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Consultancy Services for Feasibility Study and Detailed Project Report for Four / Six Laning from Km 38.000 to Km 168.167 of Daboka-Dimapur Section of NH-36 & 39 in the State of Assam & Nagaland under NHDP, Phase – III B, Pkg. No. NHDP – III/DL5/21, Group - G

DIMAPUR BYPASS (ASSAM PART)

REVISED FINAL DETAILED PROJECT REPORT
VOLUME IV : EAR, EMP & RAP REPORT

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VOLUME – I

EAR, EMP & RAP (Dimapur Bypass – Assam Part)

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SOCIO-ECONOMIC PROFILE OF PROJECT AREA (Dimapur Bypass – Assam Part)

Introduction

This Chapter provides a detailed review of Socio-economic profile of states of Assam & Nagaland and the relative status of the project influence area within the state. Traces has been given on population density, the work force, distribution of work force, the changes in sectoral distribution of workers, growth of enterprises, status of non-agricultural workers, distribution of important units, condition of cultivators, condition of household workers, condition of non-workers, condition of manufacturing industry and the related social problems, such as poverty eradication,. Gender issue, etc., of the different region of Assam & Nagaland and other economic variables of the state and the PIA districts (Nagaon, KAAC & Dimapur).

The profile discusses the past performance and the present scenario and also a broad assessment of the perspective growth of the economy and social development of state and PIA Districts (Nagaon, KAAC & Dimapur), as basis for estimating the future growth in transport demand. The influence area of the project road, for the purpose of present study, is defined at the state level. Appropriate major economic characteristics are reviewed for the district as well. The output of this chapter is the economic growth prospects of the PIA with respect to certain selected economic variables and serves as the basis for arriving at a realistic traffic growth rate for different vehicle categories. Secondary data available from the different departments of the State Government have been collected and analyzed for preparation of socio-economic profile.

Project Influence Area:

Though, the district through which the study corridor passes is considered to be the primary project influence area (PIA), the nature of the study corridor, being the National Highway, also facilitates long distance traffic movement and the influence area stretches beyond the district boundaries. Hence the area could extend to the state limits and on occasions could extend into neighboring states. However the influences area of the project corridor, for the purpose of present study, is defined at the state level. It is observed that a substantial part of the total traffic on the project road originates in Assam and terminates in Nagaland. The State of Assam & Nagaland are thus taken as the broad influence area, while Nagaon, KAAC & Dimapur districts are considered as the immediate Project Influence Area (PIA).

Assam

Assam is the rainbow land where the multi-hued Indian Culture has blossomed from times immemorial. Blessed with a variety of geographical land and many cultural diversities, Assam, has been the area of activity of historical heroes. Rich and tranquil expanses of meadows, perennial rivers, dense forests and fertile soil of Assam have contributed numerous golden chapters to the annals of Indian History. Dotted with various holy shrines and pilgrim places, full of joyous festivals, it plays an important role in the politics, education, culture, industry, agriculture and tourism of India.

Garlanded by the Barak and Brahmaputra the two rivers, Assam is surrounded by Nagaland & Manipur in the East, Tripura & Mizoram in the South, West Bengal in the west and Bhutan & Arunachal in the north. Its area of 78,438.08 sq kms lies between latitude 24 deg to 28 deg and longitude 90 deg to 96 deg East.

Assam is endowed with natural wealth in abundance. The diversity of flora and fauna displayed here due to vast area, big and small rivers, varieties of climatic conditions, and different kinds of soil are hard to find elsewhere.

Tropical Deciduous Forests are found in all parts of the plains. The trees are mostly deciduous. Since sun-light reaches the ground in abundance, shrubs and grasses also grow here. Large tracts of these forests have been cleared for cultivation. Important trees are Sal, Palas, Bamboo, Bel, Anjeer etc. Neem, Peepal, Sheesham. Mango, Jamun Babool, Imli (Tamarind) etc. grow along riverbanks and in other moist regions.

Socio –Economic Profile of PIA (District)

Nagaon

It is located between Longitude 92°15′ & 93°30 East and Latitude 25°50′ & 26°40 North. Spread in area of 3973 Sq. Km. It is surrounded by District Sonitpur in North, KAAC in East, Mizoram in West and North Cachar in South. It is well connected by Railways & Roadways.

District Nagaon/KAAC

Item	Units	Year	Value
Geographical Area Nagaon/KAAC	Sq. Km.	2011	3973 / 10434

Item	Units	Year	Value
Population			
Male Nagaon / KAAC	**In thousand**	**2011**	**1440.3 / 493.5**
Female Nagaon / KAAC	**In thousand**	**2011**	**1385.7 / 471.8**
Total Nagaon / KAAC	**In thousand**	**2011**	**2826 / 965.3**
Literacy Rate%			
Male Nagaon / KAAC	**In %**	**2011**	**78.19 / 82.12**
Female Nagaon / KAAC	**In %**	**2011**	**69.21 / 64.62**
No. of Village			
No. of habituated Village Nagaon / KAAC	**No.**	**2011**	**1375 / 2633**
Police Station			
Nagaon / KAAC	**No.**	**2011**	**21/16**
Education			
Junior Basic Schools Nagaon / KAAC	**No.**	**2011**	**2348/1772**
Senior Basic Schools Nagaon / KAAC	**No.**	**2011**	**377/225**
Higher Secondary Schools Nagaon / KAAC	**No.**	**2011**	**130/11**
Degree Colleges Nagaon / KAAC	**No.**	**2011**	**3/2**
University Nagaon / KAAC	**No.**	**2011**	**0/0**

Electricity			
Total Villages Electrified Nagaon / KAAC	**No.**	**2010-2011**	**1213/1740**

Social & Economic Growth potential

Due to its rolling terrain there is no visible possibility of reckonable growth in the secondary sector of the economy of Nagaon, KAAC & Dimapur. Migration of workers to these places, seeking jobs in secondary sector has little possibility of happening. On the other hand, evidently the tertiary sector seems to be the engine of economic growth in this town. Most of the activities under the tertiary sector, which is the main constituent of the economic base of these places, are related to small trade and enterprises, hotel business, transport and such other activities. On the other hand tourism has its impact on the tertiary sector of the economy of the places Conservation of built heritage, developing social and cultural tourist attractions, their promotion and marketing, and of course development of infrastructure together would ensure substantial positive impact on the economy and its growth, particularly on the tertiary sector, which is and will remain the dominant economic sector in Nagaon, KAAC & Dimapur Districts. As project corridor is mostly in Assam, details of Assam is given below:

A] National Park & Wild Life Sanctuaries

The Wildlife Act provided for setting up national parks and sanctuaries for Wildlife. The total Wildlife protected areas in Assam is 3925 Sq. Kms. Wildlife protected areas of PIA districts are as below [Source Chief Conservator of Forest (WL), Assam 2007-2008].

Name	**Location (District)**	**Area ins Sq. Kms.**
Nambor WLS	KAAC	37.00
Garampani WLS	KAAC	6.05
East Karbi Anglong WLS	KAAC	221.81
Marat Longri WLS	KAAC	451.00
Laskhowa WLS	Nagaon	70.13
North Karbi Anglong WLS (Proposed)	KAAC	96.00
	TOTAL	**881.99**

B] Area under Forest in PIA districts of Assam (as on 31.03.11)

(Area in Hectare)

Forest D	Reserved Forest	Proposed Reserved Forest	Protected Area	Total Forest (Less unclassed S.F.)
Karbi Anglong East	61995.937	84089.60	34042.00	180127.537
Karbi Anglong West	90949.915	3525.00	451.00	94925.915
Nagaon	33250.006	3573.04	-	36823.046
Nagaon South	64873.521	-	-	64873.521
Nagaon Wild Life	2156.00	-	11417.040	13573.04

(Source: Pr. Chief Conservator of Forest, Assam)

C] Total numbers of Small Scale Industries registered in 2010

District	Unit Registration during the year	Total Registered units	Total Workers
Nagaon	16	3762	1647
Karbi Anglong	2	581	440

(Source: Directorate of Industries & Commerce, Assam)

D] District-wise length of PWD Roads By Type in Assam 2010-11

(In Kms.)

District	Black Topped	Earthen/Gravelled	Total	Remarks
Nagaon	1530	1588	3118	Source P.W.D. Assam
Karbi Anglong	1481	2828	4309	- Do -

E] District-wise Length of Roads (Diff. Classes) under PWD in Assam (2010-2011)

In Km.

District	State Highways	Village Connectivity from Phase I to VI, PMGSY	Major District Roads	Rural Roads	Urban Road	Total
Nagaon	297	492 Villages	327	2407	88	3118

Karbi Anglong	337	170 Villages	561	3341	70	4309

F] District-wise Length of Roads per Lakh of Population 2010-11

District	Road Length	Length per Lakh of population	Length per '00' Sq. Km of Geographical Area
Nagaon	3118	110.34	78.49
Karbi Anglong	4309	446.40	41.30

G] District-wise number of Motor Vehicles in Assam (2010-11)

a) Motor Vehicle registered: In Karbi Anglong - 4,154
In Nagaon - 12,156

b) Motor Vehicle on Road: In Karbi Anglong - 18,787
In Nagaon - 80,044

c) Collection of Revenue by Transport Deptt. in Assam: In Karbi Anglong - 3.54 Crores
In Nagaon - 10.10 Crores

H] Number of Motor Vehicles in Assam districts (PIA) in 2010-11

Type	Karbi Anglong	Nagaon
Multi-Axle Trucks	20	-
Articulated Trucks	-	-
Trucks	1810	1450
LMV Goods	140	750
Bus	256	298
Omni Bus	33	-
Mini Bus	4	-
Taxi	106	1168
Two Wheeler	11325	57940
Car/Jeep/Govt. Car	2370	9857
Auto Ricksaw	2500	3300
Others	63	1340

I] PIA District-wise number of Assam Employment Exchanges & Employment in 2010

District	Exch. General & Special	Registration in 2010	No. in live register	Vacancies notified	No of Placement
Nagaon	4	13319	146607	168	15
Karbi Anglong	5	4578	47311	3	3

J] PIA District-wise Tea & Rubber Plantation details during 2010-2011

District	Tea Plantation		Rubber Plantation			
	Grower	Area in hec.	Area in hec.	Production in MT	Tapping Area in hec.	Employment in Mandays
Nagaon	136	330.74	510.88	156	95.10	12950
Karbi Anglong	451	2524.54	4174.00	3386	2129.61	994600

K] PIA District-wise statistics of Handloom & Textiles in 2010-2011

District	Villages Covered	Weavers Engaged			Extn. Service Unit Production	Handloom Production Centre
		Part Time	Whole Time	Total		
Nagaon	285	42032	5011	47043	2510	185
Karbi-Anglong	135	45364	2700	48064	-	-

4.2.2.16 General Discussion on Assam

Although the literacy rate of the State is 63%, which is much higher than the national average, the State still lacks in skilled manpower. This scenario is slowly changing as large number of Assam youths are going out of the State for higher and technical education. In addition to the ITI centres run by the government, private training institutes, particularly in computer education are also coming up. This requires a major push so as to develop and up-grade the skills of the local people by utilizing the service of reputed training institutions/organizations. Development of managerial capability of local youth shall be taken up through intensive EDPs. The State shall encourage private investors/organizations to set up training Institutions in the State.

The following shall be the thrust areas for Industrial Development: -

a. Food Processing Industries
b. Tourism Industry
c. Agro-based industries
d. Mineral based industries
e. Handloom and Handicrafts
f. Sericulture

g. Floriculture
h. Electronics and IT
i. Pharmaceuticals
j. Petrochemicals
k. Bio-tech Industries

Details of Project Affected Persons (PAP) and Analysis

The Northern Dimapur Bypass through 10 villages in Assam & 10 villages in Nagaland State i.e. 20 Villages affecting 4 Police Stations of KAAC & Dimapur District. The ROW has been taken as 60 m i.e. 30 m on each side of Centre-line of Alignment.

It will appear from the tables placed herein-after that the following structures will be affected and cost involved, total affected PAPs & Families and losses of income of PAPs. (Cost based on Assam P.W.D. schedule of Rates of 2014-15)

		In Assam		**In Assam**	**Total**
1)	Pucca dwelling	289.72 Sqm.	@10,920 /Sqm.	31,63,742/-	31,63,742/-
	Semi Pucca dwelling	5302.16 Sqm.	@9,348 /Sqm.	4,95,64,591/-	4,95,64,591/-
	Kancha Dwelling	11896.53 Sqm.	@9,348 /Sqm.	11,12,08,762/-	11,12,08,762/-
				16,39,37,095/-	**16,39,37,095/-**

		In Assam
2)	Families displaced	210 nos
	Affected PAPs	1247 persons

		In Assam	
3)	Monthly Loss of Business	3,55,000/-	3,55,000/-
	Monthly household income loss	24,78,200/-	24,78,200/-
	Total monthly loss from Business & Household Income		**28,33,200/-**

1) Belijan 'A' Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
124.750	Benu Chandra	SP	11.1x5.9 = 65.49	Residence	5,000/-	4	Gen
		K	6x3.3 = 19.80	-Do-			
		K	6.1x3.2 = 19.52	-Do-			
124.750	Meena Sharma	K	7.3x4 = 29.20	-Do-	7000/-	4	OBC
		K	5x3 = 15.00	-Do-			
124.700	Radhashyam Pandey	K	16.5x4.7 = 77.55	-Do-	43,200/-	10	Gen
124.700	Noor Mahammad	K	10x6 = 60.00	-Do-	9,000/-	5	Gen
		K	4x6 = 24.00	-Do-			
124.700	Jyoti Singh	K	13.2x5.9 = 77.88	-Do-	14,000/-	5	Gen
		K	5x3.1 = 15.50	-Do-			
124.700	Loken Bhar	K	6x5 = 30.00	-Do-	4,000/-	4	OBC
		K	8x5 = 40.00	-Do-			
124.100	Ram Narayan Ram	SP	14x5 = 70.00	-Do-	15,000/-	13	SC
		K	3x5 = 15.00	-Do-			

		Total P= SP= K=	 0.00 135.49 493.45		Loss in Monthly Business = 0.00 Income = 97,200/-

1A) Belijan 'A' Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
124.700	Kishen Chetry	K	3x2 = 6.00	Pan Shop	15,000/-	3	OBC
		K	7x4 = 28.00	Residence			
		K	8x6 = 48.00	-Do-			
		K	7x4 = 28.00	-Do-			
		K	9x6 = 54.00	-Do-			
124.700	Ranglal Sharma	K	6x4 = 24.00	Grocery	54,000/-	12	OBC
		SP	13.6x8.5 = 115.60	Residence			
124.750	Mainul Ali	K	7x5 = 35.00	Residence	7,000/-	9	Gen
124.750	Ruphel Amin Ali	K	7x4.3 = 30.10	-Do-	12,000/-	5	Gen
124.800	Bom Bahadur Chetry	K	10x7 = 70.00	-Do-	5,000/-	5	OBC
		K	9x6.8 = 61.20	-Do-			
124.800	Prem Chetry	K	9x7 = 63.00	-Do-	10,000/-	6	OBC
		K	5x4.9 = 24.50	-Do-			

