

# Addendum to Environmental Impact Assessment

September 2017

## IND: SASEC Road Connectivity Investment Program – Tranche 1

Asian Highway 2 (India /Nepal Border to India/Bangladesh Border)  
Asian Highway 48 (India/Bhutan Border to India/Bangladesh Border)

Prepared by the Ministry of Roads Transport and Highways, Government of India and Public Works Department, Government of West Bengal for the Asian Development Bank. This is an addendum to the final EIA posted in December 2013 available on <https://www.adb.org/sites/default/files/project-document/79885/47341-001-eia.pdf>.

## CURRENCY EQUIVALENTS

(as of 30 May 2017)

Currency unit		Indian rupee (Rs)
INR1.00	=	\$ 0.0154
\$1.00	=	INR 64.6439

## ABBREVIATIONS

ADB	-	Asian Development Bank
AH	-	Asian Highway
COI	-	Corridor of Impact
CPCB	-	Central Pollution Control Board
DPR	-	Detailed Project Report
EC	-	Environmental Clearance
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
GoWB	-	Government of West Bengal
IRC	-	Indian Road Congress
IS	-	Indian Standard
IUCN	-	International Union for Conservation of Nature
MORTH	-	Ministry of Road Transport & Highways
MoEF&CC	-	Ministry of Environment, Forests & Climate Change
NOC	-	No Objection Certificate
PIA	-	Project Influence Area
PIU	-	Project Implementation Unit
RF	-	Reserved Forest
ROW	-	Right of Way
SASEC	-	South Asian Sub Regional Economic Cooperation

This addendum to the environmental impact assessment is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature. Your attention is directed to the "terms of use" section of this website.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

## TABLE OF CONTENTS

I. INTRODUCTION AND BACKGROUND OF THE PROJECT.....	1
A. Introduction .....	1
B. Background of the Project .....	1
C. Extent of the Addendum .....	2
D. Outline of the Addendum.....	2
II. PROPOSED CHANGE IN SCOPE .....	3
A. Justification for Proposed Changes .....	3
B. Revised Scope of Work .....	6
III. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES.....	8
A. Background .....	8
B. Impacts and Mitigation Measures .....	8
IV. ENVIRONMENTAL MANAGEMENT AND ENHANCEMENT .....	13
A. Environmental Management Plan.....	13
B. Environmental Enhancement.....	19
C. Environmental Reporting System .....	19
D. Implementation Arrangements and Institutional Capacity .....	19
V. PUBLIC AND STAKEHOLDER CONSULTATIONS .....	20
A. Introduction .....	20
B. Consultations with Affected Communities.....	22
VI. CONCLUSIONS AND RECOMMENDATIONS.....	23

### APPENDICES

Appendix 1: Permission Letter from Chief Wildlife Warden .....	24
Appendix 2: Proposed Activities for Budget Support to Jaldhpara National Park.....	26
Appendix 3: Record of Consultations .....	28

### LIST OF TABLES

Table 1: Summary of Tranche 1 Subprojects .....	1
Table 2: Comparative Study of Proposal With and Without Elephant Underpass .....	5
Table 3: Comparative Analysis of Impacts With and Without Change in Scope.....	8
Table 4: Updated Environmental Management Plan for Impacts on Flora and Fauna for Road Section within JNP .....	14
Table 5: Sequence of Consultation Events related to Forest & Wildlife Clearance in AH-48.....	20
Table 6: Summary of Public/Community Consultations undertaken during July-Dec 2016 .....	23

### LIST OF FIGURES

Figure 1: Cross Section (With and Without Change in Scope) .....	7
--	---



## I. INTRODUCTION AND BACKGROUND OF THE PROJECT

### A. Introduction

1. This Addendum is prepared for the Environmental Impact Assessment (EIA) report of the West Bengal subprojects under tranche 1 of the SASEC Road Connectivity Investment Program (SRCIP) being funded under ADB Loan through a Multitranchise Financing Facility (MFF) modality. Tranche 1 includes two subprojects in West Bengal State of India i.e. i) 37 Km of AH2 connecting Nepal, Bangladesh and India, and (ii) 97 Km of AH48 connecting Bhutan, India and Bangladesh. There has been a change in scope of works in the AH48 subproject in May 2017. Therefore this addendum to the EIA report has been prepared to fulfill ADB's requirements for any change in project scope as specified in the EARF and Loan Agreement.

### B. Background of the Project

2. The GOI sought financial assistance from ADB to implement SRCIP which is an integral part of part of India's investment program for regional connectivity ("Regional Road Connectivity Program"), which is in line with the SASEC framework. The ADB Loan was provided through Multitranchise Financing Facility (MFF) modality for US\$ 500 million to be implemented in tranches from 2015 to 2022. The GOI entered into a Framework Financing Agreement (FFA) with ADB on 26 February 2014. The first loan for Tranche 1 (Loan Number 3118-IND) amounting to US\$ 300 million was approved by ADB Board on 01 April 2014. Subsequently a loan agreement was signed on 26 March 2015 and this loan became effective on 24 June 2015.

3. The Project 1 or Tranche 1 of the MFF was designed to improve two national highways subprojects totaling about 135km in West Bengal State and a state road subprojects totaling about 130km in Manipur State. The civil works under Tranche 1 are grouped in 3 packages. The two civil work contracts in West Bengal State have been awarded in the second quarter of the year 2015 whereas civil works contract in Manipur State was awarded in March 2016. Subsequently contractors have been mobilized. Table 1 shows details of tranche 1 subprojects.

**Table 1: Summary of Tranche 1 Subprojects**

Contract Package	Subprojects / Road Section	State	Implementing Agency	Contract Award/ Appointed Date
<b>SRCIP-MO RTH/WB-AH-02</b>	Asian Highway No 2: Panitanki-Shiva mandir Mor-Medical Mor- Fulbari (Nepal-India-Bangladesh)	West Bengal	PIU (AH-02) of State Public Works Department, Government of West Bengal	29 Jan 2015/ 28 May 2015
<b>SRCIP-MO RTH/WB-AH48</b>	Asian Highway No 48: Jaigaon-Hasima ra-Dhupguri and Mainaguri-Chan grabandha (Bhutan-India-Bangladesh)	West Bengal	PIU (AH-48) of State Public Works Department, Government of West Bengal	12 Nov 2014/ 28 May 2015
<b>MN/PWD/EAP /04</b>	Imphal-Kanchup-Tamenglong Road	Manipur	PIU (EAP) of State Public Works Department, Government of Manipur	21 March 2016 / 12 August 2016

4. As part of processing the MFF two sample subprojects in West Bengal State i.e. (i) 37 Km of AH2 connecting Nepal, Bangladesh and India, and (ii) 97 Km of AH48 connecting Bhutan, India and Bangladesh, have been assessed following SPS 2009 requirements. The project has been classified as Category A based on ADB's Safeguard Policy Statement 2009 and a detailed EIA was carried out which was finalized in December 2013 after disclosing it for 120 days on the ADB website for comments/objections as per ADB's guidelines. An Environmental Assessment and Review Framework (EARF) has also been prepared for the MFF and disclosed on ADB website.

5. About 2.6 km length of AH-48 subproject passes through Jaldapara National Park and a major recommendation in the EIA was the provision of Elephant Underpasses (EUPs) at three locations at chainage 85+760, 86+214, 86+953 in Jaldapara National Park section. The existing Halong Bridge in this section of the road was also considered as elephant underpass. The existing project road has approximately 24 m of ROW within the National Park Area. Accordingly to accommodate the underpasses, approximate 7.2258 Ha. of National Park land was required to be diverted and the project proponent submitted the diversion proposal along with 3.7434 ha. of forest land diversion proposal.

6. The subprojects in West Bengal State are being implemented and substantial physical progress (58.45 % in AH02 and 54.20 % in AH48 as on 31 March 2017) has been achieved. However during implementation a decision was made to remove construction of 3 elephant underpasses under the project scope in the 2.6 km section of AH-48 subproject (passing through Jaldapara National Park) due to recommendations from the forest department. The detailed rational and scope of change in design has been presented in following sections.

7. Since this modification to the design is considered as a change (reduction) in scope (change in design and cross section), as per provisions of the approved EARF, an Addendum to the EIA is required to address potential environmental impacts and mitigation measures associated with proposed change in scope.

