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The World Bank

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Report No: 63871 - IN

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF US\$320 MILLION

TO THE

REPUBLIC OF INDIA

FOR AN

ASSAM STATE ROADS PROJECT

February 17, 2012

Sustainable Development Operations Unit  
South Asia Region

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## CURRENCY EQUIVALENTS

(Exchange Rate Effective 31 January 2012)

Currency Unit = Indian Rupees  
Rs. 49.45 = US\$1

FISCAL YEAR  
April 1 – March 31

## ABBREVIATIONS AND ACRONYMS

AACP	Assam Agriculture Competitiveness Project	IUFR	Interim Unaudited Financial Report
AADT	Annual Average Daily Traffic	IVO	Internal Vigilance Officer
ADB	Asian Development Bank	JCA	Joint Controller of Accounts
ADC	Additional Deputy Commissioner	JE	Junior Engineer
AE	Assistant Engineer	LA	Land Acquisition
AEE	Assistant Executive Engineer	M&E	Monitoring & Evaluation
AG	Accountant General	MDR	Major District Roads
AMS	Asset Management System	MIS	Management Information System
APCP	Assam PWRD Computerization Project	MORD	Ministry of Rural Development
APIO	Assistant Public Information Officer	MORTH	Ministry of Road Transport & Highways
ARCS	Audit Reports Compliance System	NABARD	National Bank for Agriculture & Rural Development
ARIASP	Assam Rural Infrastructure and Agriculture Support Project	NCB	National Competitive Bidding
ASR&R	Assam State Resettlement and Rehabilitation	NE	North-East
ASRB	Assam State Roads Board	NEC	North-East Council
ASRP	Assam State Roads Project	NESRIP	North-East States Road Improvement Program
BOQ	Bill of Quantities	NGO	Non-Government Organization
BOT	Build Operate Transfer	NH	National Highway
CAAA	Controller of Aid Accounts and Audit	NHDP	National Highways Development Program
CAG	Comptroller & Auditor General of India	NMT	Non-Motorized Traffic
CE	Chief Engineer	NPV	Net Present Value
CMO	Complaint Monitoring Officer	NRRP	National Resettlement and Rehabilitation Policy
COI	Corridor of Impact	O&M	Operation and Maintenance
CPR	Common Property Resources	OM	Operations Manual
CRF	Central Road Fund	ORAF	Operational Risk Assessment Framework
CRN	Core Road Network	PAD	Project Appraisal Document
CS	Country Strategy	PAF	Project Affected Family
CSC	Construction Supervision Consultants	PAH	Project Affected Household
CVC	Central Vigilance Commission	PAP	Project Affected Persons
DA	Designated Account	PD	Project Director
DC	Deputy Commissioner	PDO	Project Development Objective
DEA	Department of Economic Affairs	PIU	Project Implementation Unit

DFID-TF	Department for International Development-Trust Fund		PMC	Project Management Consultant
DGS&D	Director General of Supplies & Disposals		PMGSY	Pradhan Mantri Gram Sadak Yojana
DIPR	Department of Information & Public Relations		PPP	Public Private Partnership
DPR	Detailed Project Report		PQ	Pre-Qualification
DRB	Dispute Resolution Board		PWRD	Public Works Roads Department
E&SM	Environmental & Social Management		R&R	Resettlement & Rehabilitation
EA	Environmental Assessment		RAMMS	Road Asset Maintenance Management System
EE	Executive Engineer		RPF	Resettlement Policy Framework
EIA	Environmental Impact Assessment		RAP	Resettlement Action Plan
EIRR	Economic Internal Rate of Return		RfP	Request for Proposal
EMF	Environment Management Framework		ROW	Right of Way
EMP	Environmental Management Plan		RPF	Resettlement Policy Framework
EOI	Expression of Interest		RRL	Road Research Laboratory
EPC	Engineering and Procurement Contract		RRM-TF	Road Reforms and Modernization-Task Force
ERR	Economic Rate of Return		RSMP	Road Sector Modernization Program
F&C	Fraud & Corruption		RTIA	Right to Information Act
FM	Financial Management		RTSU	Road Traffic & Safety Unit
GAAP	Governance & Accountability Action Plan		SACS	State AIDS Control Society
GDP	Gross Domestic Product		SARDP-NE	Special Accelerated Road Development Program-North-East
GOA	Government of Assam		SBD	Standard Bidding Document
GOI	Government of India		SBI	State Bank of India
GRSF	Global Road Safety Facility		SE	Superintending Engineer
GSDP	Gross State Domestic Product		SH	State Highways
HDM	Highway Development & Management		SIA	Social Impact Assessment
IBRD	International Bank for Reconstruction & Development		SIL	Sector Improvement Loan
ICB	International Competitive Bidding		SMC	Social Management Cell
IDA	International Development Association		SOS	Strategic Options Study
IPC	Interim Payment Certificate		ST	Scheduled Tribe
IPDP	Indigenous Peoples Development Plan		STD	Sexually Transmitted Disease
IPMF	Indigenous Peoples Management Framework		TA	Technical Assistance
iRAP	International Road Assessment Program		TDS	Tax Deduction at Source
IRC	Indian Roads Congress		TIMS	Traffic Incident Management System
IRI	International Roughness Index		TOR	Terms of Reference
ISAP	Institutional Strengthening Action Plan		TTL	Task Team Leader
ISP	Implementation Support Plan		UNDB	United Nations Development Business
ISG	Information Solutions Group		VAT	Value Added Tax