		Total P = SP = K =	 0.00 115.60 471.80		Loss in Monthly Business = 50,000/- H. Income = 53,000/-

2) Belijan Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
125.000	Milan Deb	K	7.6x5.4 = 41.04	Residence	8,000/-	10	OBC
		K	4x3.9 = 15.60	-Do-			
125.000	Haradhan Das	K	1.5x2 = 3.00	Pan Shop	12,000/-	7	OBC
		K	12.1x6.1 = 73.81	Residence			
125.300	Nikhil Pal	SP	8.6x6 = 51.60	Residence	9,000/-	7	OBC
125.400	Ganesh Sharma	SP	11.4x6.4 =72.96	-Do-	98,000/-	14	Gen
		SP	6.2x5.1 = 31.62	-Do-			
		SP	10.1x6.2 = 62.62	-Do-			
		K	8x6 = 48.00	-Do-			
125.400	Rajesh Sharma	K	9.7x8.7 = 84.39	-Do-	15,000/-	2	Gen
		K	5.7x8 = 45.60	-Do-			
		Total P = SP = K =	 0.00 218.80 311.44		Loss in Monthly Business = 0.00 Income = 1,42,000/-		

2A) Belijan Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
125.000	Sapna Roy	K	9.2x4 = 36.80	Residence	5,000/-	2	SC
		K	6x4 = 24.00	-Do-			
125.000	Mithu Chanda	SP	12x10.1 = 121.20	-Do-	26,000/-	7	OBC
125.500	L. B. Chetry	K	13.7x7.8 = 106.86	-Do-	30,000/-	7	OBC
		K	12.8x3 = 38.40	-Do-			
		SP	10x7.6 = 76.00	-Do-			
		Total P = SP = K =	0.00 197.20 206.06		Loss in Monthly Business = 0.00 H. Income = 61,000/-		

3) Karagaon Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
126.500	Laxman Sarma	K	8.2x3 = 24.60	Residence	5,000/-	4	OBC
126.600	Lalmani Sharma	K	9.4x4 = 37.60	-Do-	6,000/-	4	Gen

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
		K	7x6.5 = 24.50	-Do-			
126.800	O. B. Gurung	K	10x6.4 = 64.00	Residence	23,000/-	9	OBC
		SP	6x4 = 24.00	-Do-			
		K	3x4 = 12.00	-Do-			
126.000	Alipo Tamang	SP	7x4 = 28.00	-Do-	5,000/-	4	OBC
126.300	Harka Bahadur Limbu	K	7.5x6.3 = 47.25	-Do-	5,000/-	2	OBC
126.500	Bol Bahadur Mallah	K	11.5x6.5 = 74.75	-Do-	40,000/-	11	SC
		K	7.6x4.1 = 31.16	-Do-			
126.500	Raju Chetri	K	12x7 = 84.00	-Do-	20,000/-	5	OBC
		Total P = SP = K =	0.00 52.00 399.86		Loss in Monthly Business = 0.00 Income = 1,04,000/-		

3A) Karagaon Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
125.500	Bijoy Shing	K	6x3 = 18.00	Pan Shop	12,000/-	2	OBC
125.500	Kasem Ali	K	4.2x2.1 = 8.82	Pan Shop	12,000/-	7	OBC
125.500	Samir Ali	K	4.1x4.3 = 17.63	Tailoring Shop	10,000/-	3	OBC
		K	7x3.5 = 24.50	Residence			
		K	3x3.5 = 10.50	-Do-			
125.500	Biswapati Debnath	K	2.5x4.1 = 10.25	Grocery Shop	6,000/-	7	OBC
125.500	Phuleswari Chetia	K	7x9.8 = 68.60	Residence	24,000/-	4	SC
125.500	Mamata Thapa	K	12x7 = 84.00	-Do-	7,000/-	3	OBC
125.550	Manik Talukdar	K	8x5 = 40.00	-Do-	8,000/-	6	OBC
		K	7x5 = 35.00	-Do-			
125.600	Suresh Sonar	SP	9.4x3.5 = 32.90	-Do-	15,000/-	4	SC
		K	5.3x4 = 21.20	-Do-			
125.600	Monai Thapa	SP	6.7x11.9 = 79.73	-Do-	7,000/-	3	OBC
125.600	Nani Gopal Das	K	9.3x6.8 = 63.24	-Do-	13,000/-	7	OBC
		K	6.6x3 = 19.80	-Do-			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
125.650	Nandalal Samar	K	11x11.8 = 129.80	-Do-	15,000/-	12	OBC
125.680	Kajol Ch. Das	K	11.7x3.2 = 37.44	Residence	17,000/-	6	SC
		K	3x4 = 12.00	Cycle Repair Shop			
125.800	Maya Chetri	K	11.5x4.5 = 51.75	Residence	12,000/-	4	OBC
		K	5.2x3 = 15.60	-Do-			
		Total P = SP = K =	0.00 112.63 668.13		Loss in Monthly Business = 17,000/- H. Income = 1,41,000/-		

3B) Karagaon Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
127.000	Suresh Mech	K	11.7x7 = 79.80	Residence	5,000/-	5	ST
127.300	Ananta Mech	K	14x4 = 56.00	-Do-	10,000/-	6	SC

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
		K	5x4 = 20.00	-Do-			
127.500	Domnic Means	K	12x5 = 60.00	-Do-	13,000/-	12	SC
127.800	Munna Rongpi	K	4.6x3.6 = 16.56	Grocery Shop	7,000/-	7	ST
127.800	Sah Rongpi	K	14.1x5.1 = 71.91	Residence	2,000/-	8	ST
		Total P = SP = K =	0.00 0.00 304.27		Loss in Monthly Business = 7,000/- H. Income = 30,000/-		

4) Gautam Basti Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
129.200	Kalwant Singh Gill	K	10.5x4 = 42.00	Residence	6,000/-	6	Sikh
129.200	Krishna Prasad Sarma	K	12.4x7 = 86.80	-Do-	15,000/-	7	OBC
129.200	Jyonal Abdul	K	3.4x3.5 = 11.90	Pan Shop	24,000/-	8	Gen
129.250	Shamalal Sharma	P	9.3x11.6 = 107.88	Residence	10,000/-	9	Gen
		K	8x5 = 40.00	-Do-			
129.250	Shiblal Sharma	K	3.4x3.5 = 11.90	Pan Shop	6,000/-	9	OBC
129.250	Tila Giri	K	7.3x5.2	Pan Shop	13,000/-	6	OBC

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
			= 37.96				
129.300	Md. Khairul Islam	SP	3.5x3.2 = 11.20	Cycle Repair Shop	5,000/-	5	Gen
129.300	Bhagban Giri	SP	11.6x6.6 = 76.56	Residence	8,000/-	6	OBC
		K	5.5x2.5 = 13.76	-Do-			
129.300	Sambhu Dev	SP	6.8x2.8 = 19.04	Grocery Shop	7,000/-	4	Gen
		SP	14x12 = 168.00	Residence			
129.300	Guljar Hossain	K	3x2.8 = 8.40	Veg. Shop	8,500/-	5	Gen
		K	3x2.1 = 6.30	Fish Shop			
129.300	S.K. Murli	K	11.3x5 = 56.50	Pan Shop	10,000/-	4	OBC
129.300	Nitya Gopal Das	SP	12.3x6.3 = 77.49	Residence	24,000/-	9	SC
		SP	8.2x6.0 = 49.20	-Do-			
129.400	Md. Musuruddin	K	5x3 = 15.00	Meat Shop	20,000/-	5	Gen
129.350	Phulen Das	SP	3.3x3.1 = 10.23	Grocery Shop	8,000/-	5	OBC
129.350	Keshab Thapa	K	2x2.1 = 4.20	Pan Shop	9,000/-	5	OBC
		K	9.7x3.2 = 31.04	-Do-			
		SP	4.7x3.1 = 14.57	-Do-			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
		K	8.6x2.5 = 21.50	-Do-			
		K	8x5.7 = 45.60	-Do-			
129.350	Ganga Giri	K	2x2.1 = 4.2	Pan Shop	8,000/-	6	OBC
		K	10.2x3.7 = 37.74	Residence			
129.360	Chabilal Pradhan	SP	14.1x9.8 = 138.18	Residence	24,000/-	4	OBC
		SP	6x2.9 = 17.40	-Do-			
129.380	Hriday Narayan Giri	SP	15.7x6.7 = 105.19	-Do-	30,000/-	10	Gen
		SP	8.6x4.5 = 38.70	-Do-			
129.400	Gunakher Gautam	K	3.7x6.4 = 23.68	Residence	6,000/-	10	OBC
		K	6.9x6.7 = 46.23	-Do-			
		K	10.6x3.2 = 33.92	-Do-			
129.600	Bhim Bahadur Chetri	K	9.3x6.9 = 64.17	-Do-	16,000/-	7	OBC
129.680	Gobinda Sharma	K	13.9x8.4 = 116.76	-Do-	15,000/-	5	Gen
129.700	Moniram Rongpi	K	9.7x9.3 = 90.21	-Do-	10,000/-	6	ST
		K	8.1x3.9 = 31.59	-Do-			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
129.750	Sukusri Basumatary	K	9x3.5 = 31.50	-Do-	3,000/-	3	ST
		K	2x2 = 4.00	Tea Shop			
129.750	Nitya Gopal Das	SP	6.1x4.4 = 26.84	Grocery Shop	24,000/-	9	SC
129.750	Jagjit Prasad Gupta	K	4.5x5.1 = 22.95	Grocery cum Hotel	9,000/-	5	OBC
129.750	Arun Das	K	2.6x3.6 = 9.36	Cycle Repair Shop	10,000/-	4	OBC
129.750	Monoj Das	K	2.3x3.6 = 8.28	Pan Shop	7,000/-	1	OBC
		Total P = SP = K =	107.88 752.96 984.29		Loss in Monthly Business = 1,09,500/- Income = 2,22,000/-		

4A) Gautam Basti Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
128.600	Bed Pr. Pradhan	K	10.4x5.4 = 56.16	Residence	22,000/-	10	OBC
		K	5.1x4.2 = 21.42	-Do-			
128.850	Laksmi N.	K	5.6x9.6 = 53.76	-Do-	42,000/-	6	OBC

	Pradhan						
128.850	Ganga Pradhan	SP	11x6.2 = 68.20	-Do-	15,000/-	4	OBC
		Total P = SP = K =	0.00 68.20 131.34		Loss in Monthly Business = 0.00 Income = 79,000/-		

4B) Gautam Basti Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
128.400	Chabbilal Paulal	SP	14.7x6.6 = 97.02	Residence	11,000/-	9	Gen
		K	5x6.1 = 30.50	-Do-			
128.400	Jeet Bahadur	K	4x6 = 24.00	-Do-	10,000/-	8	OBC
		SP	7.2x5 = 36.00	-Do-			
128.400	Chanda Dutta	K	7.8x6.6 = 51.48	-Do-	15,000/-	3	OBC
		K	14.6x6.5 = 94.90	-Do-			
128.450	Tikaram Sharma	K	8x6 = 18.00	-Do-	12,000/-	6	OBC
		SP	12x10 = 120.00	-Do-			
128.500	Munna Sharma	K	12x10 = 120.00	-Do-	20,000/-	5	OBC
128.550	Rumnal Sharma	SP	17x5.1 = 86.70	-Do-	16,000/-	3	Gen
		K	11x5.1 = 56.10	-Do-			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
128.700	Moni Ram Sapkota	K	9.2x4.5 = 41.40	-Do-	6,000/-	8	Gen
		K	3.8x2.3 = 8.74	-Do-			
128.750	Md. Kasim Ali	K	4.1x7.2 = 29.52	-Do-	10,000/-	5	Gen
129.000	Anup Majumdar	K	15.1x8 = 120.80	Residence	26,000/-	4	Gen
		K	13.2x3.2 = 42.24	-Do-			
		K	8.6x3.5 = 30.10	-Do-			
129.000	Md. Afas Ali	K	3.2x2.2 = 7.04	-Do-	4,000/-	7	Gen
129.100	Tulsi Ram Sharma	K	12x3.8 = 45.60	Residence	30,000/-	13	Gen
		K	7.4x3.5 = 25.90	-Do-			
		K	8.6x3.5 = 30.10	-Do-			
129.150	Saraswati Kharel	K	11.4x3.5 = 39.90	-Do-	10,000/-	7	OBC
		K	5.5x3.3 = 18.15	-Do-			
129.200	Meena Kharel	K	9.8x4.2 = 41.16	-Do-	6,000/-	2	OBC
129.250	Uttam Das	SP	15x4.2 = 63.00	-Do-	14,000/-	8	OBC
129.300	Ratan Pal	SP	10x5.8	-Do-	60,000/-	3	OBC

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
			= 58.00				
129.300	Raju Shell	K	9.7x7.9 = 76.63	-Do-	6,000/-	4	SC
		K	9.1x5 = 45.50	-Do-			
129.300	Rohit Basumatery	K	12.2x3.8 = 46.36	-Do-	6,000/-	3	ST
129.340	Kangali Majumdar	K	8x3.2 = 25.60	Residence	10,000/-	7	OBC
		K	3x2.2 = 6.60	-Do-			
		K	8x4.2 = 33.60	-Do-			
		K	3.2x6.2 = 19.84	-Do-			
129.350	Chitra Bahadur Diyali	SP	3x3 = 9.00	Cosmetic Shop	20,000/-	9	OBC
		K	7.3x3.7 = 27.01	Residence			
		K	3.6x3 = 10.80	-Do-			
		SP	11x8 = 88.00	-Do-			
129.300	Pranab Dey	K	7.8x6.8 = 53.04	Residence	10,000/-	5	SC
129.400	Kumar Chetri	SP	7.5x10.3 = 77.25	Grocery Shop	10,000/-	5	OBC
129.400	Sankar Majumdar	K	11.5x3.5 = 40.25	Residence	17,000/-	9	OBC