### **C. Extent of the Addendum**

8. This Addendum covers the minor change in scope of works for the AH48 subproject under Tranche 1 of the SRCIP Project. The minor change in scope involves exclusion of three elephant underpasses (at chainage 85+760, 86+214, and 86+953) proposed in the 2.6 km long section passing through Jaldapara National Park and reduction of road improvement works to simple resurfacing and strengthening works within the existing Right of Way (ROW).

### **D. Outline of the Addendum**

9. This Addendum has been presented key issues associated with proposed change in the scope and include sections on:

- **Chapter - 1: Introduction:** Presents background, extent of the Addendum and structure of the report.
- **Chapter - 1: Change in the Scope:** Give details of the proposed change in the scope and its justification.
- **Chapter - 2: Anticipated Environmental Impacts and Mitigation Measures:** This chapter details out environmental impacts, mitigation, avoidance and enhancement measures due to change in the scope.
- **Chapter - 3: Environmental and Wildlife Management Plan:** Suggests key environmental impacts and mitigation measures including updated Wildlife

Management Plan to address wildlife management and monitoring activities for the proposed change in the scope.

- **Chapter - 4: Stakeholders' Consultations:** Gives details of the stakeholder and public consultations undertaken as part of change in scope.
- **Chapter - 5: Conclusions and Recommendations:** Covers key findings and recommendations.

## II. PROPOSED CHANGE IN SCOPE

### A. Justification for Proposed Changes

10. Construction of the three elephant underpasses (as originally proposed) requires acquisition of about 7.2258 hectare of land from JNP. Therefore it requires a Wildlife Clearance from the Ministry of Environment, Forest and Climate Change (MoEFCC) in accordance with the Wildlife Protection Act of India.

11. As per existing MoEFCC Guidelines online proposals<sup>1</sup> were submitted for diversion of Forest and Wildlife land. In order to facilitate the diversion proposal, a meeting and presentation was convened by the Nodal Officer, CA & FCA, West Bengal, on 2<sup>nd</sup> May 2016 at Aranya Bhavan, Kolkata. The meeting was chaired by Principle Chief Conservator of Forests (PCCF) & Head of Forest Force (HoFF), and attended by a number of senior forest officials. The points were discussed in the meeting:

- a) The pros and cons of the underpasses and raised serious doubts on the efficacy of the underpasses only for elephants.
- b) It was apprehended that during long construction period of EUP, there may be straying of elephants near to the habitation and may increase man-wild conflict in the area.
- c) Further it was also apprehended that, different types of wild animal may not prefer to share EUP among themselves, so the construction of EUP may be counterproductive.
- d) The improvement proposal within the Jaldapara NP includes only widening of earthen flank to 2m on either side and existing carriageway of 10 m would not be widened any further. So there is practically no requirement for raising the level of existing road if elephant underpass is not required to be constructed. The raising of level would only be required when EUP is constructed (to provide 6 m vertical clearance) and in that case the level of road would rise by about 4 m in whole stretch from the existing level. This abnormal raising of whole road would further restrict the movement of wild animal from other area except proposed EUP area.
- e) It was also discussed that if construction of EUP is discounted, the proposed improvement under Asian Highway No. 48 Project can be accommodated within the existing ROW itself and no additional land shall be required from JNP and there would be very minimal environmental impact.
- f) It was also discussed that with the construction of the new 4-lane East West Corridor route passing through Dhupguri – Falkata – Salsalabari, commercial traffic on AH48 shall also be significantly reduced in future. The proposed 4-lane is in advance stage of detailed design report preparation.
- g) The HoFF requested the project proponent to send an alternative analysis proposal for the construction of the EUPs vis-à-vis no construction of EUP and widening of flank by 2m within the ROW, based on which the forest department

may seek expert advice on the matter.<sup>1</sup>

12. The Chief Wild Life Warden (CWLW) on reviewing the proposal suggested that the entire stretch of 2.6 km in Jaldapara National Park should be made “elevated road on Pillars to avoid accidental collision”<sup>2</sup>. This matter was subsequently discussed in a meeting chaired by the Chief Secretary, WB at Madarihat, Jaldapara Tourist Lodge and attended by the PWD Secretary, Forest Secretary, District Magistrate and Project Director AH48 on 28<sup>th</sup> June 2016. On deliberation by the secretaries, it was concluded that since the elevated corridor was not financially viable and had severe environmental impacts on the National Park (diversion of land, felling of trees, disturbances to the natural wildlife movement during construction and expected increased man animal conflict). Also since there shall not be a huge increase of traffic and maintenance of the existing road in its current form with strengthening & improvement is the best desirable option, it was decided that the forest department would allow AH48 authority to improve road at present level without any elephant underpass and any preventive measures suggested by forest department would be agreed by AH48 authority<sup>3</sup>.

13. Subsequently, a meeting was chaired by PCCF & CWLW, West Bengal and attended by CCF, Wildlife (North), DFO, Jaldapara Wildlife Division, Project Director (AH48) and other relevant officials on 22<sup>nd</sup> November 2016 at Madarihat, Jaldapara National Park. The meeting culminated with the decision to allow the project authorities to undertake work in the NP area without constructing EUPs subject to certain conditions<sup>4</sup>.

14. Based on recommendations by the sub-committee of NBWL on guidelines for roads in protected areas issued by the MoEF&CC, Govt. of India vide F. No. 6-62/2013 WL dated 22-12-2014 the competent authority, the PCCF & Chief Wildlife Warden, Govt. of West Bengal vide letter no: 659/WL/2M-166/2016 dated 06-02-2017 has issued the permission to the project authority for improvement (resurfacing and strengthening) of existing road within Jaldapara National Park in accordance with existing rules and guidelines and the directions mentioned above. Based on the direction of the MoM of the CWLW, the Wildlife Management Plan incorporating various mitigation measures that are quantifiable and can be easily monitored was shared with the DFO, Jaldapara Wildlife Division, Coochbehar vide Memo No: AH-48/13-4/1601 dated 28<sup>th</sup> November 2016 and subsequently revised to incorporate the changes (as suggested by DFO) in the proposals. The revised Wildlife Management Plan has been submitted to the Principal Chief Conservator of Forest & Head of Forest Force, Kolkata (West Bengal State) vide Memo No.: AH-48/13-4/421 dated 11<sup>th</sup> August 2017.. Once the mitigation measures are agreed by the forest and wildlife department, the same shall be implemented under the project.

15. Under these circumstances, where the concerned stakeholder and custodian of the Jaldapara National Park has clearly expressed their reservations on the efficacy of the elephant underpasses and hence deem these EUPs as unwarranted, it is difficult for the project authority to proceed with construction of elephant underpasses within the NP areas. It is to be noted that as per the rules and guidelines of the MoEF&CC, Govt. of India, the permission of the Chief Wildlife Warden, West Bengal is mandatory following the procedure laid down by the National Board of Wildlife (NBWL). Therefore, the provision of Elephant Underpasses as proposed in the

<sup>1</sup> Proposal sent to the PCCF & HoFF, WB vide Memo No: AH-48/13-4/236 dated 24<sup>th</sup> May 2016

<sup>2</sup> Communication from Conservator of Forests, LA & FCA vide letter No. 2987/I & LT/2M-1120/15 dated 27<sup>th</sup> June 2016

<sup>3</sup> Letter from the project authority to the PCCF, Wildlife & Chief Wildlife Warden, West Bengal vide Memo No: AH-48/13-4/466 dated 6<sup>th</sup> September 2016 with a request to that the proposal with no construction of EUP and no raising of existing road embankment may be considered which would involve minimum impacts on Jaldapara National Park

<sup>4</sup> MoM signed by the PCCF & Chief Wildlife Warden, WB sent by CF, Wildlife (HQ), West Bengal vide letter No. 401/WL 2M-166/16 dated 24<sup>th</sup> January 2017



EIA report is required to be withdrawn and the alternative as permitted by the Chief Wildlife Warden mentioned has to be taken up. A comparative statement (Table 2) showing the different parameter in earlier proposed diversion proposal and now as per permission allowed by CWLW clearly shows that the environmental impacts are less in later case and is the best possible solution.