Regional Vice President:	Isabel Guerrero
Country Director:	N. Roberto Zagha
Sector Director:	John H. Stein
Acting Sector Manager:	Binyam Reja
Task Team Leader:	Ashok Kumar

**INDIA**  
**ASSAM STATE ROADS PROJECT**

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# PAD DATA SHEET

India

Assam State Roads Project

## PROJECT APPRAISAL DOCUMENT

South Asia Region

Sustainable Development Unit (Transport)

Basic Information			
Date:	February 17, 2012	Sectors:	Rural and Inter-Urban Roads and Highways (100%)
Country Director:	N. Roberto Zagha	Themes:	Infrastructure services for private sector development (67%), Public expenditure, financial management and procurement (33%)
Acting Sector Manager/Director:	Binyam Reja/John Henry Stein	EA Category:	A - Full Assessment
Project ID:	P096018		
Lending Instrument:	Specific Investment Loan		
Team Leader(s):	Ashok Kumar		
Does the project include any CDD component? No			
Joint IFC: No			
Borrower: India			
Responsible Agency: Assam through the Government of Assam, Public Works Roads Department 'B' Block, Assam Secretariat Dispur, Guwahati Assam 781006, INDIA			
Contact:	Mr. M. C. Boro	Title:	Commissioner & Special Secretary, PWRD, Govt. of Assam
Telephone No.:	0361-2261678	Email:	as-guw1@nic.in
Project Implementation Period:	Start Date: 01April 2012	End Date:	31 March 2018
Expected Effectiveness Date:	01 April 2012		
Expected Closing Date:	31 March 2018		
Project Financing Data(US\$M)			
<input checked="" type="checkbox"/> Loan	<input type="checkbox"/> Grant	<input type="checkbox"/> Other	
<input type="checkbox"/> Credit	<input type="checkbox"/> Guarantee		
<b>For Loans/Credits/Others</b>			
Total Project Cost (US\$M):	400		
Total Bank Financing (US\$M):	320 The IBRD Flexible Loan with a variable spread option has a final maturity of 18 years including a grace period of 5 years.		
Financing Source		Amount(US\$M)	
Government of Assam		80	
International Bank for Reconstruction and Development		320	
Total		400	