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
		K	3.5x3 = 10.50	-Do-			
129.450	Sankar Biskarma	SP	4x3.1 = 12.40	Electric Shop	3,000/-	8	OBC
		SP	14x9 = 126.00	Residence			
129.500	Ratan Bhowmick	SP	8.5x6.8 = 57.8	Grocery Shop	3,000/-	5	OBC
		K	10.6x4 = 42.40	Residence			
		K	8.6x5 = 43.00	-Do-			
129.500	Kunti Pradhan	K	2.3x2.3 = 5.29	Residence	23,000/-	10	OBC
		K	8x6 = 48.00	-Do-			
129.550	Purna Pr. Upadhyay	K	23x6 = 138.00	-Do-	10,000/-	7	OBC
		SP	6x18.3 = 109.80	-Do-			
		K	10.6x6 = 63.60	-Do-			
129.600	Gayetri Sharma	SP	13x8 = 104.00	-Do-	30,000/-	2	OBC
129.600	Rudra Pr. Sharma	SP	11.9x6.2 = 73.78	Grocery Shop	2,000/-	11	OBC
		K	11.5x6 = 69.00	Residence			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
129.650	Umongla Jamir	SP	6.5x8 = 52.00	Residence	10,000/-	3	ST
		K	7.5x4.6 = 34.50	-Do-			
129.650	Renu Engtipi	SP	12.4x6.7 = 83.08	-Do-	10,000/-	7	ST
		K	3.7x5.8 = 21.46	-Do-			
129.700	Kanchan Pal	K	6.2x5.5 =34.10	-Do-	5,000/-	9	OBC
129.700	Jitu Lama	K	4x3.5 = 14.00	Shop	10,000/-	3	OBC
		K	4.2x3.2 = 13.44	Residence			
		K	2.5x3 = 7.50	-Do-			
		K	9.6x5.4 = 51.84	-Do-			
129.700	Pram Roy	K	10.2x8.8 = 89.76	-Do-	10,000/-	6	OBC
129.700	Prabesh Chowdhary	K	11.3x6.4 = 72.32	-Do-	4,000/-	4	Gen
		Total P = SP = K =	0.00 1253.75 2019.57		Loss in Monthly Business = 19,000/- H. Income = 4,21,000/-		

5) Naharjan Village / Dilai P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
118.150	Balaram Kest	K	10.1x5.1 = 51.51	Residence	15,000/-	5	Gen
		K	5x2.5 = 12.50	-Do-			
118.150	Rajen B	K	10.6x5.5 = 58.30	-Do-	11,000/-	6	ST
		K	5x5 = 25.00	-Do-			
118.170	Chabra B	K	6.8x4 = 27.20	-Do-	8,000/-	6	ST
118.200	.Khoyaengleng	K	5.2x4.1 = 21.32	-Do-	8,000/-	4	ST
118.250	Samsul Haque	K	9.3x5.5 = 51.15	-Do-	15,000/-	7	Gen
118.275	Sher Bahadur	K	6.2x4 = 24.80	-Do-	5,000/-	5	ST
		K	7.2x2.8 = 20.16	-Do-			
118.280	Marjib Musahary	K	7.2x3.2 = 23.04	Residence	6,000/-	4	ST
		K	7.2x3.5 = 25.20	-Do-			
118.320	Shib Bahadur Jhakuri	K	9.3x5.7 = 53.01	-Do-	7,000/-	3	ST
		K	11.5x5.6 = 64.40	-Do-			
118.420	Teg Bahadur Chetry	K	3.9x9.8 = 38.22	-Do-	15,000/-	6	ST
		K	10.6.2 = 62.00	-Do-			
		K	5x4.7 = 23.50	-Do-			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
118.550	Akampa Sangtam	K	9.2x5.8 = 53.36	-Do-	12,000/-	7	ST
		K	4.4x3.7 = 16.28	-Do-			
		Total P = SP = K =	0.00 0.00 650.95		Loss in Monthly Business = 0.00 H. Income = 1,02,000/-		

5A) Naharjan Village / Dilai P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
118.150	Kumar Sarma	K	9.8x3.1 = 30.38	Residence	8,000/-	3	Gen
		K	4x3 = 12.00	-Do-			
		K	14x5 = 70.00	-Do-			
118.200	Umar Bey	K	7.2x3.5 = 25.20	-Do-	7,000/-	5	ST
118.200	Dhare Bey	K	6.8x3.5 = 23.80	-Do-	6,000/-	6	ST
		K	4.2x3.1 = 13.02	-Do-			
118.275	Serchin Karbi	K	7x5 = 35.00	-Do-	6,000/-	2	ST
		K	3x5 = 15.00	-Do-			
118.275	Tikaram Roy	K	9.3x5.6 = 52.08	-Do-	8,000/-	3	ST

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
		K	5.4x3.1 = 16.74	-Do-			
118.350	M. Bahadur Thapa	K	5.6x4.3 = 24.08		10,000/-	7	ST
		K	8.2x5.1 = 41.82				
		K	5.2x4 = 20.80				
118.400	Amarendra Kr. Singh	K	5.4x4.6 = 24.84		6,000/-	2	OBC
		K	6x3.2 = 19.20				
		K	5x4 = 20.00				
118.400	Dal Bahadur	K	8.5x5.3 = 45.05	Residence	6,000/-	2	ST
		K	9.2x5.5 = 50.60	-Do-			
118.500	Md. Rafiqul Islam	K	7.4x3.5 = 25.90	-Do-	6,000/-	6	Gen
		K	4.7x3.1 = 14.57	-Do-			
		K	7.3x6.3 = 45.99	-Do-			
118.650	Meren L Kumar	K	15x6.1 = 91.50	-Do-	85,000/-	10	ST
		K	5.3x4.3 = 22.79	-Do-			
		Total P = SP = K =	0.00 0.00 740.36		Loss in Monthly Business = 0.00 H. Income = 1,48,000/-		

6) Choto Lengrijan Village / Dilai P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
121.350	Bikash Das	K	11x3.7 = 40.70	Residence	5,000/-	4	OBC
121.500	Kikholotha	K	6.4x11.5 = 73.60	-Do-	18,000/-	8	ST
		K	4.6x3.1 = 14.26	-Do-			
		K	4.8x6.1 = 29.28	-Do-			
121.500	Sanjib Biswas	SP	13.2x4.1 = 54.12	Grocery Shop	5,000/-	4	OBC
121.600	Prona Teron	K	10x6.5 = 65.00	Residence	24,000/-	7	ST
		K	7x6 = 42.00	Residence			
121.600	Teg Bahadur	K	9.5x6 = 57.00	-Do-	7000/-	5	OBC
		Total P = SP = K =	0.00 54.12 322.96		Loss in Monthly Business = 13,000/- H. Income = 46,000/-		

6A) Choto Lengrijan Village / Dilai P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
120.350	Gemron Ranghang	K	6.8x4.2 = 28.56	Residence	6,000/-	2	ST
120.350	Sahabuddin	K	6.7x4.6 = 30.82	-Do-	5,000/-	8	Gen

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
		K	4.5x4 = 18.00	-Do-			
120.450	Nizamuddin	K	3.7x11 = 40.70	-Do-	9,000/-	2	Gen
120.450	Sarifuddin	K	15x4.3 = 64.50	-Do-	9,000/-	7	Gen
121.250	Alo Rani Das	K	8x7.5 = 60.00	-Do-	5,000/-	5	SC
121.450	Suraj Thapa	K	9.2x3.7 = 34.04	Residence	3,000/-	4	OBC
		K	8.4x3.2 = 26.88	-Do-			
		K	4.1x3.2 = 13.12	-Do-			
121.500	Bikram Gurung	K	4.6x6.4 = 29.44	Shop	4,000/-	5	OBC
121.500	Jeet Bahadur Chetry	K	3.6x10.4 = 37.44	Grocery Shop	5,000/-	3	OBC
121.500	Soren Thakuri	SP	5x6.5 = 32.50	Residence	8,000/-	8	OBC
121.600	R. K. Limbu	K	8x6 = 48.00	-Do-	32,000/-	5	OBC
		K	5x3 = 15.00	-Do-			
121.600	Dhan Bahadur Thapa	K	8x6 = 48.00	-Do-	7,000/-	7	OBC
		K	10x6 = 60.00	-Do-			
		Total P = SP = K =	0.00 32.50 554.50		Loss in Monthly Business = 5,000/- H. Income = 59,000/-		

7) Borolengri Village / Dilai P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
122.000	Radha Gurung	K	9.6x6 = 57.60	Residence	9,000/-	5	OBC
122.000	Sheem Thapa	SP	6.3x4 = 25.20	Residence	5,000/-	5	OBC
		SP	11.5x6.5 = 74.5	-Do-			
122.000	Sapna Karlai	K	4.5x8.6 = 38.70	-Do-	3,000/-	4	OBC
		K	3.7x8.5 = 31.45	-Do-			
122.050	Prabin Mondal	SP	14.5x6 = 87.00	-Do-	10,000/-	8	ST
		SP	5x3.3 = 16.50	-Do-			
		SP	15x10.4 = 156.00	-Do-			
122.300	Bimala Adhikari	K	11.5x7 = 80.50	-Do-	4,000/-	8	Gen
		K	5x6 = 30.00	-Do-			
122.500	Orenthung Lother	K	9.7x8.4 = 81.48	-Do-	6,000/-	4	ST
		K	12.8x4 = 51.20	-Do-			
122.600	Janak Karki	SP	10x7 = 70.00	-Do-	8,000/-	5	OBC
		SP	10.9x7.4 = 80.66	-Do-			
		K	8x6 = 48.00	-Do-			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
		Total P = SP = K =	 0.00 510.11 418.93		Loss in Monthly Business = 0.00 H. Income = 45,000/-		

7A) Borolengri Village / Dilai P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
122.000	Ganesh Bahadur Tamang	SP	11x6 = 66.00	Residence	7,000/-	4	OBC
122.000	Robin Rimal	SP	14.3x7.7 = 110.11	-Do-	35,000/-	4	OBC
122.000	Radha Chetri	K	10.8x6.2 = 66.96	-Do-	19,000/-	7	OBC
		K	8x6.5 = 52.00	-Do-			
122.100	Rencha Humtsae	SP	6x7 = 42.00	-Do-	15,000/-	5	ST
122.200	Sriram Rajbhar	SP	11.1x6.8 = 75.48	-Do-	13,000/-	18	Gen
		K	9.4x7 = 65.80	-Do-			
		K	8.6x7 = 60.20	-Do-			
122.600	Krishna Bahadur	SP	3x3 = 9.00	-Do-	5,000/-	9	OBC

	Lama	SP	10.5x8 = 84	-Do-			
		K	10x7 = 70.00	-Do-			
122.800	Ganesh Chetry	K	10.4x6.1 = 63.44	-Do-	7,000/-	5	OBC
		K	8x6 = 48.00	-Do-			
		K	3x2 = 6.00	Shop			
		Total P = SP = K =	0.00 386.59 432.40		Loss in Monthly Business = 0.00 H. Income = 1,01,000/-		

8) Borolengri (ii) Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
123.000	Minu Baruan	K	9.5x9 = 85.50	Residence	2,000/-	2	OBC
123.00	Man Singh Teron	K	6.5x5 = 32.50	-Do-	16,000/-	9	ST
		K	6x4 = 24.00	-Do-			
		K	4x3 = 12.00	-Do-			
123.200	Md. Fakaruddin Ahmed	K	6x3 = 18.00	-Do-	7,000/-	9	OBC
		K	6x4 = 24.00	-Do-			
123.300	Sunal Ahmed	SP	3x3 = 9.00	Grocery Shop	60,000/-	3	Gen
123.300	Sakil Ahmed	SP	3x6 = 18.00	Grocery Shop	6,000/-	2	Gen

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
123.300	Laxman Chowdhury	SP	6x3 = 18.00	Pharmacy	6,000/-	3	Gen
123.350	Ramsa Tamang	SP	6x4 = 24.00	-Do-	30,000/-	5	OBC
123.350	Pengamin Lotha	K	12.3x7.8 = 95.94	Residence	27,000/-	7	ST
		K	9.7x4 = 38.80	-Do-			
		K	6x4 = 24.00	-Do-			
		K	10.6x5.4 = 57.24	-Do-			
123.400	Hiralal Prasad	K	12.2x4.7 = 57.34	-Do-	4,000/-	8	OBC
		K	8x4 = 32.00	-Do-			
		K	3x2 = 6.00	Panshop			
123.450	Inavi Sumi	K	7.6x4.4 = 33.44	Residence	4,000/-	4	ST
		K	3x3 = 9.00	-Do-			
123.450	Tirtha Tamang	K	9x4 = 36.00	Panshop	20,000/-	7	OBC
		SP	10.4x5.2 = 54.08	Residence			
		SP	6.8x5.2 = 35.36	-Do-			
123.450	Motilal Baswat	K	7x4 = 28	Residence	6,000/-	3	SC
		K	3x3 = 9.00	-Do-			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
123.450	Sudas Sundar	K	3x3 = 9.00	Pan Shop	5,000/-	6	Gen
		K	11x3.7 = 40.70	Residence			
123.450	Ramesh Biswas	K	20x5 = 100	Residence	5,000/-	7	SC
123.500	Chabaj Chang	K	14x8 = 112.00	-Do-	10,000/-	7	ST
		K	6x5 = 30.00	-Do-			
123.500	Ram Kumar Lama	K	11x6 = 66.00	-Do-	30,000/-	6	OBC
123.500	Nema Bahadur Lama	K	11x6 = 66.00	Residence	20,000/-	5	OBC
123.500	Ram Balak Saha	K	10.2x6 = 61.20	Residence	6,000/-	11	SC
		K	8x5 = 40.00	-Do-			
123.500	Tokiou Yamchu Negu	K	10x5 = 50.00	-Do-	24,000/-	10	ST
123.550	Niranjan Kalita	K	9x3.5 = 31.50	-Do-	8,000/-	5	OBC
123.400	Sabram Lama	K	8x7 = 56.00	-Do-	6,000/-	4	ST
		K	7.8x7 = 54.60	-Do-			
123.550	Abdul Hoku	K	12x3 = 36.00	-Do-	21,000/-	5	Gen
123.600	Antrew P Tikhir	K	10.8x9.6 = 103.68	-Do-	43,000/-	12	ST

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
		K	4.4x3.7 = 16.28	-Do-			
123.600	Saraja Begum	SP	7.7x3.4 = 26.18	Grocery Shop	10,000/-	4	Gen
		SP	13.7x7.3 = 100.01	Residence			
123.600	Akbar Ali	K	3x2.2 = 6.60	Pan Shop	6,000/-	4	OBC
		K	6x5.8 = 34.80	Residence			
123.750	Abu Hanif	SP	8x6 = 48.00	Grocery	6,000/-	3	OBC
		SP	18x12 = 216.00	Residence			
123.750	Lakhman Tamang	K	10.6x6.5 = 68.90	Residence	13,000/-	7	ST
		K	6x5.8 = 34.80	-Do-			
		Total P = SP = K =	0.00 584.63 1640.02		Loss in Monthly Business = 1,01,000/- H. Income = 3,00,000/-		

9) Purana Lahorijan Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
131.800	Dilip Chetry	K	9.3x6.2 = 57.66	Residence	6,000/-	13	OBC
		K	9.2x11 = 101.20	-Do-			

		K	8x6 = 48.00	-Do-			
		K	6x4 = 24.00	-Do-			
		SP	9x4 = 36.00	Pan Shop			
		Total P = SP = K =	0.00 36.00 230.86		Loss in Monthly Business = 3,000/ H. Income = 3,000/-		

10) Bara Lengri Village / Khatkhati P.S.