**Table 2: Comparative Study of Proposal With and Without Elephant Underpass**

Sl. No.	Particulars	Existing	Diversion Proposal (With Elephant Underpass)	As Per Permission Granted (Without underpass)
1	Length (Km)	2.915	2.915	2.915
2	Lane configuration	2 lanes	2 lanes with paved shoulders	2 lanes with paved shoulders
3	Width (m)	10 m with minimum flank	10m + 2 X 2m flank	10m + 2 X 1m flank
4	Embankment Height (m)	2-3	7-8	2.2-3.2 m
5	Embankment slope	1:1	1:1	1:1
6	Traffic (AADT) in 2013	7049	-	-
7	Traffic (AADT) in 2016	7187	-	-
8	Traffic (AADT) in 2030 (Projected)	13030	13030	13030
9	Design Speed (Kmph)	60-80	60-80	60-80 (permissible limit in NP Area: 40 kmph)
10	ROW (m)	24	45	24
11	Average width of land required (m)	NA	Varies between 8 – 15m (average width 10.5m on each side)	Nil
12	Forest land diversion (Ha.)	NA	7.869	Nil
13	Elephant Underpasses (EUP)	1 (Halong bridge)	3 new + 1 existing (Halong bridge)	1 existing (Halong bridge)
14	Trees proposed to be felled	NA	833	Nil
15	Construction time (years)	NA	1 Year	2 month
16	Temporary diversion of traffic required	NA	Yes	Yes (one way only during resurfacing period of max 1 month. No encroachment in national park land).
17	Cost of construction in the area (INR Crore)	NA	35 Crore	12-crore
18	Damage to flora		Yes	No
19	Damage to fauna		Yes	No
20	Straying of wild animal during construction of EUP		Likely	NA
21	Chances of man – wildlife conflict in nearby inhabited areas during construction of EUP/road		Likely	Perceived
22	Chances of elephant changing its movement route during construction of EUP		Yes	Perceived
23	Possibility of restriction of movement of wild animal/elephant		Yes	No

Sl. No.	Particulars	Existing	Diversion Proposal (With Elephant Underpass)	As Per Permission Granted (Without underpass)
	due to abnormal height of embankment			
24	Possibility of vehicle – wildlife collision due to direct interactions between wildlife and vehicles		Low	High
<b>24</b>	<b>Overall risks on Wildlife &amp; Environment</b>		<b>More risks related to construction as well as operation.</b>	<b>Only one main risk of vehicle – wildlife collision during construction as will operation.</b>

## B. Revised Scope of Work

16. The scope of work is proposed now included improvement (resurfacing and strengthening) of existing 2.915 km long road section of AH-48 in Jaldapara National Park. The strengthening work will include overlaying (resurfacing) 10 m bituminous carriageway and strengthening 1 X 1 m earthen flank on both sides, same as is existing. There is no raising proposed in embankment except minor profile correction in small stretches. The existing damaged bituminous layer would be removed first and the underlying layer would be corrected with profile corrective layers of WMM over which fresh bituminous layer of DBM and BC would be laid. 1m earthen flank would be developed subsequently on both sides overlay and strengthening of 1m flanks on each side of the road. The improvement work will be carried out within existing roadway width. The road configuration will include:

- Main carriageway: 7m
- Paved shoulders: 1.5 m each side
- Earthen shoulder: 1m each side
- **Total formation road width: 12m**
- Overlay pavement composition: BC: 50 mm, DBM: 90 mm, WMM: 150 mm;

17. Typical cross sections of original scope and changed scope are shown in Figure 1.



### III. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

#### A. Background

18. This section assesses and presents a comparative analysis of impacts with and without change in scope and description of adjustment in mitigation measures in light of the revised scope.

19. As the change in the scope included improvement of the existing road sections instead of construction of elevated underpasses, the impacts associated with physical and socio-economic environments will be similar in both the cases. However since the duration of the construction work will be reduced by 8 months (from 10 months to 2 months), the associated impacts will be limited to 2 months construction period. The only major change in the impacts will be associated with ecological environment as the road construction work will take place inside Jaldapara National Park. Therefore the comparative analysis of impacts is focused on biological environment parameters.

#### B. Impacts and Mitigation Measures

20. Table 3 present the stagewise (pre-construction, construction and operation) comparative analysis of impacts with and without change in scope and description of adjustment in mitigation measures in light of the revised scope.

**Table 3: Comparative Analysis of Impacts With and Without Change in Scope**

Particulars	Impacts		Adjustment in Mitigation Measures
	(Without Change in Scope)	(With Change n Scope)	
<b>Pre-construction Stage Impacts</b>			
Terrestrial Ecology - Flora	About 2.915 km length passes through Jaldapara National park. This requires:	About 2.915 km length passes through Jaldapara National Park. This requires:	
	<ul style="list-style-type: none"> <li>45 m right of way which leads to diversion (acquisition) of 7.869 hectares of National Park land for non-forest purpose. This will lead to ecological disturbances and soil erosion.</li> </ul>	<ul style="list-style-type: none"> <li>24 m right of way (available with road authority). No diversion of National Park land.</li> </ul>	<ul style="list-style-type: none"> <li>No forestry clearance for diversion of forest land required</li> <li>Compensatory afforestation and plantation by forest department.</li> </ul>
	<ul style="list-style-type: none"> <li>833 trees required to be cleared for widening and improvement of AH-48 sub-project within JNP area.</li> </ul>	<ul style="list-style-type: none"> <li>No loss of trees.</li> </ul>	<ul style="list-style-type: none"> <li>No tree cutting permit is required</li> <li>Additional plantation of trees will still be carried out by the contractor</li> </ul>
	<ul style="list-style-type: none"> <li>Vulnerable species may get affected due to project activity.</li> </ul>	<ul style="list-style-type: none"> <li>No impacts of vulnerable floral species.</li> </ul>	<ul style="list-style-type: none"> <li>No vulnerable species will be removed in the 2.6km section inside JNP.</li> <li>However, additional plantation of local species including vulnerable species will still be carried out by the contractor in</li> </ul>

Particulars	Impacts		Adjustment in Mitigation Measures
	(Without Change in Scope)	(With Change n Scope)	
			coordination with local forestry department.
Terrestrial Ecology - Fauna	<p>About 2.915 km length passes through Jaldapara National park. also falls within elephant movement corridors. Elephants cross this stretch at four identified locations. Indian Bison is the other animal which crosses the AH-48 road in Jaldapara section mostly in night time. Occasionally deer also crosses the road in this section. Rhinoceros reportedly does not cross this road section as they prefer to stay in deeper part of the Jaldapara National Park. Improved road with elephant underpasses (EUP) and elevated embankments lead to:</p>	<p>About 2.915 km length passes through Jaldapara National park. also falls within elephant movement corridors. Elephants cross this stretch at four identified locations. Indian Bison is the other animal which crosses the AH-48 road in Jaldapara section mostly in night time. Occasionally deer also crosses the road in this section. Rhinoceros reportedly does not cross this road section as they prefer to stay in deeper part of the Jaldapara National Park. Improvement of road with resurfacing (overlay and shoulders) within available road width will lead to:</p>	
	<ul style="list-style-type: none"> <li>• Clearance from National Board for Wildlife (NBWL) of India is required.</li> </ul>	<ul style="list-style-type: none"> <li>• No clearance. State Wildlife authorities have given permission to undertake work under changed scope.</li> </ul>	<ul style="list-style-type: none"> <li>• No action required</li> </ul>
	<ul style="list-style-type: none"> <li>• Construction of EUP would require raising of existing road level (to provide 6 m vertical clearance) and in this case the level of road would rise by about 4 m in whole stretch from the existing level. This abnormal raising of whole road would further restrict the movement of wild animal from other area except proposed EUP area.</li> </ul>	<ul style="list-style-type: none"> <li>• No impacts as existing road will kept at same level.</li> </ul>	<ul style="list-style-type: none"> <li>• No adjustment in design required to provide passages (cross drains and culverts) on the high embankment road for other wildlife species since it was mainly required only in case of elevated embankments i.e. in case of EUP.</li> <li>• Installation of informatory sign boards and speed control measures will still be undertaken</li> </ul>