<b>Expected Disbursements (in USD Million)</b>								
Fiscal Year	FY12	FY13	FY14	FY15	FY16	FY17	FY18	
Annual	0	20	45	70	85	85	15	
Cumulative	0	20	65	135	220	305	320	
<b>Project Development Objective(s)</b>								
The project development objective is to enhance the road connectivity of Assam by assisting the Public Works Roads Department to improve and effectively manage its road network.								
<b>Components</b>								
<b>Component Name</b>					<b>Cost (USD Million) including contingencies</b>			
Road Improvement					365			
Road Sector Modernization and Performance Enhancement					20			
Road Safety Management					12			
<b>Compliance</b>								
<b>Policy</b>								
Does the project depart from the CAS in content or in other significant respects?					Yes [ ]		No [X]	
Does the project require any exceptions from Bank policies?					Yes [ ]		No [X]	
Have these been approved by Bank management?					Yes [ ]		No [ ]	
Is approval for any policy exception sought from the Board?					Yes [ ]		No [X]	
Does the project meet the Regional criteria for readiness for implementation?					Yes [X]		No [ ]	
<b>Safeguard Policies Triggered by the Project</b>						<b>Yes</b>	<b>No</b>	
Environmental Assessment OP/BP 4.01						<b>X</b>		
Natural Habitats OP/BP 4.04						<b>X</b>		
Forests OP/BP 4.36						<b>X</b>		
Pest Management OP 4.09							<b>X</b>	
Physical Cultural Resources OP/BP 4.11						<b>X</b>		
Indigenous Peoples OP/BP 4.10						<b>X</b>		
Involuntary Resettlement OP/BP 4.12						<b>X</b>		
Safety of Dams OP/BP 4.37							<b>X</b>	
Projects on International Waters OP/BP 7.50							<b>X</b>	
Projects in Disputed Areas OP/BP 7.60							<b>X</b>	
<b>Main Legal Covenants*</b>								
The Project Agreement (PA) for the project provides that								
<ul style="list-style-type: none"> <li>Assam shall, (i) not later than March 31, 2013, establish and operationalize the Road Maintenance Fund; and (ii) not later than April 1 each year, starting April 1, 2013, allocate, either through the Road Maintenance Fund or other financial sources, at least 4,000 million Rupees per annum, and increase the allocated amount to at least 5,000 million Rupees per annum by the end of the Project for the maintenance of PWRD road network.</li> <li>Assam shall, (i) not later than April 1, 2012, introduce either performance- based contracting or other improved methods of contracting for roads maintenance in at least five (5) districts; (ii) not later than April 13, 2014, introduce either performance- based contracting or other improved methods of contracting for roads</li> </ul>								



maintenance in at least twelve (12) additional districts; and (iii) allocate adequate budgetary resources to fund the said contracts.

- Assam shall implement the Project in accordance with the Operations Manual. In the event of a conflict between the provisions of the Operations Manual and those of the Loan Agreement and/or this Agreement, the provisions of the latter agreement(s) shall govern.

*\*The Loan Agreement (LA) and the Project Agreement (PA) for the Project contain other Legal Covenants and conditions.*

### Team Composition

#### Bank Staff

Name	Title	Specialization	Unit	UPI
Ashok Kumar	Sr. Highway Engineer, TTL	Highway Engineering	SASDT	165763
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Ritu Sharma	Program Assistant	Administrative Support	SASDO	264762
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Said Dahdah	Transport Specialist	Road Safety	TWITR	301051
Shashank Ojha	Sr. E-Government Specialist	Information Technology	TWICT	187548
Simon David Ellis	Sr, Transport Economist	Economist	SASDT	171418
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#### Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Republic of India	Assam	State of Assam		X	



## I. STRATEGIC CONTEXT

### A. Country Context

1. Assam is one of the lower income states of India, situated in its remotely located North-East (NE) region. Assam's per capita income (US\$604) is about 40 percent below the national average (US\$1033)<sup>1</sup>. About 40 percent of its population is below the official poverty line as compared to the national average of 32 percent. The state has seen its Gross Domestic Product (GDP) falling from parity with the rest of India in the 1970s to less than 60 percent today. Eighty-seven percent (out of 31 million) of its population lives in rural areas and depends mainly on agriculture for its livelihood. In the last five years, the growth of the agriculture sector, which accounts for a third of the state's income, was about 1.5 percent, as compared to the all India average of 3.1 percent. Similarly, industrial growth averaged 3.6 percent, which is less than half the all India average of 8.5 percent during the same period. The state accounts for 15 percent of the country's crude oil production and a sixth of the world's tea production. It has high potential for growth in the hydropower, agriculture, tourism, and forestry sectors. However, this potential remains largely untapped due to its inadequate road infrastructure and market access.