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
123.00	Nono Pengma	SP	4x6.2 = 24.80	Residence	9,000/-	3	ST
123.000	Mhao Lotha	SP	7x4 = 28.00	Grocery Shop	15,000/-	6	ST
123.000	Sonamti Singh	SP	4x3 = 12.00	-Do-	23,000/-	7	ST
		SP	5x12 = 60.00	Residence			
123.000	Khaiba Same (Jb)	K	5x3.2 = 16.00	-Do-	31,000/-	5	ST
		K	10.5x5.1 = 53.55	-Do-			
		SP	10.4x6.8 = 70.72	-Do-			
		SP	6.4x4.4 = 28.16	-Do-			
123.000	Thunglamo Lotha	SP	10.6x7.5 = 79.50	-Do-	29,000/-	9	ST
		K	7x4 = 28.00	-Do-			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
123.100	Chenio Ngully	K	12x6 = 72.00	-Do-	3,000/-	2	ST
123.250	Malati Das	K	8.7x6.2 = 53.94	-Do-	8,000/-	5	OBC
123.300	Md. Nuruddin Laskar	K	4x5 = 20.00	Grocery Shop	15,000/-	7	OBC
123.300	Gopal Shtami	K	3.2x3.3 = 10.56	Tailoring Shop	13,000/-	7	OBC
123.350	Asang Cheng	K	8x3.5 = 28.00	Residence	4,000/-	2	ST
		K	3x2.8 = 8.40	Grocery Shop			
123.400	Wallson Taryoung	K	10x6 = 60.00	Residence	20,000/-	8	ST
		K	5x4 = 20.00	-Do-			
		K	5.5x4 = 22.00	-Do-			
123.400	Luntsusa Timchunger	K	6x4 = 24.00	-Do-	3,000/-	5	ST
		K	7.5x4 = 30.00	-Do-			
123.400	Vim Bahadur Lama	K	9.7x4.6 = 44.62	-Do-	34,000/-	12	ST
		K	7.4x3.6 = 26.64	-Do-			
		K	5.7x2.7 = 15.39	-Do-			
		K	6x3.8 = 22.80	-Do-			

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
123.400	Manai Rongpipi	SP	9.6x5.2 = 49.92	-Do-	18,000/-	5	ST
123.400	Eklas Laskar	K	8.6x5.4 = 46.44	-Do-	3,000/-	3	OBC
123.400	M.S.U Laskar	P	16x5 = 80.00	-Do-	30,000/-	4	OBC
		SP	9.6x6.4 = 61.44	-Do-			
		P	13.4x7.6 = 101.84	-Do-			
123.600	Hevuto Sema	SP	12x6.5 = 78.00	-Do-	4,000/-	6	ST
		SP	7x3.8 = 26.60	-Do-			
123.600	Kasim Bihari	K	5.2x4.4 = 22.88	Tea Stall	10,000/-	4	OBC
123.600	Abdul Munaf	K	6.6x3.4 = 22.44	Grocery	15,000/-	7	OBC
123.600	Host Bahadur Lama	K	15x5 = 75.00	Residence	10,000/-	5	ST
123.600	Subhas Ten	SP	10.8x5.7 = 61.56	-Do-	20,000/-	7	ST
		K	6x5 = 30.00	-Do-			
123.600	Hosalis Sema	SP	11.5x7.6 = 87.40	-Do-	7,000/-	7	ST
		K	4.2x3 = 12.60	-Do-			
123.650	Sahovi Sumi	SP	9.8x12.6 = 123.48	-Do-	18,000/-	6	ST

Design Chainage	Name of PAP head	Affected Structure		Used as	Monthly Income (Rs)	Family Member	Social Group
		P/SP/K	Area (Sqm.)				
		K	16x6 = 96.00	-Do-			
		K	5x2.8 = 14.00	-Do-			
123.700	Purnima Tamang	K	7.8x3.6 = 28.08	-Do-	13,000/-	3	ST
		K	4x3 = 12.00	-Do-			
		Total P = SP = K =	181.84 791.58 915.34		Loss in Monthly Business = 31,000/- H. Income = 3,24, 000/-		

The abstracts of the above-mentioned PAPs are given in **Table 1 (A, B&C).**

Table – 1

A] Villagewise Abstract of demolition in Sq. m.

Sl. No.	Name of Village	Pucca (P)	Semi Pucca (SP)	Kachha (K)
In Assam				
1 & 1A	Belijan 'A' / Khatkhati P.S.	0.00	251.09	965.25
2 & 2A	Belijan / Khatkhati P.S.	0.00	416.00	517.50
3, 3A & 3B	Karagaon / Khatkhati P.S.	0.00	164.63	1372.26
4, 4A & 4B	Gautam Basti / Khatkhati P.S.	107.88	2074.91	3135.20
5 & 5A	Naharjan / Dilai P.S.	0.00	0.00	1391.31
6 & 6A	Chotolengrijan / Dilai P.S.	0.00	86.62	877.46
7 & 7A	Boro Lengri / Dilai P.S.	0.00	896.70	851.33
8	Boro Lengri (ii) / Khatkhati P.S.	0.00	584.63	1640.02
9	Purana lahorijan / Khatkhati P.S.	0.00	36.00	230.86
10	Boro Lengri / Khatkhati P.S.	181.84	791.58	915.34
	TOTAL	**289.72**	**5,302.16**	**11,896.53**

B] Villagewise Abstract of Project Affected Population (PAP) & Loss of Monthly Business/Income Loss of Household

Sl. No.	Name of Village	Displaced		Monthly Business Loss	Monthly Household Income Loss
		Family	PAP		
In Assam					
1 & 1A	Belijan 'A' / Khatkhati P.S.	13	85	50,000.00	1,50,200.00
2 & 2A	Belijan / Khatkhati P.S.	10	56	0.00	2,03,000.00
3, 3A & 3B	Karagaon / Khatkhati P.S.	25	145	24,000.00	2,75,000.00
4, 4A & 4B	Gautam Basti / Khatkhati P.S.	64	281	1,28,000.00	7,22,500.00
5 & 5A	Naharjan / Dilai P.S.	20	99	0.00	2,50,000.00
6 & 6A	Chotolengrijan / Dilai P.S.	16	84	18,000.00	1,05,000.00
7 & 7A	Boro Lengri / Dilai P.S.	14	95	0.00	1,46,000.00
8	Boro Lengri (ii) / Khatkhati P.S.	26	158	1,01,000.00	3,00,000.00
9	Purana lahorijan / Khatkhati P.S.	1	13	3,000.00	3,000.00
10	Boro Lengri / Khatkhati P.S.	23	135	31,000.00	3,24,000.00
	TOTAL	**212**	**1,151**	**3,55,000.00**	**24,78,200.00**

C] Social Groups of displaced PAPs

	General	ST	OBC	SC	Total
In Assam					
Family	**41**	**53**	**102**	**16**	**212**
Persons	**255**	**303**	**482**	**111**	**1151**

ENVIRONMENTAL SCREENING AND PRELIMINARY ENVIRONMENTAL ASSESSMENT (Dimapur Bypass – Assam Part)

Introduction

Project of 4-laning of NH- 36 from km 38.0 to km 168.167 (Daboka to Dimapur) includes construction of one new bye-pass to Dimapur town covering a total length of 35.004 Km in Assam State, which will have some direct impact on environment. It is necessary to undertake **P**reliminary **E**nvironmental **S**creening and **A**ssessment **S**tudy for the proposed for construction of proposed Bypass to assess the potentially critical impacts on environment for construction of proposed Bypass in order to suggest the mitigative measures or alternate alignment, which are required to be incorporated during the initial planning stages. Besides there are 2 stretches of Planted Forest in Bypass, which will have significant effect on the design of the road.

The present road alignment of Northern Dimapur Bypass of NH-36 passes through mountainous/rolling terrain. This will be a 4-lane divided carriageway.

The project stretch passes through 2 districts viz. Karbi Anglong in Assam and Dimapur in Nagaland. The district wise semi-urban areas are as follows,

Table 7.1: District-wise semi-urban / urban areas

Sr. No.	District	Urban/Village/Semi-urban area
1	Karbi Anglong	Belijan, Belijan A, Karagaon, Naharjan, Chotolengrijan, Barolengri, Barolengri (ii), Purana, Lahorijan, Gautam Basti, Khatkhati
2	Dimapur	Dimapur, Khusiabil, Saikathemi 'c', Patkoi

The road is in embankment throughout with average height varying from 0.50 m to 2.50 m. There is high embankment of the order of 5.0 m to 6.0 m height near the major bridge/ROB/Flyover approaches. In an around the semi-urban area localities, the embankment height is as low as 0.50 to 1.00 m.

The proposed ROW is generally 30.00 m on either side of the centerline of the Dimapur Bypass carriageway, where it has run through agricultural land.

A reconnaissance survey was carried out to study the present environmental set up of the study corridor, which is the corridor for environmental concern, in general and proposed ROW in particular, on the basis of which screening exercises were undertaken to identify the environmentally sensitive issues and areas.

Detailed studies on each parameters/issues have established exact conditions in respect of assessment of potential negative impacts of the project on the environment.

Environmental Screening

Purpose of Preliminary Environmental Screening Study

This report provides a Preliminary Screening study of 4-laning of **Northern Dimapur Bypass** in NHDP Phase IIIB. Its preparation has been undertaken as an activity parallel to and to be completed in tandem with the study of other aspects of the project's economic and financial feasibility. As required in Terms of Reference (TOR) for the consulting services, the results of the preliminary environmental screening are submitted as a document of **Final Detailed Project Report on EPC basis** in order to clearly mark out the environmental problems, enhancement of opportunities and locations at which appropriate action can be taken. As stated in the TOR for the work, the purpose of the **Preliminary Environmental Screening Study (PESS)** is "to determine any significant economic, social and environmental issues, which could require further analysis (including the analysis of Bypass, improvement of junctions etc.) and to resolve such issues". The social and environmental screening will include, but not be limited to, the analysis of available information (supplemented where appropriate by site assessment) concerning:

- Areas of significance within right-of-way (ROW).
- Sensitive and/or critical natural habitats (e.g., national park, wild life reserves, sanctuaries, social groves, reserve and protected forest, social forest, wetlands etc.).
- Major rivers and waterways.
- Recorded religious and cultural heritage sites.
- And any potentially sensitive areas, based on recent GOI census, official data and information from NGOs and site visit.

The results of this analysis will be tabulated clearly to identify any conflicts. The recommendations concerning how to resolve them (including recommendations for exclusion analysis of alternatives and/or mitigation) shall be recorded as precursor to preliminary engineering design and for undertaking the required social impact and environmental assessment studies.

Physical Environment

Physiography

The area lies within Karbi Anglong & Dimapur District and have a general height 67m to 181 m above MSL. Near Dimapur, a range of hills exist of the alluvium which is about 90m – 182m above MSL. The general slope of the land is towards south. The area is served by two major rivers and 8 minor channels.

Drainage

The study area lies within the Assam & Nagaland states and is mountainous to rolling in nature. The Northern Dimapur Bypass crosscuts the different drainage system at different Chainage.

Most of the drainage system debouch from the sub-Himalaya through segmented piedmont plain and flow in a general southerly direction through narrow conical or linear zones. Over a certain distance, they invariably flow along nearly straight, braided channels on bed of gravel and then follow a meandering path in the flood plain.

The recent flood plain shows a variety of landform elements, viz., meander scroll, channel bar, etc.

Geology and Geomorphology

The area under investigation is characterized by the quarternary alluvial deposits. This deposit has been classified into four informal stratigraphic units. Each formation has two facies - a piedmont plain facies and a flood-plain facies. The former is characterized by dominance of gravel and the latter by sand-silt-clay. The road is passing through hills of Nagaland.

There are four-stepped sequences of geomorphic surface present in this area, which can be clearly discernible. The level difference between the successive terraces is the maximum at the hilly front. It decreases gradually towards south. An interesting feature of the area is hillocks made of granitic and gneissic rocks and geologically part of Karbi-Megalaya Plateau. The plateaus are geologically ancient and a part of the Deccan Plateau, while the hills are young and geologically belong to the Himalayan group. Karbi Anglong itself is spread over two separated areas. Its Harem Sub-Dn is a part of the Meghalaya Plain while the Diphu and Bokajan Sub-Dns are located in Karbi Plateau proper. The Harem Sub-Dn. is physiographically a part of the Jayantia hills of the Meghalaya plain and hence it is relatively low.

The Karbi Plateau proper is oval in shape and highly dissected along its margins. The central part is, however, high and has such peaks as chenghehison (Singhason 1359m) and Daubukso (1361m). The plateau gives out many streams to the surrounding low lands of Golaghat & Nagaon districts and there are terraces at places where these rivers emerge to plains. These support tea gardens and Reserve Forests.

Geohydrology

Groundwater occurs under phreatic condition in the area. The general slope of the water table is from north to south being more or less concordat with topographic slope. The hydraulic gradient is highest in the piedmont plain on the north and progressively decreases towards south. The shallow and deeper aquifers in the entire area are interconnected. The

piedmont plain forms the primary recharge area of the region. The quaternary sediment in the area gets completely saturated by mid-monsoon. The average seasonal fluctuation of water table in the area is around 3 m. Chemically groundwater from shallow and deeper aquifers in the area are suitable for irrigation, domestic and industrial use.

Soil

The soil of the entire stretch is Alluvial in origin. Deposition of alluvium is mainly from the rivers passing through the area. Alluvial soil is generally fertile. Alluvial soil is either older, which contains clay, sand, gravel and pebbles or younger (flood plain deposit), which contains sand, gravel, pebbles, clay and fine classes. Cultivation area is observed in the project stretch. Possibility of release and deposition of pollutants in soil, mainly Lead, generated from vehicular movement is moderate. Characterization of soil through sampling and analysis has been done during detail monitoring.

Land Use

This portion of the National Highways (NH-36) passes thorough some densely populated area of Karbi-Anglong district of Assam state. On both side of NH-36 agricultural activity is very much predominant. Orchard and roadside plantation of different species of plants are very dominant type of land use class in the area. A substantial portion of the study area is covered by Planted areas, which lie on both side of the road.

River / tributaries constitute a substantial portion of the land use class in this area.

