi.

3. The project proponent along with the DPR Consultant M/s MSV International Inc. and EIA consultant P&M Solution made a presentation through Video Conferencing and provided the following information.

- i. The proposed Greenfield project is for development of economic corridors, inter corridors, feeder routes and borders road to improve the efficiency of freight movement in India under Bharatmala Pariyojana (lot-7) for package-2 (Sasaram- Arrah) in the State of Bihar. The proposed length is 84 Km with Spur road of 11.8 km and bypass road of 35 km. Total length of the proposed highway is 130.8 km. The Proposed Right of Way (RoW) is 45 m for proposed highway and 60 m for proposed by-pass road.
- ii. The proposed highway along with spur road starts from village Gangauli and ends at village Dhanupara in Rohtas and Bhojpur District in the state of Bihar. The proposed Bypass (Ara - Patna ring road) starts at village Madhopur and end at village Garha in Patna and Bhojpur district, respectively, in the state of Bihar. The proposed alignment is connected with Sasaram-Arrah-Patna- Patar-Kayamnagar.



- iii. The proposed project falls under 7(f) - Highway, Category-A, as per EIA notification 2006. Total investment/cost of the project is Rs 2973.43 Crores.
- iv. The geocoordinates of the proposed highway along with the spur road at start location is 24°55'13.21"N 84°8'23.72"E and at end location is 25°35'2.82"N 84°43'5.09"E. The geocoordinates of the bypass (Ara - Patna ring road) at start location is 25°33'1.80"N 84°55'34.53"E and at end location is 25°31'44.81"N 84°36'4.89"E.
- v. The alignment of this proposed Greenfield project is mainly passing through the agriculture land. The proposed project site has mainly plain and rolling terrain. The areas have an elevation ranging from 50 m to 158 m.
- vi. Details of water bodies: Seven Rivers, one Nala and five Canals are falling along the alignment. There shall be no major impact on the drainage system, since, about 311 structures such as 07 major bridges, 33 minor bridges, 07 Vehicular underpasses, 12 LVUP, 44 SVUP, 3 interchanges/ flyover and 205 Box culverts is proposed to be constructed along the proposed highway.
- vii. Water requirements: The total requirement of water for construction is estimated to 3500 KL/day. Water will be extracted from surface sources. The ground water will be abstracted for camp site after obtaining the permission from the competent authority.
- viii. Tree cutting: About 8448 trees are falling within the proposed ROW. However, bare minimum no. of trees to be felled for construction of four-lane road. Detailed tree inventories will be provided after joint enumeration with the appropriate authority in EIA report.
- ix. The proposed alignment does not pass through any National Parks, Wildlife Sanctuary, and Tiger Reserve of any other notified eco-sensitive areas and does not fall in 10 Km radius of any protected areas.
- x. Land acquisition and R&R issues: About 559.089 ha land is likely to be acquired as per NH Act 1956. A total number of 20 structures will be affected due to proposed Road. Compensation will be given as per NHAI Act, 1956 and Right to fair compensation and transparency in land acquisition, rehabilitation and Resettlement (RFCT LARR) Act, 2013.
- xi. Employment potential: During construction phase, about 1000 persons will be employed through contractor temporarily for a period of 2 years. During operation phase about 500 persons will be employed through the concerned contractor.
- xii. Benefits of the Project-. The proposed access controlled project with new alignment has been envisaged through an area, which shall have the advantage of simultaneous development as well as shall result in a shorter distance to travel. The project will enhance economic development in the area through industrial areas (Patna, Bhojpur, and Muzaffarpur), Agriculture (Market access), commercial development and consequent employment. The junctions with existing road will be planned in the form of interchanges and flyover to ensure uninterrupted flow of traffic. It will enhance opportunities to locals, strengthen tourist development, ensure road safety, and provide better transportation facilities and other facilities such as wayside amenities. Vehicle operating cost will also be reduced due to improved road quality. The compensatory plantation and road side

plantation shall further improve the air quality of the region.

xiii. Details of Court cases: No court case is pending against the proposed project.

4. The EAC based on the information submitted and clarifications provided by the project proponent and detailed discussions held on all the issues during its 273<sup>rd</sup> meeting during 16<sup>th</sup> - 17<sup>th</sup> September 2021, recommended the project for grant of Terms of Reference (ToR) with stipulated specific conditions along with other Standard ToR Conditions.

5. The Ministry of Environment, Forest and Climate Change has considered the proposal based on the recommendations of the Expert Appraisal Committee (Infrastructure, CRZ and other Miscellaneous projects) and hereby decided to grant Terms of Reference for the "Development of economic corridors, inter corridors, feeder routes and borders road to improve the efficiency of freight movement in India under Bharatmala Pariyojana (lot-7) for package-2 (Sasaram-Arrah) starts at village Gangauli and ends at village Dhanupara in Rohtas and Bhojpur district in the state of Bihar (Total Length – 130.8 Km)" and for preparation of EIA/EMP report with public consultations under the EIA Notification, 2006 as amended, subject to strict compliance of the following specific ToR conditions, in addition to all standard ToR conditions applicable for such projects.