2. Assam is also the "gateway to the landlocked NE region"<sup>2</sup>. Thus, its road network has significant strategic importance for the integration of the lagging NE region with the country's economy. As a special priority, the Government of India (GOI) has been earmarking 10 percent of its plan (capital expenditure) funds for the development of the NE states.

3. Assam's fiscal and economic situation has been improving since 2004, when the Government of Assam (GOA) formulated the "Assam Development Strategy". The implementation of the strategy has helped the state to contain its large fiscal and revenue deficits<sup>3</sup> and accelerate its Gross State Domestic Product (GSDP) growth rate from 2.5 percent (1991–2001) to 5.2 percent (2001–2010). Yet, Assam is struggling to diversify its industry and to increase agricultural productivity. Both the Assam Development Strategy and the North-East Region Vision 2020<sup>4</sup> underscore the need to improve road infrastructure and connectivity to achieve their objectives of poverty reduction and promotion of economic growth through harnessing the state's and region's natural resources. As evidence from other India road projects<sup>5</sup> suggests, road improvements lead to many benefits, including reduction of travel costs and time, creation of additional employment opportunities, increase in agricultural production and income, support for industrial growth, improved access to markets, health and educational services, and better prices for agricultural produce, as well as integration of the scattered population in the state's economy.

### B. Sectoral and Institutional Context

#### *Assam Road Sector Context*

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<sup>1</sup> Assam's Human Development Index (0.501) is also below the national average (0.612).

<sup>2</sup> Assam connects the entire NE region with the mainland through a narrow wedge of 27 km width known as the "Siliguri corridor" or the "Chicken Neck".

<sup>3</sup> Which showed positive balances during 2005–2009.

<sup>4</sup> And the successive Five Year Plans (X<sup>th</sup>, XI<sup>th</sup> (2007–12), and now approach paper for XII<sup>th</sup> Plan (2012–17).

<sup>5</sup> Under Bank state roads projects in Mizoram, Andhra Pradesh, and Assam, and social assessments for this project.

4. ***Assam's road infrastructure is underdeveloped.*** Excluding the primary network of National Highways (NH, 2,814 km) which are managed by GOI, the Assam state road network of 38,091 km is classified into *secondary roads* (State Highways, SH, 3,134 km; and Major District Roads, MDR, 4,413 km) and *tertiary roads* (Rural Roads, 30,544 km). Both the secondary and tertiary roads are managed by the State's Public Works Roads Department (PWRD). Due to years of inadequate investment and lack of maintenance, about 60 percent of the network is currently in poor condition. Most roads have poor riding quality, weak pavements, and inadequate capacity. There are about 2,300 timber bridges in dilapidated condition which need urgent replacement. Only about four percent of the secondary roads are double lane and 20 percent are still unpaved. The freight charges in Assam are about 30 percent higher as compared to other states due to its underdeveloped road network.

5. ***The underdeveloped condition of Assam's road network is mainly due to insufficient funds and sub-optimal use of the funds leading to inadequate maintenance.***

- ***Insufficient funds:*** During the past five years, average annual allocation for the road sector has been about 6 percent of the total GOA budget over the last five years (US\$330 million out of US\$5.8 billion). On average, about 80 percent of the road sector budget has been provided by GOI<sup>6</sup> and GOA own contribution is only 10 percent.
- ***Sub-optimal use of the funds:*** Most government funded road programs are construction driven and focus on building infrastructure without a carefully designed policy and institutional framework to ensure value for money, effective delivery, and sustainability of the built infrastructure. Little effort has been made to use modern road industry practices, which could allow for delivery of the same infrastructure in a faster and more cost-effective manner. There is a strong fragmentation of resources due to multiple programs having different objectives. Investment decisions give little importance to economic priorities—neither the required planning tools nor the data-base for making sound investment decisions are available as yet. Project preparation and implementation capacities are limited both in the public and private sectors. The road engineering practices and business procedures are largely outdated.
- ***Inadequate maintenance:*** Only about 40 percent of the required funds are available annually for road maintenance<sup>7</sup>. Maintenance is not adequately institutionalized in the PWRD system as there is no clear policy to plan, fund, and implement maintenance.