Climate

The area experiences four distinct seasons i.e. winter, summer or pre-monsoon, monsoon and retreating monsoon. The winter lasts from November to February, followed by brief period of summer. The monsoon commences from May and continues up to September and sometimes up to the 2nd week of October. The season of retreating monsoon is brief and is characterized by progressively fair weather and morning fog of short duration. The minimum temperature comes down to 9°C during month of December while the temperature shoots up to 39 °C in the month of July. Though the main monsoon rains begin in May, the pre-monsoon showers start by mid – April and are often accompanied by hailstorms. The average yearly rainfall is quite high 2400 mm throughout the year, but more so in the wet season.

Geo-Environmental Hazards

As per the seismic zoning Map of India (IS: 1893-2002), the area under investigation fall under seismic zone V. With reference to the MSK intensity scale used for all engineering design purposes, the region lies in the highest damages risk zone. Therefore, there is always

necessity to consider the factor of safety for highest earthquake intensity while formulating any development programme.

Ambient Air Quality

There is no past data on ambient air quality in this stretch. Through reconnaissance survey it can be assessed that, since most part of the stretch under rural category and vacant area, possibility of high level of gaseous and particulate pollution is less. In semi-urban to urban area like Dillai, Lahorijan and Dimapur expected level of air pollutants comparatively higher due to commercial activity, residential emission and emission from vehicle. Vehicular traffic is the main source of air pollution in the study area. Monitoring of ambient air quality at different stretches has been assessed to present status of air pollution. It has been found that the levels of pollutants ie., SPM, CO_2, SO_2, Nox and HC are within the prescribed limits of CPCB as shown in **Table 7.10 A.**

Water Quality

There is no past data on surface and ground water quality in this stretch. There are 2 major rivers and a few minor channels, few bils and irrigation canals in the study area. Since during construction of bridge and road, surface water quality may be affected, complete of water quality study is necessary. It has been found that Physical, Chemical and bacteriological quality of water source are within the prescribed limits of CPHEEO. This may be because of the fact that there are no industries in the area, as shown in **Table 7.11 A.**

Noise Level

Since most part of the stretch is under rural areas, noise generated from use of horn by vehicles at rural stretch is less. But at commercial and residential areas of semi-urban category and turning curve of the road, expected noise level is high. Measurement of ambient noise level at Residential, Commercial and Sensitive areas will give the clear picture before strengthening and upgradation of the project road. Noise levels in these areas are formed to be within limits prescribed by CPCB as shown in **Table 7.12 A.**

Biological Environment

Status of Flora

The project road is located in the high rainfall area with number of matured trees and vegetation growth along side of the road. The following are the common plants recorded all along the stretch.

Table 7.3: Tentative Floral checklist

Name of Species	Local Name	Common Name	Family
Dalbergia sisoo	Sisoo	Sesam	Leguminosae
Tectona grandis	Segun	Teak	Verbenaceae
Gmelina arborea	Gamari	Gamar(Hill Teak)	Euphorbiaceae
Trewia nudiflora	Bhelkar	Bhelkar	Euphorbiaceae
Ficus religiosa	Ahat	Pipal	Moraceae
Azardarichta indica	Nim	Neem	Meliaceae
Cassia fistula	Sonaru	Sonaru	Leguminacea
Caesalpinia pulcherrima	Krishnachura	Krishnachura	Leguminosae
	Arccanut		
	Jia		
	Jalpai		
	Poma		
	Koras		
	Simalu		
	Satiyana		
	Sal		
	Sirish		
	Jungle Tree		
Zizyphus jujuba	Bogori	Ber, Kul	Rhamnaceae
Eucalyptus spp.	Eucalyptus	Eucalyptus	Myrtaceae
Accacia spp.	Acacia	Akashmoni	Leguminosae
Artocarpus heterophyllus	Kanthal	Kathal, Jackfruit	Moraceae
Mangifera indica	Aam	Mango	Anacardiaceae
Syzygium cumini	Jamuk	Jam, Black Plum	Myrtaceae
Ficus elastica	Rubber	Rubber	Moraceae
Anthocephalus kadamba	Odam, Kadam	Kadam	Rubiaceae
Bambusha sp.	Bamboo, Bah	Bamboo	Graminieae
Aegle marmelos	Bel	Bel	Rutaceae
Cocos nucifera	Coco	Nariel, Coconut	Palmae
Lagerstroemia flosreginae	Ajar	Queen Crape Myrtle	Lythraceae
Borassus flabellifer	Tal	Tal	Palmae
Albegzea procera	Koroi	Koroi	Mimocea
	Debdaru		
	Titachops		

In some stretches thick plantation of Sesam, Sirish, Eucalyptus, Segun, Acacea and Jigur are noted.

Preliminary estimation trees indicates that total number of affected trees within the ROW is in the tune of 24,734 **(Table 7.8).** There are about 12,099 trees along the left side of the road while there are about 12,635 trees along the right hand side of the road. Most of the trees (62%) are in the girth size <50cm There are also approx. 8446 nos., 995 nos., 20 nos. affected trees of the girth size 50-100 cm, 100-200 cm, >200cm respectively exist within the ROW.

Status of Fauna

Road passes through plain agricultural, residential and commercial land. There are 2 Planted areas within the stretch. Only few social forest plantations are noted in the stretch. Therefore existence of wild fauna is not reported. Only domestic animals are present.

Status of Religious & Cultural Heritage Site

Practically there is no cultural heritage site throughout the stretch of the bypass.

Status of Utility Services

As the alignment is new, very less numbers of Utility Services.

Preparation of Environmental Screening Data Sheet-Environmental Analysis

Environmental screening data sheet (km wise) is given in **Table 7.9.** That indicates Land use within the ROW and just outside the ROW. Also type of natural, plantation and planted forest trees, existence of sensitive area, religious place, market and residential areas are also indicated in screening sheet.

Salient Environmental Features

- The existing road alignment of Dimapur Bypass passes mostly through plain agricultural land. But in some stretches, the road passes through forestland. The road stretch passes through Karbi Anglong district of the state of Assam and Dimapur district in the state of Nagaland.
- Road passes through the important big villages viz. Khusiabil, Belijan, Kargaon, Naharjan, Saithekema "C", Patkoi, Khatkhati and Gautam Basti. Possibility of generation of gaseous and particulate pollutants in these urban areas is more though not significant.
- There are number of plantation trees, mainly, Caseasima, Segun (Teak), Gamari, Sonaru, Mango, Simur, Gulmohar, Sirish, Sesam, Segun, Eucalyptus and Acacea. Among the big trees Mango, Jamun, Ahat (Pipal), Kathal, Bargad are more or less common.
- Ditch, low lying area, pond and other water body are present within the study corridor.
- Daboka-Dimapur section after road is passing through congested area of Dimapur Town. To avoid significant social and environmental impact, construction of Northern Dimapur bye-pass for this area is needed. Acquisition of agricultural land, few beels are necessary for construction of bye-pass.

Area of Environmental Concerns and Risks

Seismicity poses another natural environmental problem. Other than these natural environmental hazards, there are some man-made/anthropogenic hazards also.

The major areas of concern from environmental angle appeared to be as follows, from PESS:

- Felling of large numbers of roadside trees/ social plantation trees.
- Gaseous pollution at commercial area, semi urban sections of road
- Dust and sound pollution particularly at sensitive areas during construction of road
- Protections of reserve and social plantation forest within and outside the ROW
- Existence of natural water body very near to road

Scopes and Necessity of Detail Environmental Assessment

With the background of environment screening report in feasibility stage detail Environmental Impact Assessment study is necessary to safeguard the environment impacts may arise from new construction of Northern Dimapur Bypass by a 4-lane with divided carriageway.

- To make an assessment which delineates the significant environmental effects of the project;
- To describe and quantify the effects;
- To describe feasible mitigation measures for minimizing, eliminating, or offsetting unavoidable adverse effects; and
- To recommend the most appropriate mitigation and/or enhancement measures

The following activities have been taken up for preparation of detail Environment Assessment Report:

- Generation of primary data as follows:
  - **a) Air Quality**: Air quality monitoring has been carried out at five locations spread over the entire stretch. Locations of sampling sites and description of sites given in **Table 7.10.** Monitoring has been carried out for two days for determination of parameters like SPM. RPM, SO_2, NOx, Pb etc.
  - **b) Water quality**: Water quality monitoring has been carried out at 3 locations for determination of common parameters. **Table 7.11.**
  - **c) Noise Level**: Noise level **monitoring** has been carried out in 3 locations covering sensitive area, residential area, and mixed area. **Table 7.12.**
- **Collection of Secondary Data**: Secondary data has been collected from published sources and from concerned authorities in respect to geology, geohydrology, drainage, physiography, soil, flora, fauna, meteorology and regional land use pattern
- Assessment of potential positive and negative impacts associated with strengthening of road on different environmental attributes.

- Suggesting cost effective mitigation measures relevant to project activities
- Preparation of Environment Management Plan (EMP) which contents
  - Monitoring requirements for mitigate measures
  - Institutional arrangement required for the purpose
  - Cost of implementation to mitigate measures and monitoring arrangements

Possible Environmental Impact and Mitigation measures:

The proposed project would influence the environment in two distinct phases:

- During the construction phase which would be temporary and short term;
- During the operation phase which would have long term effects

Checklists of potential environmental impacts of the project are presented in **Table 7.4** and are discussed in the following sections.

Table 7.4: Environmental Checklist

Actions Affecting Environmental Resources and values (A)	Damages to Environment (B)	Recommended Feasible Protection Measures (C)	IEE (D)				Comments
			No Significant Effect (D1)	Potential Significant Effect			
				Small (D2)	Mod (D3)	Major (D4)	
Problem relating to Project Planning, Design and Construction							
Disruption of surface hydrology resulting in impairment of beneficial water uses	Depends on type of adverse effect	Checking on whether there is any significant effect		√			
Encroachment on precious ecology	Loss of precious ecology (flora and fauna)	Careful planning to minimize and offset losses				√	Judicious environmental design can protect biodiversity
Impairment of fisheries/aquatic ecology and other beneficial uses	Impairment of downstream beneficial water uses	Careful planning to minimize and offset losses		√			
Erosion and Siltation	Excessive soil erosion and impairment of downstream water quality	Careful resurfacing or replanting of exposed area			√		
Environmental aesthetics	Loss of scenic values	Careful planning to minimize and offset losses			√		
Noise and Vibration	Nuisances to travelers and neighbors	Careful planning to minimize and offset losses		√			Joint monitoring by Consultant

Actions Affecting Environmental Resources and values (A)	Damages to Environment (B)	Recommended Feasible Protection Measures (C)	IEE (D)				Comments
			No Significant Effect (D1)	Potential Significant Effect			
				Small (D2)	Mod (D3)	Major (D4)	
Air pollution hazards	Nuisances and health hazards to travelers/workers	Control of motor vehicle and industrial emission			√		Joint monitoring by Consultant
Highway runoff pollution	Serious health/safety hazards to travelers and neighbors	Careful planning and O&M and competent emergency cleanup			√		
Highway spills of hazardous materials	Serious health/safety hazards to travelers and neighbors	Careful planning and O&M and competent emergency cleanup		√			
Impact on utility services	Public inconvenience due to disruption of service	Appropriate planning plus prompt action			√		To the extent feasible existing utilities will be bypassed
Problem During Operation Stage							
Increase in air pollutants during the operation phase; since traffic volume is predicted to be high	With widening of road emission from the vehicles less	Control of motor vehicle emission		√			
Increase in noise level due to the increase in number of vehicles passing through a point per unit time	With widening of road noise generated from the vehicles less	More or less positive impact		√			
Pollution of surface runoff will occur from exhaust emission, pavement and tire wear, petroleum product dripping, corrosion of metal	Serious health/safety hazards to travelers and neighbors	Careful planning and O&M and competent emergency cleanup		√			

Actions Affecting Environmental Resources and values (A)	Damages to Environment (B)	Recommended Feasible Protection Measures (C)	IEE (D)				Comments
			No Significant Effect (D1)	Potential Significant Effect			
				Small (D2)	Mod (D3)	Major (D4)	
The impact of the road improvement on the socio-economic environment	Positive beneficial effect, likely to stimulate the economic growth of the area	Insignificant	√				
Contamination of soil	Deposition of the chemicals from emission of the vehicles as well as spill from the vehicles	Control of emission from the vehicles as well as spill from the vehicles		√			
Changes in the land use pattern	Areas presently under forest area, agricultural land, may be diverted for development and other usages along the roads expected	Development should be as per development control plan			√		

Environmental Impacts

Environmental Impacts - Construction Phase

During the construction phase, there would be large impact on ecology (flora and fauna) and comparatively small impact on air, noise and water quality, and management of soil. Also there would be some impact on quality of life due to inconvenience caused to public as a result of construction activities.

Air quality impacts are likely from general construction activities including land clearing, construction of pavement, handling and transportation of construction and demolition materials, and from wind erosion of open sites and stock pile areas.

Noise pollution will occur from operation of construction equipment including earth moving and material handling equipment.

Water quality impacts may occur from runoff and waste generated from construction activities.

Within the Right Of Way (ROW) there are large number of affected trees (Estimated no. 16,325 nos.), would need to be feeling as a result of construction.

Environmental Impacts - Operation Phase

During the operation phase the environmental impacts are likely to be mostly positive. However, there could be some adverse impacts due to inadequate operation and maintenance or control.

Increase in air pollutants load is expected during the operation phase; since traffic volume is predicted to be higher. It is essential that appropriate traffic safety measures are included in the project design so that with the increase in traffic volume, movement of animal particularly at forest stretch are not affected by frequent accidents.

Increase in noise level is expected due to the increase in number of vehicles passing through a point per unit time. Widening of the road will result in decrease in noise level due to smooth running of the vehicles and congestion at intersections/junctions as well.

Chronic pollution of surface runoff will occur from exhaust emission, pavement and tyre wear, petroleum product dripping, corrosion of metal. It is envisaged that there is possibility of positive impacts, during operation phase. Generation of dust from vehicle movement will be controlled and the drainage system will be improved to reduce adverse effect of soil erosion.

Contamination of soil is expected due to deposition of the chemicals from emission of the vehicles as well as spill from the vehicles. Also change in the land use pattern due to development along the roads is expected. Pollution risks will increase from transportation of hazardous products during traffic operation.

Changes in the land use pattern i.e. areas presently under Reserved forest area, agricultural land, may be diverted for development and other usages. However the status of the change will be insignificant.

The impact of the road improvement on the socio-economic environment will be significantly beneficial, as it is likely to stimulate the economic growth of the area. The specific benefits of the road improvement will include reduction in travel time, travel cost, reduction in the time to bring the agricultural goods to the markets etc.

Mitigation Measures

Mitigation Measures - Construction Phase

Following measures are recommended for mitigating or minimizing the environmental impacts that are likely to be occur during the construction phase of the proposed project. The contractor under supervision and direction of NHIDCL shall implement these mitigation measures.