#### **SPECIFIC CONDITIONS**

- i. The shortest part of the Riverbed may be explored to pass the road to minimize the width crossing of the Riverbed with least number of Pillars.
- ii. The existence of protected area/ eco-sensitive areas, along/nearby the alignment, if any, shall be disclosed.
- iii. Number of tunnels should be increased in order to avoid the disturbance to existing forest cover as well as local inhabitation.
- iv. Number of pillars in the waterbodies/rivers should be kept minimum while constructing bridges or overpasses so as to keep the minimize damage to aquatic ecosystem.
- v. Apart from land compensation, the loss for crop has also to be compensated. Details shall be presented in the EIA report.
- vi. Cumulative impact assessment study should be carried out for the entire stretch including the other packages of the project including current stretch under consideration.
- vii. The proponent shall carry out a detailed traffic flow study to assess inflow of traffic from adjoining areas like airport/urban cities. The detailed traffic planning studies shall include complete design, drawings and traffic circulation plans (taking into consideration integration with proposed alignment and other state roads etc.). Wherever required adequate connectivity in terms of VUP (vehicle underpass)/ PUP (Pedestrian underpass) needs to be included.
- viii. Road safety audit (along with accident/black spots analysis) by any third-party competent organization at all stages namely at detailed design stage, construction stage and pre-opening stage to ensure that the project road has been constructed considering all the elements of road safety.



- ix. Provide compilation of road kill data on the wildlife on the existing roads (national and state highways) in the vicinity of the proposed project. Provide measures to avoid road kills of wildlife by the way of road kill management plan.
- x. 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. Alignment also should be such that it will avoid cutting old and large and heritage trees if any. All such trees should be geo-tagged, photographed and details be submitted in the EIA –EMP report.
- xi. The proponent shall carry out a comprehensive socio-economic assessment and also impact on biodiversity with emphasis on impact of ongoing land acquisition on the local people living around the proposed alignment. The Social Impact Assessment should have social indicators which can reflect on impact of acquisition on fertile land. The Social Impact Assessment shall take into consideration of key parameters like people's dependency on fertile agricultural land, socio-economic spectrum, impact of the project at local and regional levels.
- xii. As per the Ministry's Office Memorandum F. No. 22-65/2017-IA.III dated 30<sup>th</sup> September, 2020, the project proponent, based on the commitments made during the public hearing, shall include all the activities required to be taken to fulfil these commitments in the Environment Management Plan along with cost estimates of these activities, in addition to the activities proposed as per recommendations of EIA Studies and the same shall be submitted to the ministry as part of the EIA Report. The EMP shall be implemented at the project cost or any other funding source available with the project proponent.
- xiii. In pursuance of Ministry's OM is required to state in an additional annexure in the EIA Report stating that all the commitments made by the PP to the public during public hearing and the same be submitted to the Ministry and the EAC.
- xiv. The Action Plan on the compliance of the recommendations of the CAG as per Ministry's Circular No. J-11013/71/2016-IA.I (M), dated 25<sup>th</sup> October, 2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.
- xv. Passage for animal movement has to be detailed in the report (irrespective of an alignment is passing through Forest/protected/ecologically important area).
- xvi. A comprehensive plan for plantation of three rows of native species, as per IRC guidelines, shall be provided in consultation with state forest department including the costs involved. Such plantation alongside of forest stretch will be over and above the compensatory afforestation. Tree species should be same as per the forest type.
- xvii. Detailed Biodiversity assessment and conservation/mitigation plan be developed by a of nationally reputed institute such as SACON, Gujarat Institute of Desert Ecology (GUIDE) etc. The study should also highlight and mark with geo coordinates of the presence of nesting sites if any for riverine birds like Indian Skimmer etc.
- xviii. Rain water harvesting structures to be constructed at the either sides of the road with special precaution of oil filters and de-silting chambers.



## 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.
- (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, tehsils, 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 19<sup>th</sup> March 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 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 16<sup>th</sup> 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.
- (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) 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>".

#### **GENERAL GUIDELINES**

- (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](http://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 4<sup>th</sup> 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 4<sup>th</sup> 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.
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 before expiry of validity of ToR.
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 19<sup>th</sup> July, 2013.
9. The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP Reports.
10. This issues with the approval of Competent Authority.

  
(Amardeep Raju)  
Scientist 'E'

Copy to:

1. Member secretary, Bihar State Pollution Control Board, Parivesh Bhawan, Plot No. Ns-B/2 Paliputra Industrial Area, Patliputra, Patna (Bihar) - 800 010.
2. Addl. Principal Chief Conservator of Forests (C), Ministry of Env., Forest and Climate Change, Regional Office (ECZ), Bunglow No. A-2, Shyamali Colony, Ranchi-834 002

  
(Amardeep Raju)  
Scientist 'E'