6. ***Assam's secondary roads, the focus of this operation, have been suffering from consistent under-funding.*** During the last decade, both the NHs and rural roads<sup>8</sup> have received a lot of attention and increased funding in Assam, as in other Indian states. However, secondary roads have lacked the same level of attention. Of the total capital budget of US\$1.7 billion for the last five years for the state, about 86 percent is allocated for rural roads (mostly under Pradhan Mantri Gram Sadak Yojana (PMGSY)), leaving only around 14 percent for the

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<sup>6</sup> About 64 percent of the budget is provided under Pradhan Mantri Gram Sadak Yojana (PMGSY) and the remaining under nine different sources.

<sup>7</sup> During the last five years average maintenance expenditure was about US\$ 33 million per annum against a requirement of US\$ 85 million.

<sup>8</sup> About 8,000 km of rural roads have been constructed in the last seven years under PMGSY.

secondary roads. As per PWRD estimates, even after accounting for GOI financial support for secondary roads under special GOI programs<sup>9</sup>, the state requires about US\$2.7 billion to improve its remaining 4,800<sup>10</sup> km of secondary road network.

7. ***The poor condition of secondary roads is constraining the benefits of the investments in primary and tertiary roads.*** As per evidence from Bank projects<sup>11</sup>, despite having access to good rural roads, farmers are unable to access major markets due to the poor condition of secondary roads leading to those markets<sup>12</sup>. Similarly, the road users within the area of influence of the improved NH network, who are first required to travel on secondary roads to access the improved NH network, are also affected.

### ***Road Sector Management***

8. ***Weak sector management has further aggravated the impact of sector underfunding.*** PWRD needs substantial enhancements and revisions in its traditional way of doing business to improve its performance and institutional effectiveness. PWRD's original institutional structure and business procedures were primarily evolved for small works and force-account methods. In today's context, these have become outdated<sup>13</sup>. For example, PWRD continues to maintain an in-house equipment pool to lease equipment to contractors<sup>14</sup> and 8,000 maintenance gang laborers with low productivity. Progressively, PWRD has also become construction oriented to cope with the high demands for road construction, albeit with limited capacities.

9. ***GOA has demonstrated a strong commitment to modernize its road sector management.*** GOA has recognized the need to re-orient the department from a primarily construction focus to a modern road agency with sound policies, planning, engineering practices, business processes, and asset management. It made a good beginning in 2002 by putting in place a Road Policy, and subsequently followed it up in 2005 by adopting an Institutional Strengthening Action Plan (ISAP) using Bank support under the Assam Rural Infrastructure and Agriculture Support Project (ARIASP) and Assam Agriculture Competitiveness Project (AACP). These have led to the establishment of a *Road Board*, e-procurement, road sector rehabilitation and resettlement policy for the road sector<sup>15</sup>, computerization and standardization of PWRD's business procedures, innovative bridge designs, introduction of annual maintenance plans and performance based maintenance contracts, and increased funding for maintenance.

10. Despite these improvements, there are a number of priority areas in which there is scope for further improvement. Recognizing this, GOA has recently prepared a Road Sector Modernization Program (RSMP; Annex 2) to undertake the following enhancements/initiatives to be supported under the project:

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<sup>9</sup> Under the Special Accelerated Road Development Program–North East (SARDP–NE), ADB funded (\$200 million) North-East States Road Improvement Program (NESRIP), and North-East Council (NEC).

<sup>10</sup> The remaining secondary roads are either in good condition, or would be improved under other programs.

<sup>11</sup> As per assessments done by the Bank under the ongoing PMGSY Rural Roads Project.

<sup>12</sup> These farmers including those benefited under AACP and ARIASP and have reportedly increased their paddy yield by about 38 percent.

<sup>13</sup> Various PWRD codes and other documents defining the role and responsibility at various levels are not updated regularly.

<sup>14</sup> An abandoned practice in most Indian states.

<sup>15</sup> Conforming to Bank policies.