Particulars	Impacts		Adjustment in Mitigation Measures
	(Without Change in Scope)	(With Change n Scope)	
	<ul style="list-style-type: none"> <li>Traffic diversion during construction of EUPs will lead to loss of flora and fauna and also man-wildlife conflict traffic will be diverted through national park area.</li> </ul>	<ul style="list-style-type: none"> <li>No impacts since no traffic diversion required.</li> </ul>	<ul style="list-style-type: none"> <li>No action required</li> </ul>
<b>Construction Stage Impacts</b>			
Terrestrial Ecology - Flora	<ul style="list-style-type: none"> <li>Cutting of 833 trees will lead to loss of ecological balance.</li> <li>Traffic diversion in national park land for 12 months will further lead to loss of vegetation cover and compaction of soils.</li> <li>Potential loss of trees and forest cover by laborers for fuel during 12 months construction period.</li> </ul>	<ul style="list-style-type: none"> <li>No impacts due to tree cutting and diversion of traffic. These are not required with changes scope.</li> <li>Construction period will be 2 months only.</li> </ul>	<ul style="list-style-type: none"> <li>Additional plantation will be carried out by contractor.</li> <li>Habitat enhancement activities have been proposed to be implemented by forest department (see chapter IV on Project support to JNP).</li> <li>Construction truck and equipment will move only in the designated areas within ROW and without affecting the adjacent national park land. No construction waste will be dumped in the forest area.</li> <li>All construction waste generated must be removed in the same day from the NP section</li> <li>Strict clauses in contract on illegal cutting of trees by contractor laborers will be followed.</li> </ul>
Terrestrial Ecology - Fauna	<ul style="list-style-type: none"> <li>Disturbance to the wildlife inside Jaldapara National Park due to construction activities for 12 months.</li> <li>The operation of various construction equipment is likely to generate significant noise. Noise disturbance may cause migration of the animals to other areas which may increase the probability of human-animal conflicts.</li> <li>Setting of construction camp near forests or protected area may generally disturb surrounding fauna.</li> </ul>	<ul style="list-style-type: none"> <li>Impacts will be limited to 2 months only and it will be very minor compared to constructing underpasses with high embankment road over a 12 month period. Therefore overall risks for negative impacts on wildlife will be substantially reduced</li> </ul>	<ul style="list-style-type: none"> <li>Signage for no-noise zones, wildlife conservation boards should be installed at the required project sites.</li> <li>Noise generating equipment like DG set, compressors will have acoustic enclosures. These will not be installed within one km area of National Park. Noise generating activities should not be permitted during night.</li> <li>Drivers should be warned to move slowly in the wild life movement areas.</li> </ul>

Particulars	Impacts		Adjustment in Mitigation Measures
	(Without Change in Scope)	(With Change n Scope)	
	<ul style="list-style-type: none"> <li>• There will be an increased risk in poaching incidents due to the long construction period</li> <li>• Construction work of elevated embankment may create barrier for free movement of wild animals during 12 months. This may also lead to change in movement pattern of animals to other areas.</li> </ul>		<ul style="list-style-type: none"> <li>• If any elephants and wildlife come within the vicinity of 100m from the construction site construction works must immediately stop and resume only after the elephants/wildlife have moved away</li> <li>• Provisions of signage as a precautionary measure to provide awareness about animal movement will be made to avoid accidents</li> <li>• No construction activity will be undertaken in the elephant movement area between November to January and May to July. All efforts must be made to complete the construction work as quickly as possible, as delaying the works to more than one season will disrupt the movement of elephant and other wildlife</li> <li>• Minimization of any untoward incidence and probable harm due to poaching activities from immigrant labor population. Strict anti-poaching surveillance measures need to be implemented during project construction phase in the areas of Jaldapara national park.</li> </ul>
<b>Operation Stage Impacts</b>			
Terrestrial Ecology - Flora	<ul style="list-style-type: none"> <li>• Positive impacts on terrestrial ecology are expected during the project operation stage due to the increase in vegetation and landscaping along the state highway. The project will coordinate with the local communities to maintain and enhance the trees</li> </ul>	<ul style="list-style-type: none"> <li>• No change.</li> </ul>	<ul style="list-style-type: none"> <li>• Habitat enhancement activities have been proposed to be implemented by forest department (see chapter IV on Project support to JNP).</li> </ul>

Particulars	Impacts		Adjustment in Mitigation Measures
	(Without Change in Scope)	(With Change n Scope)	
	planted along the state road. "No adverse impact is anticipated during operation stage except accidental damages or absence of proper tree management.		
Terrestrial Ecology – Fauna	<ul style="list-style-type: none"> <li>• Potential increase in Man-Animal conflict (through animals straying into nearby agricultural fields) expected due to creation of barrier by raising embankment by 4m.</li> <li>• Potential change in wildlife movement pattern and elephant movement corridors.</li> <li>• Potential reduced risk of collision between vehicles and elephants and larger mammals</li> </ul>	<ul style="list-style-type: none"> <li>• Potential reduction in Man-Animal conflict expected as there will be no high embankment road that could form a barrier to wildlife.</li> <li>• No major change in movement of wildlife/elephants</li> <li>• Increased risk of collision of vehicles with wildlife due to increased traffic and better road conditions on either side of the 2.6km stretch of road inside JNP</li> </ul>	<ul style="list-style-type: none"> <li>• Speed limit of maximum of 40 km/hr will be imposed in National Park area with adequate retroreflecting warning sign boards to avoid accidents</li> <li>• Overtaking will not be allowed in the national park area</li> <li>• Construction of rumble strips and other features that will prevent speeding of vehicles</li> <li>• Informatory sign boards on the national park and wildlife species in the project area will be installed at suitable locations along the road</li> <li>• To ensure enforcement, training will be provided as part of the project</li> <li>• Project support for wildlife conservation and capacity enhancement of JNP management will be provided through provision of budget for implementing selected activities under the JNP Management Plan. (See chapter IV for further details)</li> <li>• Monitoring of wildlife movement including incidents of vehicle – wildlife collisions along AH 48 as well as the section inside JNP, during the first 3 years of project operation will be undertaken by the Wildlife Expert of the External Monitor for Wildlife Management in coordination with JNP</li> </ul>



Particulars	Impacts		Adjustment in Mitigation Measures
	(Without Change in Scope)	(With Change n Scope)	
			<p>authorities. If increased incidents of vehicle – wildlife collisions are experienced, necessary additional mitigation measures will be implemented by the maintenance contractor under instructions from West Bengal State PWD.</p> <ul style="list-style-type: none"> <li>• The monitoring of collisions will be done against the baseline data (to be monitored in first year prior to start of construction).</li> </ul>

21. It can be seen from the table above that the impacts on environment and wildlife due to change in scope have been substantially reduced during construction stage. Other general impacts are those associated with road construction activities will be controlled by implementing environmental friendly road construction methods as proposed in the EMP for the AH48 subproject and included in the original EIA dated December 2013 version. The EMP is also part of the contractor's contract documents. The key long term risk is potential increase in vehicle – wildlife collisions due to increased traffic and increased speed of vehicles. This will be mitigated through a number of speed control and monitoring measures.

#### IV. ENVIRONMENTAL MANAGEMENT AND ENHANCEMENT

##### A. Environmental Management Plan

22. This section presents the revised Environmental Management Plan (EMP) for AH48 subproject including monitoring activities. There will not be any changes in the mitigation measures and monitoring requirements proposed for physical and socio-economic environment parameters (such generation of dust from earthworks; noise and exhaust from operation of equipment/machinery/vehicles; generation of construction waste as well as wastes from construction and worker camps; water contamination and water supply issues; occupational health and safety issues with the workers and local communities; issues of erosion and siltation and removal of trees etc.) for which mitigation and monitoring requirements are included in the original EMP (Dec. 2013 version of EIA). These measures will be applicable to whole AH48 subproject including the section within Jaldapara National Park.

23. Specific mitigation and monitoring requirements for biological environment and particularly flora and fauna due to revised scope is provided in table 4 below..