Prevention of erosion

- Construction will be scheduled so that large areas of soil particularly at low lying area and bridge slopes are not laid bare during the monsoon.
- Ground disturbances will be phased so that it is limited to workable size.
- Exposed surface will be resurfaced and stabilized as soon as possible.
- Stabilizations of soil at bridge approach, high embankment zone through plantation.

Protection of trees

- Number of trees to be cut will keep at the minimum level by modifying alignment. No construction vehicle will be allowed to enter into the forest area. During construction proper care would be exercised to avoid additional loss/cutting of trees. Construction camps will be sited at least 2 km away from the forest area. Trees with girth size 50 cm will be transplanted. To balance the ecological loss compensatory afforestation of at least 49,000 trees will be done as per the arboriculture and landscaping plan.

Prevention of dust nuisance:

- On exposed construction surfaces during dry/windy periods fugitive dust generation will be suppressed by spraying of water or other suitable means.
- Workers working in dust prone areas will be provided with masks and goggles.
- Excavated material and construction materials transported by trucks will be covered and/or wetted to prevent dust nuisance.

Noise and emission from vehicles and construction activities

- All construction vehicles will be properly maintained and will have valid "Pollution Under Control Certificate"
- Noisy construction activities will be carried out only during normal working hours and local residents will be advised of any unusual or unavoidable noise.
- Where feasible sound barrier will be provided in inhabited areas.

Relocation of utility services

There is no such case.

Prevention of dust and noise during material handling operation

- Dust and noise producing activities such as stone crushing, bitumen and cement batching plant etc. will be preferably located downwind and away from habitation settlement wherever practicable.

Prevention of soil, ground and/or surface water contamination

- Alignment susceptible to soil erosion has to be minimized. Only clean fill materials around watercourse, such as quarried rocks containing no fine soil will be used leaving buffer zones of undisturbed vegetation (width increase in proportion to slope) between road sites and bodies of water.
- Flow speed especially near water crossing will be controlled.

- Construction activity will be such as to ensure unhindered flow of watercourse at all times.
- Plant and machinery required for concreting etc. and construction workers camp will be sited away from the watercourse. The water quality will be monitored at regular intervals to monitor the change, if any, during the project implementation

Protection of land environment

- Minimizing the area of ground clearance, excess cut & fill as well borrow pits, avoided contaminated sited.
- Avoiding embankment angles more than natural angle of repose for that soil, replanting disturbed areas with grasses on embankment slopes to effectively limit the surface erosion.

Road safety and traffic management during construction

Contractor will coordinate preparation of a traffic management plan for approval of Assam/Nagaland Government. The plan will include:

- Provision of temporary safe access to school/residence, which will be blocked due to construction.

Health and safety of workforce

- All occupational and health and safety requirements for workforce will be adhered to.
- Periodic health check up of workers will be provided
- A physician's services will be retained to handle emergencies.
- Workers engaged in construction activity will be provided with proper protective equipment.

Environmental health and safety considerations at construction campsites and construction work-sites

- Camps/compounds will be located so that they do not interfere with the existing alignment.
- Camps/compounds will be surrounded with a bund or earth mound with controlled drainage outlet.
- Campsites will have adequate provision of shelter, water supply, excreta and solid waste management.
- Construction work-site will be properly barricaded and have adequate provision of drinking water, toilets and dispensing first aid.
- Appropriate control measures will be taken to prevent insect/vector diseases especially malaria by measures such as spraying and/or preventing creation of stagnant pool of water

Mitigation Measures - Operation Phase

Impact on physical and ecological environment and road safety due to increased vehicular traffic following completion of the project are the key aspects of operational phase impacts.

Prevention of Air Quality Impact

- The project implementation will improve the air quality. But increase in traffic volume will bring air quality level to the existing scenario may further deteriorate in the subsequent years, if long term mitigation measures are not taken particularly along rural & semi urban stretches at this stage. Following measure, as part of upgradation project, from air pollution point of view will be considered.
- Along the semi urban areas vegetative cover having canopy at two levels (double storied plantation) as special screens for dust and noise barriers will be provided to wall those areas against air and noise pollution.

Prevention of Noise Level Impact

- Mitigation at the same locations suggested under air quality during operational stage will also contribute in the reduction of noise levels.
- Mitigation of noise at sensitive locations and areas having good habitation will also include the posting of signs prohibiting the use of horns.

Improvement of Road Safety

- Improvement of road intersection
- Provision of speed regulating sign at proper locations to control vehicles speed in urban built up areas and sharp horizontal and vertical curves.
- Provision of guardrails at bridge approaches.
- Provision of safety guard rails physical separation of local traffic in built up portions.
- Development and enforcement of Emergency Response Plan and contingency Plan for accidents.
- Provision of suitable lighting arrangement at intersections in built up area, grade separators, wayside amenities, relief centers, Administration and Maintenance and Base Camp Depots.

Protection of Land Environment

- Construction within ROW should be such as not to cause damage to the environment and the existing regulation should be enforced strictly.
- Plantation of trees, shrubs and bushes as appropriate to soil characteristics and climate condition will be considered.

Monitoring Plan

Effective implementation of the mitigation measures to mitigate or minimize the environmental impacts would require the project to undertake a comprehensive monitoring programme. The objective of the monitoring programme is to ensure that the construction

and operation activities are carried out in an environmentally sensitive and responsible manner, and in accordance with the recommendations of **PESS**. Recommended monitoring activities of the proposed project are presented in **Table 7.5.**

Table 7.5: Summary of Environmental Monitoring Programme

Monitoring Category	Type of Monitoring	Frequency	Performed by
CONSTRUCTION PHASE			
Soils			
Erosion	Monitor proper management of excavated soil	Monthly	Contractor
Surface and Ground Water Quality			
Surface runoff management	Monitor measures taken to prevent surface runoff	Weekly	Contractor/ PCB
Air/Noise Pollution			
Dust emission during site preparation, excavation	Monitor adequacy of dust suppression measures undertaken	Daily	Contractor
Storage and transportation of construction materials, excavated soil and silt	Monitor adequacy of measures undertaken to prevent fugitive dust	Daily	Contractor
Noise and emissions from construction vehicles	Monitor 'Pollution under Control' certificate are current for construction vehicles	Weekly	Contractor/ Pollution Control Board (PCB)
Health and safety of construction workforce			
Health and safety requirements	Monitor adherence to all occupational and safety requirements	Daily to Monthly	Contractor
Health check up of workers	Monitor adequacy of health check up service provided including attendance of the physician retained and the extent to which the workforce is availing this service	Monthly	Contractor/ Govt. Health Dept.
Maintenance of health and safety records of work force	Review and monitor health and safety records to ensure all project related accidents are being properly investigated and reported	Monthly	Contractor/ Govt. Health Dept.
Sanitary conditions of construction campsite	Monitor provision of shelter, water supply, excreta and solid waste management at campsites	Daily to Monthly	Contractor/ Govt. Health Dept
Road Safety and Traffic Management			
Traffic management plan	Obtain approval to traffic management plan from Assam Police		
	Monitor adherence to the traffic management plan	Daily to Monthly	Contractor
Review road safety record	Review and monitor road safety records to ensure all project related road accidents are being properly	Monthly	Contractor/Police Dept.

Monitoring Category	Type of Monitoring	Frequency	Performed by
	investigated and reported		
Community Life and Economic Activities			
Access to community and private properties	Monitoring impact of project activity on dwelling and business in the project area	Monthly	
Damage to public and private property	Monitor construction activities to ensure public and private property is not damaged or proper development of compensation package	Daily to Monthly	Contractor
Public Awareness			
Awareness campaign highlighting the long term benefit of the project and public cooperation to overcome short term construction phase inconveniences	Review and monitor effectiveness of the awareness campaigns	Daily to Monthly	NGO
OPERATION PHASE			
Operation and Maintenance of the System			
Unscheduled maintenance/repairing as result of accidents or damage of the road	Monitor adequacy of implementation of preventive and all unscheduled maintenance work including periodic observation of present road facility, timely completion of work, etc.	Quarterly	
Discharge of Solid Waste and Liquid Waste			
Discharge of solid and liquid waste into the road particularly at semi urban area	Monitor Discharge/Throwing of solid and liquid waste into the road	Ongoing Monthly	NGO

Public Consultation

The Public consultation started prior to commencement of engineering design. The consultation process established for the project has employed a range of formal and informal discussion, in-depth interviews with key informatics, Focus Group Discussion, on-site consultation and meetings. The enactment of the participation and consultations with the primary stakeholders was done at local or village level in areas where problems were noted. In addition, NGO group undertook an awareness campaign to highlight the benefits that the public would derive from these projects. Issues discussed and community perception about the environment is given hereunder.

Table 7.6: Issues of the Public Consultation

Sr. No.	Key Issues/Demands	Action to be Taken
1	The number of trees going to be affected due to construction should be compensated with new plants, trees at the earliest	As per the requirements of the concerned Divisional Forest Dept. trees will be planted in the ratio of 1:3 whichever is applicable

Sr. No.	Key Issues/Demands	Action to be Taken
2	Increased noise level will cause adverse impact on human health	Stringent control measures will be adopted which includes reduction in speed limit, no horn signage, restricted traffic in night time
3	The water quality and environment should be protected during construction of the road	Proper sanitation and drainage facilities will be provided during construction and operation phase
4	Provision of better road engineering design will minimize noise levels that are particularly severe at semi urban places	Dense plantation and noise barriers will be provided on both sides of the sensitive area
5	Dust due to crushers should be minimized and steps should be taken by the Government	Carefully controlled and continuously implementing soil wetting will be done
6	Physical relocation should be kept at the minimum level	Community consensus to be evolved
7	Watercourses such as *nala*, ponds, tube wells should not be disturbed	Disturbance to these watercourses will be avoided to the maximum possible extent at design stage
8	Public facilities should be enhanced along the project road	Suitable enhancement measures will have to adopted at certain locations as per EMP

Environment Management Plan

An environmental management plan has been proposed along with institutional arrangements for effective implementation, monitoring and reporting. It is envisaged that all stake holders i.e. the NHAI, Forest Department, the design and supervision consultant, contractor, environmental consultant and public/NGO's will play their role in effective implementation of EMP (Monitoring plan and responsibility discuss in section 6.3). The effort of all agencies will be to bring together by the "Environment Management Unit" proposed to be set up under the Project Implementation Unit of the NHIDCL. This unit will also arrange training of the staff involved in monitoring of the implementation of the EMP besides taking steps to create awareness amongst the public and stakeholders.

Most environmental impacts from the project will arise during construction. Items such as air pollution, surface water pollution, ground water pollution, noise pollution, preservation of ecological resources, respect for cultural and religion sentiments, labour health, accidents and safety will be controlled by making suitable provisions in the BID documents and assigning the responsibility for implementing mitigate measures to the contractor.

During operation phase it is proposed that NHAI will monitor periodically air, water, and noise pollution for suitable action as necessary. The primary post construction responsibility of the Forest Dept. is maintenance of compensatory and transplantation trees by watering, manuring and spraying of pesticides and insecticides.

Planning Consideration:

b) Minimum tree felling through proper selection of alignment and by other means of judicial road designing

c) Provision of underpasses and arrangement of cautionary sign.

d) Provision of good drainage system throughout the stretches

e) Provision of 5.00 m median including shyness at center line of the road (particularly at rural plain land) for protection of few trees

f) Provision of 3-5 m strip of land for road side plantation on both sides of the road

g) Protection of religious places, utility services through proper selection of new alignment

h) Protection of soil of the embankments at river approach

i) Provision of road sign at suitable locations

j) Protection of *nala* and water body near the road alignment

k) Provision of Truck bays and service roads

Implementation of EMP and Costing

The analysis of existing conditions, potential impacts and mitigation measures suggested above would need effective Environment Management Plan, which is proposed to be submitted separately. EMP will include the organizational and staffing arrangement, environmental training, monitoring procedure and record keeping. A tentative cost for implementation of environment management plan on different items is expected to be **Rs.414.00 lakh.** Details of cost estimate are given in **Table 7.7**

Table 7.7: Tentative Cost of Environment Management (Assam & Nagaland)

Sr. No.	Items Particular	Assumption	Unit Rate (Rs.)	Total Cost in Rs (lakh)
	I. During Construction Phase			
1	Road side tree plantation and maintenance	39,000	700/- plant including 2 yrs maintenance	273.00
2	Transplantation of the young trees	10,000	700/- plant including 2 yrs maintenance	7.00
3	Flowering shrubs at the median	20000 shrubs	500/- plant including 2 yrs maintenance	10.00
4	Dust suppression	LS (35.00 km)		4.00
5	Aesthetics and landscape	LS (35.00 km)		
6	Erosion control along high embankment	To be included in Engineering Design (tentative estimate)		10.00
7	Air pollution Monitoring	5 sites with the frequency twice in a week for 52 weeks	4000.00 per sample	20.80

Sr. No.	Items Particular	Assumption	Unit Rate (Rs.)	Total Cost in Rs (lakh)
8	Noise Monitoring	6 sites with the frequency twice in a week for 52 weeks	200.00 per observation	1.26
9	Water Quality Monitoring	Once in all the four seasons at 5 locations	5000.00 per sample	1
10	Project level specific mitigation/enhancement			
	a) Noise barriers	LS		2.00
	b) Rehabilitation/enhancement of ponds	LS (approx.)		4.00
	c) Rehabilitation/enhancement of religious place	LS (approx.)		10.00
	d) Market place improvement	LS		50.00
	e) Underpasses for animal movement	LS		4.00
11	Disposal of Sewage effluent and solid waste	2	150000.00	3.00
Total (I)				**400.06**
			Say	**400.00**
II. During Operation Phase				
1	Expenditure on Environmental unit in Project Implementation Unit	LS		10.0
2	Air pollution Monitoring	Twice in a week for 4 weeks in three seasons at 3 locations	4000.00	2.88
3	Noise Monitoring	Once in week for four weeks in four seasons at 3 locations	200.00	-10.00
4	Water Quality Monitoring	Once in a season in four seasons at 3 stations	5000.00	0.60
Total (II)				**13.48**
			Say	**14.00**
Grand Total (I+II)				**414.00**

Table 7.8

Girth Size (cm)	Number of Trees within ROW in Dimapur Bypass
<50	6,886
50 - 100	4,640
100 – 200	542
> 200	9
Total	**12,077**

Dimapur Bypass Km wise affected of trees

Chainage	No of Trees
Ch. 118.05 to 121.00	2,802
Ch. 121.00 to 124.00	3,740
Ch. 124.00 to 127.00	2,589
Ch. 127.00 to 130.00	2,674
Ch. 130.00 to 133.00	272
Total Trees affected	**12,077**

Girthwise felling of number of affected trees in Dimapur Bypass (Assam part)

Design Km	Trees in		Girth				
	LHS	RHS	< 50 cm	50 to 100 cm	100 to 200 cm	>200 cm	
118 to 121	1380	1422	1788	987	27	0	
121 to 124	1934	1806	2042	1656	42	0	
124 to 127	1143	1446	1471	877	241	0	
127 to 130	985	1689	1430	1008	227	9	
130 to 133	170	102	155	112	5	0	
Total	**5612**	**6465**	**6886**	**4640**	**542**	**9**	**12077**

Table-7.9: Environment Data Sheet

Km Chainage (From Daboka)	Environmental Features		Remarks
	LHS	*RHS*	
118.00 to 121.00	**Inside ROW:** Ditch, open land, road side trees mainly Ahat, Mango, Gamari, Sirish, Simul **Outside ROW:** Open land, Paddy land, ditch, fallow land; trees present	**Inside ROW:** Ditch, open land, roadside trees mainly Mango, Sesam, Sirish, Simul, paddy field, vacant land. **Outside ROW:** Open land, Paddy land, ditch, fallow land; trees present	Felling of roadside trees may be unavoidable for concentric design.
121.00 to 124.00	**Inside ROW:** Road side natural and plantation trees like Ahat, Simul, Mango, Gamari, Sirish; paddy field, ditch **Outside ROW:** Common trees	**Inside ROW:** Roadside natural and plantation trees like Ahat, Simul, Mango, Casea, Sesam, Gamari, Sirish; paddy field. **Outside ROW:** Common trees	Felling of mature trees may be unavoidable for concentric design.
124.00 to 127.00	**Inside ROW:** Trees mainly Simalu, Sirish, Jamun, Mango, Krishnachura; paddy field **Outside ROW:** Mainly open and tea plantation, village residential and few commercial shops; trees common.	**Inside ROW:** Trees mainly Simalu, Sirish, Sesam, Arjun, Kadam, Jamun, Mango, Krishnachura; paddy field. **Outside ROW:** Mainly open and agricultural paddy land, village residential and few commercial shops; trees common.	Felling of roadside trees may be unavoidable for concentric design.
127.00 to 130.00	**Inside ROW:** Trees mainly Simalu, Sirish, Jamun, Mango, Krishnachura and Bhelu;	**Inside ROW:** Trees mainly Simalu, Sirish, Jamun, Mango, Krishnachura and Bhelu. **Outside ROW:** trees common.	