**Table 4: Updated Environmental Management Plan for Impacts on Flora and Fauna for Road Section within JNP**

Environmental Component	Impact	Mitigation	Monitoring (Indicators, Frequency)	Responsibility
<b>1. Design and pre-construction stage impacts</b>				
Terrestrial Ecology - Flora	About 2.915 km length passes through Jaldapara National Park. This requires:			
	<ul style="list-style-type: none"> <li>24 m right of way (available with road authority). No diversion of National Park land.</li> </ul>	<ul style="list-style-type: none"> <li>No forestry clearance for diversion of forest land required</li> </ul>		
	<ul style="list-style-type: none"> <li>There will be no loss of trees.</li> </ul>	<ul style="list-style-type: none"> <li>No tree cutting permit is required</li> <li>Additional plantation of trees will still be carried out by the contractor</li> </ul>	Number, species of trees planted, location, survival rate  Once every 3 months	Tree plantation to be carried out by contractor.  Monitoring to be conducted by ISC and the External Monitor
	<ul style="list-style-type: none"> <li>There will be no impacts on vulnerable floral species.</li> </ul>	<ul style="list-style-type: none"> <li>No vulnerable species will be removed in the 2.6km section inside JNP.</li> <li>However, additional plantation of local species including vulnerable species will still be carried out by the contractor in coordination with local forestry department.</li> </ul>	Number, species of trees planted, location, survival rate  Once every 3 months	Tree plantation to be carried out by contractor.  Monitoring to be conducted by ISC and the External Monitor
Terrestrial Ecology - Fauna	About 2.915 km length passes through Jaldapara National park. also falls within elephant movement corridors. Elephants cross this stretch at four identified locations. Indian Bison is the other animal which crosses the AH-48 road in Jaldapara section mostly in night time. Occasionally deer also crosses the road in this section. Rhinoceros reportedly does not			

Environmental Component	Impact	Mitigation	Monitoring (Indicators, Frequency)	Responsibility
	cross this road section as they prefer to stay in deeper part of the Jaldapara National Park. Improvement of road with resurfacing (overlay and shoulders) within available road width will lead to:			
<b>2. Construction Stage Impacts</b>				
Terrestrial Ecology - Flora	<ul style="list-style-type: none"> <li>No impacts due to tree cutting and diversion of traffic.</li> <li>Construction period will be 2 months only. Hence, risks of illegal tree felling and destruction of vegetation inside JNP will be minimal</li> </ul>	<ul style="list-style-type: none"> <li>Additional plantation will be carried out by contractor.</li> <li>Habitat enhancement activities have been proposed to be implemented by forest department (see chapter IV on Project support to JNP).</li> <li>Construction truck and equipment will move only in the designated area and without affecting the adjacent national park land. No construction waste will be dumped in the forest area.</li> <li>Strict clauses in contract on illegal cutting of trees by contractor laborers will be followed.</li> </ul>	<p>Number, species of trees planted, location, survival rate. Once every 3 months</p> <p>Number and type of habitat enhancement activities implemented inside JNP. Once every 3 months</p> <p>No construction trucks parked or moving outside road ROW/ inside JNP area. No construction debris disposed inside JNP area. No entry of workers inside JNP area. Daily site inspection on construction site.</p>	<p>Tree plantation to be carried out by contractor.</p> <p>Monitoring to be conducted by PIU, ISC and External Monitor</p> <p>Habitat enhancement activities to be implemented by JNP officials. Monitoring to be done by PIU and External Monitor in coordination with JNP authorities.</p> <p>Compliance on construction vehicles, construction debris, workers etc. to be followed by contractor. Monitoring to be carried out by ISC and PIU.</p>
Terrestrial Ecology - Fauna	<ul style="list-style-type: none"> <li>Impacts will be limited to 2 months only and it will be very minor compared to constructing underpasses with high embankment road over a 12 month period. Therefore overall risks for negative</li> </ul>	<ul style="list-style-type: none"> <li>Signage for no-noise zones, wildlife conservation boards should be installed at the required project sites.</li> <li>Restriction on overtaking in national park areas</li> <li>Noise generating equipment like DG set,</li> </ul>	<p>Number, location, quality and information on the sign boards. Monthly checks to be conducted.</p> <p>Location of noise generating equipment such as DG set should</p>	<p>All mitigation measures to be implemented by the contractor.</p> <p>Monitoring to be conducted by the PIU, ISC and External Monitor</p>

Environmental Component	Impact	Mitigation	Monitoring (Indicators, Frequency)	Responsibility
	impacts on wildlife will be substantially reduced	<p>compressors will have acoustic enclosures. These will not be installed within one km area of National Park. Noise generating activities should not be permitted during night.</p> <ul style="list-style-type: none"> <li>• Speed will be controlled inside the JNP section through installation of speed control signs.</li> <li>• If any elephants/wildlife come within the vicinity of 100m from the construction site construction works must immediately stop and resume only after the elephants/wildlife have moved away</li> <li>• Provisions of signage as a precautionary measure to provide awareness about animal movement will be made to avoid accidents</li> <li>• No construction activity will be undertaken in the elephant movement area between November to January and May to July. All efforts must be made to complete the construction work as quickly as possible, as delaying the works to more than one season will disrupt the movement of elephant and other wildlife</li> <li>• Implementation of strict anti-poaching surveillance</li> </ul>	<p>be outside JNP area. Weekly monitoring to be conducted.</p> <p>No. and type of speed control sign boards. Weekly monitoring to be conducted.</p> <p>Number of elephant /wildlife incidents on the construction site. Monthly monitoring to be conducted.</p> <p>Date and month and duration of construction activities on the road section inside JNP. Monthly monitoring to be conducted.</p>	

Environmental Component	Impact	Mitigation	Monitoring (Indicators, Frequency)	Responsibility
		measures in and around the road section near JNP		
<b>3. Operation stage impacts</b>				
Terrestrial Ecology - Flora		<ul style="list-style-type: none"> <li>Habitat enhancement activities have been proposed to be implemented by forest department (see chapter IV on Project support to JNP).</li> </ul>	Number and type of habitat enhancement activities implemented inside JNP. Once every 3 months	Habitat enhancement activities to be implemented by JNP officials. Monitoring to be done by WB State PWD and External Monitor
Terrestrial Ecology - Fauna	<ul style="list-style-type: none"> <li>Potential reduction in Man-Animal conflict expected as there will be no high embankment road that could form a barrier to wildlife.</li> <li>No major change in movement of wildlife/elephants</li> <li>Increased risk of collision of vehicles with wildlife due to increased traffic and better road conditions on either side of the 2.6km stretch of road inside JNP</li> </ul>	<ul style="list-style-type: none"> <li>Speed limit of maximum of 40 km/hr will be imposed in National Park area with adequate retroreflecting warning sign boards to avoid accidents</li> <li>No overtaking in national park areas</li> <li>Construction of rumble strips and other features that will prevent speeding of vehicles</li> <li>Informatory sign boards on the national park and wildlife species in the project area will be installed at suitable locations along the road</li> <li>Project support for wildlife conservation and capacity enhancement of JNP management will be provided through provision of budget for implementing selected activities under the JNP Management Plan. (See chapter IV for further details)</li> </ul>	<p>Number, location and quality of speed warning signs. Average speed of vehicles plying on the section inside JNP. Quarterly monitoring.</p> <p>Condition of rumble strips and their effectiveness in controlling vehicle speed. Quarterly monitoring.</p> <p>Number, quality and condition of signboards, type of information on signboards. Semi-annual monitoring.</p> <p>Number of type of activities implemented under JNP management plan</p> <p>Type and number of wildlife species crossing the road. Time of day,</p>	<p>Installation and maintenance of speed control signs and rumble strips etc. do be carried out by WB State PWD.</p> <p>Monitoring of the condition of speed control and informatory signboards to be carried out by PIU and External Monitor.</p> <p>Monitoring on progress of Project support activities to JNP to be conducted by WB State PWD and External Monitor</p> <p>Monitoring on wildlife movement and vehicle – wildlife collisions to be</p>

Environmental Component	Impact	Mitigation	Monitoring (Indicators, Frequency)	Responsibility
		<ul style="list-style-type: none"> <li>• Monitoring of wildlife movement including incidents of vehicle – wildlife collisions along AH 48 as well as the section inside JNP, during the first 3 years of project operation will be undertaken by the Wildlife Expert of the External Monitor for Wildlife Management. If increased incidents of vehicle – wildlife collisions are experienced, necessary additional mitigation measures will be implemented by the maintenance contractor under instructions from WB State PWD.</li> <li>• The monitoring of collisions will be done against the baseline data (to be monitored in first year prior to start of construction).</li> </ul>	<p>and month of crossing. Monthly monitoring through site visits and primary or secondary data if collected and provided by JNP officials.</p> <p>Number of collisions between vehicles and wildlife. Quarterly monitoring through site visits and primary or secondary data if collected and provided by JNP officials.</p>	<p>conducted by JNP officials as well as External Monitor.</p>

## **B. Environmental Enhancement**

24. The ADB SPS requires that there should be no “net loss” of biodiversity as a result of the project. And where possible a “net gain” in biodiversity is encouraged. This project aspires to result in a net-gain of biodiversity by providing a budget support of approximately INR 94 million or \$1.5 million to selected activities under the Jaldhpara National Park Management Plan. Proposed activities are broadly classified into 4 categories: 1) Habitat management and improvement; 2) Infrastructure and equipment support for patrolling and monitoring activities; 3) Education, awareness, communication and eco-tourism; and 4) Eco-development activities. Proposed activities under each category are provided in appendix 2. Implementation of the selected activities is subject to approval by the Department of Forest.