Km Chainage (From Daboka)	Environmental Features		Remarks
	LHS	*RHS*	
	Outside ROW: Semi urban residential area, few tea plant, thick tree cover.		
130.00 to 133.00	**Inside ROW:** Trees mainly Simalu, Sirish, Jamun, Mango, Krishnachura and Bhelu, Eucalyptus, Sonaru, Kathal, Sesam; ditch, bamboo tree, few residential. **Outside ROW:** Mainly open and agricultural paddy land, village residential and few commercial shops; trees common, bamboo tree.	**Inside ROW:** Trees mainly Simalu, Sirish, Jamun, Mango, Krishnachura and Bhelu, Eucalyptus, Sonaru, Kathal, Sesam; ditch, bamboo tree, few residential area; **Outside ROW:** Mainly open and agricultural paddy land, village residential and few commercial shops; trees common, bamboo tree.	Felling of trees may be unavoidable for concentric design.

Table 7.10 A: Ambient Air Quality Monitoring Data

Sl. No.	Name of Sampling Station	Allotment Level mg/m^3						Remarks
		SPM	RPM	SO_2	NOX	CO	Pb	
1	Dillai	60 (100)	35 (75)	15 (30)	12 (30)	0.5 (2) mg	0.12 (0.75)	Figures in the Bracket indicate permissible limit in respective area for 24 hrs average
2	Belijan	120 (200)	40 (100)	15 (80)	12 (80)	0.6 (4) mg	0.2 (1.0)	
3	Gautam Basti	100 (200)	25 (100)	16 (80)	15 (80)	0.7 (4) mg	0.1 (1.0)	

Table 7.11: Location of Water Sampling Sites (Assam Part)

Sl. No.	Location (km Chainage) from Daboka	Sample Code
Surface Water		
1	River Dhansiri	**SW1**
2	Nala (18 Kmp)	**SW2**
Ground Water		
1	Tube well water at Dilai	**GW1**
2	Tube well water near Gautam Basti	**GW2**

Table 7.11 A: Water Quality of the Study Area (Assam Part)

Sl. No.	Parameter	SW 1	SW 2
1	**Physical Characteristics**		
	Colour (Hazen Unit)	<5	<5
	Odour (TON)	1.0	1.0
	Temperature (°C)	22^0	23^0
	P^H	6.3	7.1
	Electrical Conductivity (Us/Cm)	64	67
	Total suspended solid (mg./l)	4.0	10
	Total Dissolved solid (mg./l)	60	66
2	**Mineralogical and chemical charactories**		
	Chloride (as Cl (mg./l)	4.92	5.62
	Sulphate (as SO_4) (mg./l)	<5	<5
	Total Hardness as $CaCo_3$ (mg./l)	30	32
	Calcium (as Ca) (mg./l)	8	7
	Magnesium (as Mg) (mg.1/l	1.5	1.6
	Nitrates (as No_3) (mg./l)	<5	<5
3	**Nutrients**		
	Total Kieldahl Nitrogen (mg./l)	0.80	0.90
	Ammonia cal Nitrogen (mg.1/l)	0.22	0.22
	Total Phosphate – Phosphorus (as P04, mg./l)	<0.01	<0.01

Sl. No.	Parameter	SW 1	SW 2
4	**Demand Analysis Report**		
	Dissolved Oxygen (mg./l)	4	4
	COD (mg./l)	<10	<10
	BOD (3 days, 27°c (mg./l)	<2	<2
5	**Metallurgical Characteristics**		
	Manganese (as Mn)/ (mg./l)	0.08	0.10
	Iron (as Fe) (mg/l)	0.10	0.13
	Lead (as Pl) (mg./l)	0.05	0.06
6	**Bacteriological Status**		
	Total Coliform (MPN/100 ml)	$5x10^3$	$5x10^3$
	Faecal Coliform (MPN/100 ml)	$2x10^3$	$2x10^3$

Table 7.12: Location of Noise Level Monitoring Sites (Assam Part)

Sl. No.	Location (km Chainage) from Daboka	Distance from the C/L of Road (m)	Description of Monitoring Site
1	Dilai, near starting point of Bypass - N_1	5	Forest area
2	Gautam Basti - N_2	20	Sensitive area

Table 7.12 A: Ambient Noise Quality Data (Assam Part)

Sl. No.	Location (Km Chainage), Zone	Day Time Leq (dBA)	Night Time Leq (dBA)
1	Dilai near starting point of Bypass – Forest Area	30 (50)	20 (40)
2	Gautam Basti – Sensitive Area	25 (50)	20 (40)

Figures in ( ) indicate permissible noise level as per CPCB.

INITIAL SOCIAL ASSESSMENT & PRELIMINARY LAND ACQUISITION / RESETTLEMENT PLAN (ASSAM PART)

Introduction

The goals of the project are :

a) Socio-economic development through efficient transportation system

b) Improvement capacity and good riding quality of Highway infrastructures

c) Providing adequate transportation infrastructure to the local people for significant impact nurturing their spirit of enterprise.

d) Improvement in quality of life and social status through the implementation of Highway development of the region.

A road net work is an essential requirement for **poverty reduction** as it provides access to markets, integrates markets in different areas, mitigates the risks to which the poor are often more exposed, and improves social welfare resulting from the increased accessibility to basic social services. Better mobility and delivery of services due to improved road, help the people of that region to earn higher wages and diversify their economic activities. Employment generation resulting from road construction and maintenance or from enhanced business opportunities, will increase the economic activity which is very crucial in raising income at the project affected area. The availability of reliable transport to input and output markets, stimulates cash crop farming in isolated areas, and lowers transport costs, which influences access to off-farm employment opportunities. The transition from subsistence farming to a market economy is thus accelerated, so that the poor are better off than merely being self-sufficient.

Better transport links improve economic efficiency, foster trade, facilitate interregional integration, and reduce the cost of trucking. Improved local roads will help and boosts the rural economy by providing the less developed communities better access to regional market centres.

The transport corridor (NH-36) is of strategic importance in the economic development of northeast India and the neighboring countries of Bangladesh, Bhutan and Nepal. This corridor is the major trade route for India's northeastern states.

On completion of our contemplated development of stretch of NH-36, & Dimapur Bypass part of the connectivity road network will open up a wide horizon to the people of other region of the country, which will also accelerate the socio-economic development of the region. Better

mobility, less travel time, lower transportation cost, less vehicle operating cost, good riding quality and comfort will have tremendous effect on the quality of the life of the people in that region. More employment generation, scope of setting of subsidy industries even during the period of construction will uplift the economy of the region. Exchange of cultural heritage, educational facilities, and more health care consciousness will be developed on completion of such trunk road.

This chapter deals with matters relating to social viability of the project. The issues being examined herein would include the extent of damages to properties likely to be caused by implementation of the project, how the project affected persons would react, magnitude of resettlement cost, socially acceptable resettlement action plan etc.

Guidelines for the Social Screening:

Some guidelines for the screening Reports are as follows:

(i) **Social groups**: This means any part of the local population that can be grouped together because they share the same interest, such as similar livelihood strategies, socio-economic levels or social status. Social groups can be quickly and easily identified when planning assessment by sitting down with community leaders and asking some key questions to them.

(ii) **Ethnic groups** : Care should be taken to note the names of all ethnic groups living in the core area and to ensure that every group is consulted. In order to get an idea of key resource-use issues for different ethnic groups we should consult with the community leaders. We should also consult with Block and panchayet level officials.

(iii) **C**onsultation with Women should aim to produce a meaningful understanding of how men and women may be involved in different activities within the project affected area.

Development projects in general and road development projects in particular bring about changes in socio-economic and environmental conditions in the project influence area. The development impacts do not, generally, remain confined to the **Immediate Impact Area,** but spread over to a considerably wider area, which may be termed as the zone of influence. The zone of influence may be categorised into three groups - **Immediate Impact Area**, **Intermediate Influence Zone** and **Outer Influence Zone**. The number of villages through which the project corridor passes constitutes Immediate Impact Area. The

Intermediate Influence Zone comprises of concerned police stations area and is even extended to the administrative boundary of district(s), through which the project corridor is traversing, while the Outer Influence Zone is the concerned state(s), as a whole.

Roads are agents of change. These changes may be positive or negative or both. They are responsible for both benefits and costs to the existing balance between men and environment. On the positive side, it accelerates the process of overall socio-economic development of the region. On the negative side, it may cause damage to eco-systems, more particularly when it is required to uproot trees and greens. Secondly, a good number of people are adversely affected. The affected persons may incur loss of the following types: agricultural land, homestead land, living quarters and other physical infrastructures due to demolition of buildings, commercial and business activities, occupied land (adverse possession or with permission of owner), structures (illegally constructed) for dwelling or business, tenant contract or farming. Moreover, the project road may also cause damage to community facilities and utilities, like, potable water source (e.g. Tube well, well etc), market place, schools, place of worships, community centers or clubs etc. It is worth mentioning that the affected properties, in the case under reference, may be classified into three categories i.e., private, public and places of worship.

The Project road

The Project Road runs from Daboka in Assam to Dimapur in Nagaland (some part), from 38.00 km to 168.167 km. and includes northern Dimapur Bypass starting at 159.400 (existing Ch.) of NH-36 and ends at 124.200 (existing Ch.) of NH-39.

Nagaland is a hill state located in the far northeastern part of India. It borders the state of Assam to the west, Arunachal Pradesh and part of Assam to the north, Myanmar to the east and Manipur to the south. The state capital is Kohima, and the largest city is Dimapur. With a population of nearly two million people, it has a total area of 16,579 km – making it one of the smallest states of India. The tribe of Nagaland are Angami, Ao, Chakhesang, Chang, Khiamniungan, Konyak, Lotha, Phom, Pochury, Rengma, Sumi, Sangtain, Yimchungru, Zeliang.

There is one Railway Crossing (ROB) on our study corridor. There are 3 Major RCC Bridges & 6 Minor Bridges and 46 Box Culverts of different sizes along our project corridor. All along the Bypass Project Road, ROW to be acquired is 60.00 m.

The economy of Nagaland is predominantly based on agriculture. 68.03 percent of the working populations pursue agriculture and other allied activities as their chief means of livelihood. The per capita income of the State is Rs.13,052 for the year 1997-98. Nagaland

ranks 11th in the human resource development index. More than 358138.7 hectares of the total land area of the State is under forests. Nagaland is rich with regard to its mineral wealth. But due to lack of modern industries, proper utilization of these resources have been restricted.

Objectives of Social Screening

The main objective of conducting social screening is to provide inputs of social concerns to be dovetailed in project design and to avoid or minimize the adverse social impacts with the best possible engineering solutions at minimum cost in close coordination among engineering, environmental and social experts during the entire design process. The instant social screening exercise is intended to assess the negative impacts (direct, indirect or cumulative) and to suggest mitigating measures to avoid or at least minimize the adverse impacts on: nearby communities and natural environment, people and properties falling on the direct path of road development, people indirectly affected by the way of disruption of livelihood, breakage in community linkages, impacts arising from land acquisition and resettlement, impacts on indigenous people (SC, ST, etc), impacts on human safety etc. To minimize and/ or avoid the adverse impacts, necessary modifications are to be made at design stage. But in cases of unavoidable negative impacts, these would be mitigated through suggested appropriate measures to be adopted during construction and operational stages.

Public Consultation And Participation

Participation is a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them. The effectiveness of R&R programs is directly related to the degree of continuing involvement of those affected by the project. Comprehensive planning is required to assure that local government, NGOs, host population and project staffs interact regularly and purposefully in all stages of the project. Participation of persons directly affected by Project is a prerequisite of R&R policy, if its programs are to be suited to the needs of the resettlement population. PAP involvement increases the probability of successful resettlement and rehabilitation. The overall goal of the consultation program is to disseminate project information and to incorporate PAPs views in the R&R policy. The specific aims of the consultations are to:

a) Improve project design and lead to fewer conflicts and delays in implementation
b) Facilitate development of appropriate and acceptable entitlement options.
c) Increase long term project sustainability and ownership

d) Reduce problems of institutional coordination

e) Make the R&R process transparent and reduce leakage.

f) Increase effectiveness of sustainability of income restoration strategies, and improve coping mechanisms.

A state level workshop is to be conducted with participation from key stakeholders including local NGOs, academic institutions, government officials, and others. The purpose of this stake-holder's workshops is to present and discuss the project content, review the policy framework. The discussion includes an elaboration on the approach to social impacts and resettlement, and to reach on agreement on the implementation mechanisms and coordination among different groups and agencies. The project will continue to document how people's views have been taken into consideration in a meaningful way. It will ensure that groups and individuals that are consulted are informed later about the outcome of the decision-making process, and how their views have been incorporated.

Preliminary Resettlement Plan

This resettlement plan (RP) has been prepared in accordance with National policy of India and other social safeguard policies designed to protect the rights of the affected persons and communities. The primary objectives of the RP are to mitigate the adverse impacts of the project and to assist the affected persons (Aps) in resettlement and restoration of their income and livelihoods.

The Resettlement Plan has been prepared keeping the following broad objectives :

- The negative impact on persons affected by the project would be avoided or minimized.
- Affected people and the beneficiary population will be informed and consulted about the project and its design.
- Where the negative impacts are unavoidable, the project-affected persons will be assisted in improving or regaining their standard of living. Vulnerable groups will be identified and assisted in improving their standard of living.
- People's participation will be undertaken in planning and implementation of the project.
- All information related to resettlement plan and implementation will be disclosed to APs.

The RP is based on the general findings of the census/socio-economic surveys, field visits, and meetings with various project-affected persons in the project area. In view of the human dimension involved the possible social impacts have been integrated into the improved alternative engineering designs to minimize resettlement and displacement. These benefits have been achieved by adopting engineering solutions like underpasses, bypasses, raised pavement, service roads, ROB's and reduced median at congested segments. The RP provides detailed guidance on how to implement provisions in the policy framework, including institutional arrangements and budgets based on enumeration of project affected people with entitlements under the framework. The RP identifies (i) type and extent of loss of assets, including land and houses; (ii) type and extent of loss of livelihood or income opportunities; (iii) collective losses, such as common property resources and social infrastructure; (iv) entitlement matrix and provisions for relocation assistance and restoration of businesses/income; and (v) institutional framework for the implementation of the plan, including monitoring and evaluation. It is expected that the impact on APs, including roadside small business enterprises (SBEs), will be limited due to relocation opportunities close to their existing locations and additional assistance for shifting and resettlement. The RP also addresses other interrelated socio-cultural impacts – for example indigenous/vulnerable groups, issues of road safety, trafficking of women and AIDS/HIV – with road widening and improvements. In sum, the RP has taken an integrated and holistic approach to dealing with project impacts and aims at rebuilding lives and livelihoods of those affected as quickly as possible. It is designed to involve all stakeholders, including roadside communities and other user groups, in the planning and implementation of the project. The RP will be revised and updated by the Project Implementation Unit (PIU), based on the final technical design.

The National Highways Act

For LA, the Act defines the various steps of the process as follows: (i) section 3A – power to acquire land; (ii) 3B – power to enter for surveys ; (iii) 3C – hearing of objections; (iv) 3D – declaration of acquisition; (v) 3E – power to take possession; (vi) 3F – power to enter into the land where land has vested in the central government; (vii) 3G – determination of amount payable as compensation ; and (viii) 3H – deposit and payment of amount. The Act requires that the processes must be completed within a year from 3A to 3D. The acquisition process is faster due to central government co-ordination and provision for arbitration or power of civil court for trying any LA-related dispute. Although NHAI Act significantly reduces the time frame for acquisition, the rules and principles of compensation are derived from the LA Act of 1894 amended from time to time. The Act covers only legal title holders and provides for : (i) market value of the land; (ii) a solarium of 30% on the market value for compulsory acquisition; (iii) additional amount for trees, crops, houses or other immovable

properties; (iv) damage due to severing of land, residence, place of business; (v) compensation to sharecroppers for loss of earning; and (vi) an interest of 12% on the market value from the date of notification to award.

The LA Act does not address many of the social and economic issues associated with displacement and resettlement of "illegal" or non-titled informal settlers/squatters. However, in many donor-funded projects, NHIDCL assisted affected persons even without any legal title. The impacts of the present project are also on the roadside SBEs/households – people who are "non titled" informal dwellers and encroachers.

National Policy on Resettlement and Rehabilitation

The Government of India (GOI) in February 2004 approved a Nat Resettlement and Rehabilitation (NPRR). Its recognizes the following essential features :

1. That project affected families (PAF) not only lose their lands, other assets and livelihoods, they also experience adverse psychological social/cultural consequences;

2. The need to minimize large-scale displacement and where displacement and where inevitable, resettlement and rehabilitation has to be handled with care. Thi s is especially necessary for tribal, small and marginal farmers and women;

3. That cash compensation alone is often inadequate to replace agricultural land, homesteads and other resources. Landless labour, forest dwellers, tenants, artisans are not eligible for cash compensation; The need to provide relief especially to the rural poor (with no assets), PE and marginal farmers, SCs/STs and women;

4. The importance of dialogue between PAFs and the administration; responsible for resettlement for smoother implementation of projects R&R.

R & R Principles and Assistance

In accordance with the resettlement and rehabilitation (R&R) policy of the project, all affected Households/SBEs will be entitled to a combination of compensation measures and resettlement assistance, depending on the nature of ownership rights of lost assets and scope of the impact, including social and economic vulnerability of the affected persons. In general terms, the affected persons in the project will be entitled to four types of compensation and assistance: (i) compensation for loss of land, crops/trees; (ii)

compensation for structures (residential/commercial) and other immovable assets; (iii) assistance for loss of business wage income; and (iv) re-building and/or restoration of community resources/facilities. A detailed description of each compensation measures and assistance is provided in the entitlement matrix (Para 8.9).

The R&R activities in the project are guided by the following broad principles:

- Where land acquisition is required, it will be carried out in a way to minimize the adverse impacts and to avoid displacement as much as possible.
- Replacement land/or cash compensation at market value to households affected the loss of agricultural or other kinds of land. Likewise, loss of standing crops and productive trees will be compensated at market Price.
- Cash compensation for structures (residential/commercial) affected by road widening and improvements at replacement cost.
- Provision for (i) relocation of the informal settlers on project-sponsored resettlement sites with civic amenities, and (ii) markets to assist SBEs to assist in the restoration of businesses and incomes.
- Shifting cost to owners of residential structures and informal dwellers/squatters households due to loss of ability to maintain livelihood during relocation / shifting.
- Rehabilitation assistance i.e. compensation for lost businesses and workdays (including employees) due to relocation.
- Special measures and assistance for vulnerable groups e.g., female-headed household, and disabled persons.
- Affected people and the beneficiary population will be informed and consulted about the project and its design. All information related to resettlement preparation will be disclosed to the APs and all concerns.
- Appropriate grievance redress mechanism will be established at the district level to ensure speedy resolution of dispute.
- All activities related to resettlement implementation will be monitored by a suitably qualified independent agency.

These principles are further explained in the entitlement matrix at para 8.9. Compensation and R & R assistance will be paid in according with this policy before taking possession of the acquired land and properties. There would be no/or minimum adverse on host communities, and if occurs would be mitigated appropriately. All activities that related to resettlement planning, implementation and monitoring would ensure involvement of women. Efforts will also be made to ensure that vulnerable groups are included. R&R assistance will be provided

to all squatters and disadvantaged vulnerable people as per the entitlement framework. Also the compensation will be paid at the replacement value. All losses, including loss of income, would be compensated within the overall R&R package as per the broad entitlement framework. The unit of entitlement framework will be the households. In case the replacement cost is more than the compensation at market price determined by the difference is to be paid by the project. The entitlement of compensation and assistance will be extended to only those AFs who are so identified on or prior to the cut off date.

Detailed Entitlement Matrix for National Highway Corridor

The broad entitlement framework for the Resettlement Plan is presented below :-

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
1A	Private Property	Agricultural land and assets	Titleholder	Compensation at "replacement cost" or "actual market value"	If the replacement cost is more than the compensation at "market price" as determined by the Competent Authority in the policy frame work, then the difference is to be paid by the project in the form of "assistance". APs will be explained the process and their views will be taken into consideration, while determining the market value. If the residual plot(s) is (are) not viable i.e. less than average land holding of the district, there are three options to be given to the EP. The EP remains on the plot, and the compensation and assistance paid to the tune of required amount of land to be acquired. Compensation and

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
					"assistance" are given for the entire plot including residual plot, if the owner of such land wishes that his residual plot should also be acquired by the project authority provided residual land is quantified less than average land holding of the districts. The project authority will acquire the residual plot so paid. If EP is from vulnerable group, compensation for the entire land is by means of land for land if so wished by EP provided that the land of equal or more productive value is available. Transitional allowance of Rs.2000 per month for 9 months if the residual land is not viable or for 3 months when the residual land is viable. In case of severance of agricultural land, an additional grant of 10% of the amount paid for land acquisition. All fees, taxes and other charges, as applicable under the relevant laws, incurred in the relocation and resource establishment, are to be borne by the project.

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
					Alternative economic rehabilitation grant for vulnerable groups is Rs.3000 lump sum. Training for up-gradation of the skills for vulnerable groups and linked to employment opportunities is Rs.1500 lump sum. 1. Where there is severance from farmland, an additional grant – 15% of the compensation-will be paid 2. Replacement land must be bought within one year of the compensation payment. 3. Sharecroppers/tenants are to be compensated according to the NHAI Land Acquisition Law.
1B	Private Property	Non-agricultural land	Titleholder/ owner: Residential	Compensation at "replacement cost"	If the asset (part or full) in question is a residential structure, then the replacement cost will be calculated as equivalent to the cost of provision of residential structural of area equivalent to that lost, subject to relevant "quality standards" of BSR as maintained by

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
					Government/Local Bodies Authorities. If replacement cost is more than the compensation (at "market price" as determined by the Competent Authority) then the difference is to be paid by the project in the form of "assistance". Transitional assistance of Rs.2500 per month in the form of grant to cover a maximum nine months rental accommodation. A lump sum shifting allowances of Rs.1500 for temporary, Rs.2000 for semi-permanent structures and Rs.5000 for permanent structures. Absentee landlords will receive only the compensation at "replacement cost". Right to salvage materials from the demolished structure. Compensation for loss of residential/commercial land at replacement value.
			Titleholder/ Owner: Commercial		If the asset (part or full) in question is a commercial structure, then the

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
					replacement cost will be calculated as equivalent to the cost of provision of commercial structure of area equivalent to that lost, subject to relevant "quality standards" of BSR as maintains by Government / Local Bodies Authorities. If the replacement cost is more than the compensation (at "market price" as determined by the competent Authority), then the difference is to be paid by the project in the form of "assistance". Transitional assistance of Rs.2000 per month in the form of grant to cover a maximum nine months rental accommodation. A lump sum shifting allowance of Rs.700 for temporary and Rs.2000 for semi-permanent structures and Rs.5000 for permanent structures. Absentee landlords will receive only the compensation at "replacement cost" Right to salvage materials from the demolished structure. Compensation for loss of

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
					residential / commercial land at replacement value. Option for commercial plot at wayside amenities planned.
			Tenant : Residential		The tenants will receive the following : The amount of deposit or advance payment paid by the tenant to the landlord or the remaining amount at the time of expropriation (This will be deducted from the payment to the landlord). A sum equal to nine months rental in consideration of disruption caused. Compensation for any structure the tenant has erected on the property (This will be deducted from the payment to the landlord). Shifting allowance of Rs.800 lump sum for shifting.
			Tenant : Commercial		The tenants will receive the following : The amount of deposit or advance payment paid by the tenant to the landlord or the remaining amount at the time of exportation. (This will be deducted from the payment to the landlord).

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
					A sum of equal to nine months rental in consideration of disruption caused. Compensation for any structure the tenant has erected on the property (This will be deducted from the payment to the landlord). Shifting allowance of Rs.500 lump sum for shifting.
2.	**Others**		**Agricultural Land being Acquired**		
2A	Livelihood	Wage earning Agriculture and other labourers	Individual	Lump Sum	1. This is valid for persons indirectly affected due to the employer being displaced, on a case-by-case basis after suitably determining the monthly wage. 2. In individual cases, when the Wager will be entitled to Rs.2000 as transitional allowance. 3. Alternative economic rehabilitation support in the form of training for upgradation of skill.
2B		Non-perennial	Family	Notice to Harvest Standing crops	They are entitled to be given a notice substantially 4 months in advance.

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
					Grant towards crop lost before harvest due to forced relocation, equal to market values of crop lost plus cost of replacement of seeds of the next season's harvest.
2C		Perennial crops such as fruit trees	Family	Compensation at "market value"	Compensation for perennial crops and trees, calculated as annual produce value for one season and times 3-5 depending on the nature of crops / trees.
3.	**Illegal Use of the ROW**				
3A	Illegal Use of the ROW	Encroacher	Family	Will receive no compensation for land but they will be compensated for loss of structure for replacement cost.	Encroachers will be notified a time in which to remove their assets (except trees) and harvest their crops. To be assisted on case to case basis by considering relevant facts on family income and existing assets only in the case of person being a member of more disadvantage families of the vulnerable group. Compensation for structures at replacement cost to the vulnerable person. Right to salvage materials from the demolished

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
					a suitable production of service activity. Economic rehabilitation support and training and in case the money not spent for training program, the equivalent amount to be paid as per EP's choice.
5A	Community infrastructure, cohesion and amenities	Common property resources	Community	Conservation protection compensatory replacement	Economic replaced resources, such as cultural properties will be conserved (by means of special protection, relocation, replacement, etc.) in consultation with the community. Loss of access to firewood, etc. will be compensated by involving the communities in a social forestry scheme, in co-ordination with the Department of Forests, wherever possible. Adequate safety measures, particularly for pedestrians and children; Landscaping of community common areas; improved drainage; roadside rest areas, etc. are all provided in the design of the highways. Employment opportunities in the project, if possible. Loss of trees will be replaced

	Category	Type of Loss	Unit of Entitlement	Entitlement	Details
					by compensatory a forestation.
5B	Any other impact not yet identified, whether loss of asset or livelihood	Loss of commercial and homestead land			Unforeseen impact will be documented and mitigated based on the principles agreed upon in this policy framework.

Social Interactions

Initial public consultation in the form of group discussions has been carried out at different locations of the project corridor with a view to minimize adverse impact of the project through creating awareness among the communities on potential benefits of the project. Moreover different meetings were organized with NGOs and officials of various government departments and institutions as detailed hereunder.

Interaction with affected shopkeepers & others

This will be done after approval of total alignment of Bypass.

Affected Properties

This will be assessed after approval.

Tentative cost estimate for R R Program

It may be mentioned that all potentially affected properties are situated within the right of way (ROW) of the project corridor. No further land acquisition is required for project itself. Nevertheless, to mitigate and / or minimize the social impact, acquisition of some lands have been considered and the associated costs will be charged to this project.

In this cost estimate, rehabilitation cost in respect of public properties is not included. The estimated rehabilitation cost for the project has been assessed to be approximately 16.68 lacs as detailed hereunder:.

(a) Cost of demolition in Assam (PAP)	=	16,39,37,095/-
(b) Loss of monthly business in Assam	=	3,55,000/-
(c) Loss of monthly household income in Assam	=	24,78,200/-
Total	=	**16,67,70,295/-**