## **C. Environmental Reporting System**

25. The subproject will continue reporting with the ongoing reporting system. The PIU through the ISC and contractors will maintain monthly progress report on implementation level of EMP. Any deviation from the contract requirements with respect to proposed EMP will be documented, corrective measures implemented, and compliance monitoring conducted to ensure the project maintains in-compliance. PIU through MORTH will submit six-monthly environmental monitoring report to ADB.

26. As part of the feedback mechanism, the EFP of PIU with the support of the ISC environmental specialist will monitor project compliance with respect to: i) Environmental Management Plan, and ii) Applicable laws, rules and regulations.

27. The external wildlife monitor consultant will work in close coordination with MORTH, PIU (WBPWD), and ISC to conduct third party technical monitoring and provide feedback and technical advice to enhance the effectiveness of implementation of the EMP. External Wildlife Monitor will prepare six-monthly environmental monitoring report for PIU for further submission to ADB through MORTH.

## **D. Implementation Arrangements and Institutional Capacity**

28. There is no change in the subproject implementation arrangements. The executing agency is the Ministry of Road Transport & Highways, Govt. of India (MORTH) and the implementing agency (IA) is the West Bengal Public Works (Roads) Directorate (WBPWD). MoRTH through PIU has the overall responsibility for implementation and monitoring of EMP.

29. The implementation of AH48 subproject is being coordinated by a Project Implementation Unit (PIU) headed by Project Director. PIU is supported for implementation support consultant (ISC). Environmental expert of ISC is responsible for direct supervision and monitoring of contractor works whereas environment and safety office (ESO) of contractor is responsible for implementation of the EMP measures.

30. External monitor for wildlife conservation activities (EMWCA) is responsible for overall management and monitoring of wildlife management activities and conducting third party monitoring of EMP implementation and monitoring by the contractor and ISC respectively. The external monitor is also responsible for necessary coordination with wildlife/forest authorities, monitoring of wildlife protection activities, and reporting.

## V. PUBLIC AND STAKEHOLDER CONSULTATIONS

### A. Introduction

31. Successful implementation of the project requires coordinated efforts of various stakeholders at different levels. Consultations at different levels are being used as a tool to inform and educate stakeholders about the proposed action both before and after the development decisions are made. The involvement of the various stakeholders ensured that the affected population and other stakeholders are informed, consulted and allowed to participate at various stages of project preparation and implementation.

32. Consultations are being undertaken continuously with key stakeholders as well as affected communities. PIU, ISC and external wildlife monitor are constantly communicating with forest /wildlife officials at local, state and regional level to minimize impacts on wildlife particularly in Jaldapara National Park area. The consultation started at project preparation stage (2013) and it continuing at implementation stage.

33. The key stakeholders consulted in the process of finalization of wildlife protection measures included:

- Principal Secretary, Public Works Department, West Bengal
- Principal Secretary, Forest and Environment Department, West Bengal
- Chief Secretary, West Bengal
- Principal Chief Conservator of Forest and Chief Wild Life Warden, Forest and Environment Department, West Bengal
- Additional Principal Chief Conservator of Forest (APCCF), West Bengal
- Principal Chief Conservator of Forest & Head of Forest Force (HoFF), West Bengal
- Divisional Forest Officer , Jaldapara Wild life Division , coochbehar & Jalpaiguri
- Nodal Officer and Conservator of Forest (CF), Aranya Bhawan , Kolkata
- District Magistrate, Alipurduar & Jalpaiguri
- Project Director, Asian Highway - 48
- Field Officers from Jaldapara National Park
- Local NGOs

34. During the implementation of the project, PIU started consultations with forest officials in April 2015. Table 5 present the sequence of the activities and consultations held with various stakeholders in connections with forests and wildlife clearance for AH48 subproject.

**Table 5: Sequence of Consultation Events related to Forest & Wildlife Clearance in AH-48**

Sl. No.	Particular	From	To	Date
1	Recommendation for forest clearance	DFO, Jaldapara WL division <sup>5</sup>	-	-
2	Online submission of Forest clearance proposal for 10.9692 ha of land in Sonakhali RF, Khairbari RF and Jaldapara National Park	PD	MoEF Website	8 <sup>th</sup> April 2015

<sup>5</sup> DFO, Jaldapara Wildlife Division is also known as DFO, WL III and his office is in Cooch Behar



Sl. No.	Particular	From	To	Date
3	Acknowledgement from Forest clearance website	MoEF Website	PD/AH-48	8 <sup>th</sup> April 2015
4	Forest Submission – hard copy	PD	Nodal Officer, FCA	20 <sup>th</sup> April 2015
5	Online submission of Wild Life clearance in Jaldapara National Park	PD	MoEF Website	15 <sup>th</sup> June 2015
6	Requesting forest department to expedite clearance	PS, WB PWD	PS, WB Forest & Env	15 <sup>th</sup> September 2015
7	Forwarding of proposal	JS, WB Forest Dept	RO, MoEF	18 <sup>th</sup> Feb 2016
8	Opinion of CWLW & request to submit proposal	APCCF, WL	PD	6 <sup>th</sup> Apr 2016
9	Wildlife clearance Submission - hard copy	PD	APCCF, Forests	21 <sup>st</sup> April 2016
10	Delivering presentation	PD	CF, LA & FCA	28 <sup>th</sup> April 2016
11	Presentation by PD & EMWCA Consultant & meeting in connection with Forest and Wild Life clearances at Kolkata chaired by PCCF (HoFF) and attended by Nodal Officer, (CAMPA), PCCF (General) and CF (Land Affairs & FCA)	-	-	2 <sup>nd</sup> May 2016
12	Revised proposal	PD	PCCF (HoFF)	24 <sup>th</sup> May 2016
13	Meeting to finalise the wild life management Plan at Jalpaiguri between Ms Sumita Ghatak, CF, Wild Life North and PD & EMWCA Consultant <sup>6</sup>	-	-	27 <sup>th</sup> May 2016
14	Suggestion of Elevated Corridor	PCCF (WL) & CWLW	PCCF (HoFF)	24 <sup>th</sup> June 2016
15	Suggestion of Elevated Corridor	CF, LA & FCA	PD	27 <sup>th</sup> June 2016
16	Meeting at Jaldapara Tourist Lodge, Madarihat related to Elevated Corridor & clearance chaired by CS, West Bengal and attended by Concerned DM, PS (PWD), PS (Forest & Env) & PD	-	-	28 <sup>th</sup> June 2016
17	Enquiry about Elevated Corridor	CF (Central), RO, MoEF	PS, WB Forest Dept	8 <sup>th</sup> Aug 2016
18	Views of user agency regarding elevated corridor	PD	PCCF (WL) & CWLW	6 <sup>th</sup> Sept 2016
19	Email to attend meeting with PCCF WL & CWLW	CF, WL (HQ)	PD	26 <sup>th</sup> Sept 2016
20	Submission of draft WMP	EMWCA Consultant	PD	14 <sup>th</sup> Nov 2016
21	Meeting between PD & Forest Department (PCCF (WL) & CWLW; CCF, WL (North) & DFO, Jaldapara WL Division) related to clearance	-	-	22 <sup>nd</sup> Nov 2016
22	Submission of draft WMP	PD	DFO, Jaldapara WL division	28 <sup>th</sup> Nov 2016

<sup>6</sup> Only meetings which were attended by PD along or absence of EMWCA referred. The TL, EMWCA has met the DFO, Jaldapara WL Division & DFO, Jalpaiguri a number of times

Sl. No.	Particular	From	To	Date
23	Email attaching draft WMP	PD	DFO, Jaldapara WL division	29 <sup>th</sup> Nov 2016
24	Confirmation of decision taken during meeting held between Project Authority, AH-48 and Forest Department, Govt of West Bengal on 22 <sup>nd</sup> Nov 2016	PD	PCCF (WL) & CWLW	13 <sup>th</sup> Dec 2016
25	Permission for withdrawal of EUP work	PD	CE, PWD	16 <sup>th</sup> Dec 2016
26	Comments on draft WMP	DFO, Jaldapara WL division	PD	26 <sup>th</sup> Dec 2016
27	MoM held at Jaldapara National Park between PD & Forest Department	CF, WL (HQ)	PD	24 <sup>th</sup> Jan 2017
28	Permission for working in Sonakhali RF area	DFO, Jalpaiguri Division	PD	25 <sup>th</sup> Jan 2017
29	Dropping of EUP	PS, WB PWD	PS, WB Forest & Env	30 <sup>th</sup> Jan 2017
30	Permission for improvement (resurfacing and strengthening) works in Jaldapara National Park	PCCF (WL) & CWLW	PD	6 <sup>th</sup> Feb 2017
31	Email related to Permission for improvement (resurfacing and strengthening) works in Jaldapara National Park	PCCF (WL) & CWLW	PS, WB PWD	7 <sup>th</sup> Feb 2017
32	Handing over of site in forest and Wild Life area	PD	Punj Lloyd Ltd	9 <sup>th</sup> Feb 2017

35. The record of these meetings/ discussions is minuted. Based on the these discussions it was recommended by the PCCF (Wildlife) and Chief Wildlife Warden (CWLW) that construction of three elephant underpasses proposed as part of project design are no feasible from biodiversity and wildlife point of view as it will require additional land from national park area), therefore project authority can undertake improvement work within existing road width without raising the road level. Permission letter from PCCF (WL) & CWLW on the same is provided in Appendix 1.

## **B. Consultations with Affected Communities**

36. The public consultation are being carried out by the PIU officials, implementation support consultant, external wildlife monitor experts and NGO representatives at community level and group level during the project implementation process. The NGOs carried out individual household level consultations for all the affected households and informed about the impacts of projects and their entitlements.

37. Apart from them there were consultation made on case to case basis by the project director based on the significance of the issues. The NGO has reported that the consultations were carried out with community and focus groups. Detailed of public/community consultations are being reported in the six-monthly environment and social monitoring reports. There were 8 consultations carried out by PIU on AH48 subproject between July – December 2016. It was attended by 118 persons from local communities. Table 6 present summary of these consultations. Details are presented for the six-monthly monitoring report for the July-Dec 2016 period. The photographic record of consultations is provided in Appendix 2.

**Table 6: Summary of Public/Community Consultations undertaken during July-Dec 2016**

Sl. No.	Date	Location	Number of Participants
1	13.06.2016	Near BDO Office, Mekliganj, Changrabandha, Coochbehar	19
2	21.06.2016	Birpara Chowpati, Madarihat, Alipurduar	12
3	18.07.2016	Gairkata, Dhupguri, Jalpaiguri	18
4	11.08.2016	VIP More, Changrabandha, Coochbehar	14
5	26.08.2016	Khokhlabasti, Pasakha, Kalchini, Alipurduar	15
6	22.09.2016	Dhupguri, Jalpaiguri	11
7	23.09.2016	Gairkata, Dhupguri, Jalpaiguri	17
8	24.09.2016	Ethelbari Chowpati, Madarihat, Alipurduar	12
		<b>Total</b>	<b>118</b>

38. The consultation with key stakeholders will continue during the completion of project construction as well as during operation period. PIU and External wildlife monitor expert will ensure that communities are consulted during the project implementation and key stakeholders are informed regularly on key biodiversity activities.

## VI. CONCLUSIONS AND RECOMMENDATIONS

39. The proposed change in scope involves removal of construction of the Elephant underpass from the scope of the contractors. These underpasses were designed to facilitate movement of elephants/wildlife across roads within Jaldapara National Park. As per Government of India regulations project requires Wildlife Clearance and Forestry Clearance from the Ministry of Environment, Forests and Climate Change. The project proponent (WBPWD through PIU) approached and submitted applications to MoEFCC for these clearances. The concerned stakeholder and custodian of the Jaldapara National Park have examined the application along with improvement proposals and they clearly expressed their reservations on the efficacy of the elephant underpasses and hence deem these EUPs as unwarranted. Therefore based on the recommendations of the forests and wildlife authorities of West Bengal, the scope of project work in the Jaldapara National Park area has been changed to resurfacing and improvement of existing road within existing roadway width.

40. A comparison of the impacts and mitigation measures associated with and without proposed change in scope has been carried out and it is found that with the proposed change in scope the short term impacts on biodiversity and wildlife will be substantially reduced. However, the key long- term operation stage risk is increased collisions between vehicles and wildlife. To mitigate this risk a number of mitigation and monitoring measures will be implemented.

41. The project also aspires to result in a net-gain of biodiversity by providing budget support for implementing selected activities of the Jaldapara National Park Management Plan. However, since the responsibility for implementation lies with the JNP staff, this proposal is subject to approval by the Department of Forests. It is recommended that PIU and external wildlife monitor closely coordinate with the Department of Forest and pursue the approval of this budget support.

42. The revised EMP given under chapter IV focuses only on biodiversity issues. This EMP must be implemented for construction works in and near the road section inside JNP. For all other physical environment related issues such as dust, construction debris, noise etc. the EMP provided in the original EIA of December 2013 must be followed.

**APPENDIX 1: PERMISSION LETTER FROM CHIEF WILDLIFE WARDEN**

Govt. of West Bengal  
 Directorate of Forests  
 Office of the Principal Chief Conservator of Forests, Wildlife  
 & Chief Wildlife Warden, West Bengal.  
 Bikash Bhavan, North Block, Third Floor, Saltlake City, Kolkata-700 091.  
 Tel.No.2334-6900/2358-3208, Fax.91-033-23345946  
 Website - [www.wildbengal.com](http://www.wildbengal.com) , e-mail: [wbwildlife@gmail.com](mailto:wbwildlife@gmail.com)

No.: 659/WL/2M-166/2016Dated: 06.02.2017

To  
 ✓ The Principal Secretary,  
 Public Works Department,  
 Govt. of West Bengal.

Sub: Improvement of AH-48 passing through Jaldapara National Park.

Sir,

Please refer to the minutes of the meeting held on the subject on 22.11.2016 at Madarihat regarding the improvement of AH-48 passing through Jaldapara National Park which were communicated to you vide this office No. 402(11)/WL/2M-166/16, dated 24.01.2017 (copy enclosed). As stated earlier, it is made clear that as per the guidelines issued by the Ministry of Environment, Forests & Climate Change, Govt. of India vide F. No. 6-62/2013 WL, dated 22.12.2014, improvement (resurfacing and strengthening) of the existing roads do not require any permission and you can take up the work with immediate effect in accordance with existing rules, a copy of which is enclosed for your information and record.

Yours sincerely,

Enclosure:

- 1) Copy of letter No. 402(11)/WL/2M-166/16, dated 24.01.2017.
- 2) Copy of MoEF & CC, GOI's Guideline.

(Pradeep Vyas)

Principal Chief Conservator of Forests, Wildlife  
& Chief Wildlife Warden, West BengalNo.: 660(6)/WL/2M-166/2016Dated: 06.02.2017

Copy forwarded for information with enclosure to:

- 1) The P. S. to Hon'ble Minister-in-Charge, Department of Forests, Govt. of West Bengal.
- 2) The Principal Secretary, Department of Forests, Govt. of West Bengal.
- 3) The Principal Chief Conservator of Forests & Head of Forest Force, West Bengal.
- 4) The Chief Conservator of Forests, Wildlife (North), West Bengal.
- 5) The Conservator of Forests, Wildlife (North) Circle, West Bengal.
- 6) The Divisional Forest Officer, Jaldapara Wildlife Division, West Bengal.

Sd/- Dr. P. Vyas, IFS

(Pradeep Vyas)

Principal Chief Conservator of Forests, Wildlife  
& Chief Wildlife Warden, West Bengal



**Minutes of the Meeting between Project Authority, Asian Highway-48 Project and Forest Department, Govt. of W.B.**

Venue : Chamber of Assistant Wildlife Warden, Jaldapara National Park, Madarihat, Dist-Alipurduar.

**Date and Time : 22.11.2016 at 1.30 P.M.**

**Members present :-**

**Forest Department :-**

1. Sri. P. Vyas, IFS, PCCF Wildlife & CWLW, Govt. of West Bengal.
2. Sri. N. S. Murali, CCF, Wildlife North, Siliguri
3. Sri. J.V. Bhaskar, DFO, Jaldapara Wildlife Division, Cooch Behar.

**Project Implementation Unit, Asian Highway-48**

1. Sri Deepak Kumar Singh, Project Director, Asian Highway-48 project
2. Sri. Rajrishi Mitra, Assistant Engineer, Construction sub -division-III, AH-48, Hasimara
3. Sri. Manoj Mangaine, General Manager, Punj Lloyd Ltd.

**Sri. P. Vyas, PCCF & CWLW, W.B.** took the chair and welcomed the members present.

Project Director, AH-48 briefed the house regarding present status of the progress of Asian Highway-48 project. He mentioned that Project authority has already submitted a Revised proposal to Forest Department for only improving the road without any widening of existing carriageway of 10 m width which would not change in any significant way the present scenario of Forest Vis Existing Road. It will also not involve any cutting of trees and diversion of any additional forest land. He emphasized the urgency in starting the work in Jaldapara National Park area as the work in other area is nearly completion. Project Director also mentioned that the elevated corridor in whole stretch could not be constructed on Technical and Financial considerations as communicated earlier.

Chief Wildlife Warden briefed the authorities that as per the guidelines given by Ministry of Environment, Forest and Climate Change vide no F.no. 6-62/2013 WL dated 22 Dec, 2014 no new road shall be constructed inside national park without approval of National Board of Wildlife, and also cases of widening of existing roads shall also need permission of National Board of wildlife. He further clarified that Resurfacing and strengthening of existing highways not involving widening within National Park is only possible as per existing guideline from MoEF & CC.

After careful consideration of all aspects it was agreed that Asian Highway-48 project authority may be allowed to work in Jaldapara National Park area. Subject to fulfillment of following conditions :-

- a) No widening of existing road would be done and only Resurfacing & strengthening of already existing National Highway-31C would be taken up.
- b) No tree would be cut in Jaldapara National Park area.
- c) No diversion of any additional land in Jaldapara National Park area would be sought at present. The work of AH-48 would be restricted only to the land already occupied by the existing National Park area.
- d) No Excavation of any kind would be done beyond existing Road and no debris of construction would be disposed of within Jaldapara National Park area.

It was decided that the project authority would revise their design and drawing accordingly and work would be started in consultation with DFO, Jaldapara Wildlife Division, Cooch Behar.

Project Director, AH-48 further informed that since this is an ADB funded project and as per requirement of ADB a Wild Life monitoring consultant has been engaged and they are supposed to prepare a Wild Life Management Plan in consultation with the concern Forest Department official. They have already submitted draft copy of the "Wild Life Management Plan" proposal. Project Director requested the chair that the same can be looked into to see if the same is in conformity with the Existing Management Plan of Jaldapara National Park or any modification is required. The chair agreed to look into it and advised that a copy of same may be submitted to DFO, Jaldapara Wildlife Division, Cooch Behar Division who would forward it to higher authority with his comment and in due course the views of Forest Department would be communicated.

As there were no other issue to discuss, the meeting ended with vote of thanks to and from chair.

**Sd/- P. Vyas, IFS**

Principal Chief Conservator of Forests, Wildlife  
& Chief Wildlife Warden, West Bengal.

**APPENDIX 2: PROPOSED ACTIVITIES FOR BUDGET SUPPORT TO JALDHAPARA NATIONAL PARK**

	Nature of Work	Rate	Unit	YEAR 1		YEAR 2		YEAR 3		Total Cost Rs in Lakhs
				Phy	Cost	Phy	Cost	Phy	Cost	
<b>1</b>	<b>Habitat Management and Improvement</b>									
1	Maintenance of grassland habitats & removal of invasive woodland species	0.1	Ha	300	30	300	30	300	30	<b>90</b>
2	Restoration of grasslands by plantation of suitable indigenous grass species and maintenance	0.15	Ha	300	45	300	45	300	45	<b>135</b>
3	Plantation of fodder grass in blank/thatch areas	0.2	Ha	60	12	60	12	60	12	<b>36</b>
4	Weed eradication (including climbers)	0.1	Ha	400	40	400	40	400	40	<b>120</b>
5	Plantation of fodder, grass after weed eradication	0.15	Ha	400	60	400	60	400	60	<b>180</b>
6	Removal of monoculture	0.1	Ha	75	7.5	75	7.5	75	7.5	<b>22.5</b>
7	Plantation of bamboo & tree fodder after removal of monoculture	0.15	Ha	75	11.25	75	11.25	75	11.25	<b>33.75</b>
8	Controlled burning of grasslands for habitat improvement	0.07	Ha	200	14	200	14	200	14	<b>42</b>
9	Construction and maintenance of Wallow Pools particularly for Rhinos	0.75	Ha	3	2.25	3	2.25	3	2.25	<b>6.75</b>
11	Construction of Water Conservation Structures	3	NA	1	3	1	3	1	3	<b>9</b>
	<b>SUB-TOTAL</b>									<b>675</b>
<b>2</b>	<b>Infrastructure and Equipment Support</b>									
1	Maintenance of Fire lines	0.05	Km	60	3	60	3	60	3	<b>9</b>
2	Construction of Watch Towers	1.25	No	1	1.25	1	1.25	1	1.25	<b>3.75</b>
3	Construction of Field Camps for monitoring and Anti poaching operations	3.5	No	5	17.5	3	10.5	–	–	<b>28</b>
4	Purchase of vehicles (Four wheeler) for patrolling	8	No	2	16					<b>16</b>
5	Cuddeback C1 Camera Trap	0.22	No	50	11	20	4.4	10	2.2	<b>17.6</b>
6	Garmin GPS E-trex 30 X	0.075	No	10	0.75	–	–	–	–	<b>0.75</b>
7	Hawke Nature Trek 8X42 Binocular	0.19	No	20	3.8	–	–	–	–	<b>3.8</b>
8	Hawke LRF Pro 900 Meter Range finder	0.19	No	10	1.9	–	–	–	–	<b>1.9</b>
9	Suunto KB-20 Compass	0.055	No	20	1.1	–	–	–	–	<b>1.1</b>
10	DSLR Camera - Canon DSLR - EoS 1200 D Dual Kit (EF 18-55 & EF 55-250)	0.37	No	5	1.85	–	–	–	–	<b>1.85</b>
11	Patrolling Boat	0.7	No	5	3.5	–	–	–	–	<b>3.5</b>
12	Field Kits for the frontline staff	0.04	No	50	2					<b>2</b>
	<b>SUB-TOTAL</b>									<b>89.25</b>
<b>3</b>	<b>Education and Awareness, Communication and Eco-tourism</b>									
1	Development of Nature Trails with interpretive signages	3	No	2	6	2	6	1	3	<b>15</b>
2	Information material including brochures, checklist of birds & mammals and posters		No		20		10		5	<b>35</b>

	Nature of Work	Rate	Unit	YEAR 1		YEAR 2		YEAR 3		Total Cost Rs in Lakhs
				Phy	Cost	Phy	Cost	Phy	Cost	
3	Renovation and Upgradation of the Entrance and Visitor Interpretation Centre at Madarihat with interactive exhibits			1	40	1	15	1	5	<b>60</b>
4	Development of Camping Sites	4	No	1	4	1	4	1	4	<b>16</b>
5	Education Camps for School Children and local communities	0.25		20	5	10	2.5	10	2.5	<b>10</b>
	<b>SUB-TOTAL</b>									<b>136</b>
<b>4</b>	<b>Eco development activities</b>									
1	Strengthening of EDCs -Capacity building, income generation activities and training	0.75	No	25	18.75	20	15	10	7.5	<b>41.25</b>
	<b>SUB-TOTAL</b>									<b>41.25</b>
	<b>GRAND TOTAL</b>								<b>Rs.</b>	<b>941.5</b>

**APPENDIX 3: RECORD OF CONSULTATIONS**