- (a) ***Strengthening of Road Sector Policy Framework:*** GOA has already initiated the process of establishing a long term road sector policy<sup>16</sup> that emphasizes sustainable management of road assets, efficient delivery and coordination of various road programs, and use of modern road engineering and business procedures. GOA also intends to elevate the status of the *Road Board* to an apex body consisting of major stakeholders to provide overall policy direction and oversight to road sector development, specifically on investment decisions, asset management, coordination of various road sector programs, and management of a *Road Maintenance Fund* being set-up. Although the Board was established to undertake these functions, thus far, its main function has been limited to implementation of the PMGSY program.
- (b) ***Effective Asset Management:*** GOA is committed to put in place an Asset Management System<sup>17</sup> (AMS) to plan and prioritize both capital investments and maintenance works using rational criteria for investment decisions. AMS will prepare annual maintenance plans for state roads at the district level<sup>18</sup>. The maintenance works under these plans will be executed through performance-based or other improved system of maintenance contracts. GOA has already introduced performance-based maintenance contracts on pilot basis.
- (c) ***Adequate Maintenance Funding:*** GOA has taken steps to set up a *Road Maintenance Fund* to mobilize additional funds for maintenance through various measures. The *Road Board*<sup>19</sup> has also been recommending mobilization of additional funds for road maintenance. Together with the maintenance grants from the 13<sup>th</sup> Finance Commission (Annex 6), the Road Maintenance Fund will ensure adequate maintenance funds for the entire road network. The increased maintenance funding will also help GOA to clear the huge maintenance backlog.
- (d) ***Building Human Resources Capacity in both public and private sectors:*** PWRD has started to prepare a professional development strategy for its staff. While the capacity of the local contractors has increased significantly through implementation of the PMGSY, there is still a need to create a better enabling environment for the construction industry through a carefully designed policy and capacity enhancement program.
- (e) ***Modernizing business procedures including the roll-out of the ongoing PWRD computerization initiative:*** PWRD has implemented the Assam PWRD computerized project (APCP) to standardize and computerize its main business procedures for project, financial, and road maintenance management at 12 PWRD offices. The project will

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<sup>16</sup> Through significant modifications and enhancements in the current road policy.

<sup>17</sup> By modifying the existing Road Asset Maintenance Management System (RAMMS) under APCP which has the capability to prepare annual maintenance plans. AMS will also prepare plans three-year rolling plans for the capital works.

<sup>18</sup> The plans will include the requirements for routine, periodic, and special maintenance for state roads

<sup>19</sup> GOA has set up a *Road Fund* in 2004 to mobilize non-budgetary funds for road maintenance. However, the mobilization process could not begin. The *Road Fund* currently receives some grants from GOA.

support scaling up of this initiative to the remaining 90 locations as well as modifications, enhancements, and standardization of various business processes of PWRD<sup>20</sup>.

11. *The road safety situation remains a challenge in Assam, as elsewhere in India.* According to official statistics, Assam has a higher percentage of deaths due to unnatural causes than the rest of the country. In 2009, about 16 persons were killed per 10,000 vehicles in Assam as compared to the national average of 11. Severity Index (number of persons killed per 100 accidents) for the state has gone up from 34.4 in 2003 to 40.9 in 2009 and is far above the national average of 25.8. PWRD recognizes the road safety challenges and is currently undertaking a road safety assessment of 960 km of secondary roads with support from the World Bank Global Road Safety Facility (GRSF)<sup>21</sup>, whose findings and recommendations are being incorporated in the project design.

### **C. Higher Level Objectives to which the Project Contributes**

12. The proposed project is fully aligned with the Country Strategy (CS) for FY09–12, which focuses on helping India to fast-track the development of much-needed infrastructure and achieve its long-term vision, encapsulated in the Eleventh Plan, of a country free of poverty and exclusion. The project is expected to support the CS’s objectives of achieving rapid and inclusive growth, intensifying Bank engagement with the lagging states, and removing infrastructural constraints to growth. It also aims at enhancing the development effectiveness of public spending and providing cutting edge knowledge solutions, which are additional pillars of the CS.

13. In addition, the project will contribute to the objectives of the Assam Development Strategy and the North-East Vision 2020. These strategies highlight inadequate road connectivity as one of the major constraints. The project will continue the long engagement of the Bank in reforming the road sector in the state of Assam by furthering the initiatives already introduced under AACP and ARIASP. The project will also contribute to the objectives of the North-East Sub-region Trade and Transport Facilitation Program<sup>22</sup> through the promotion of a more integrated approach to network planning both regionally and internationally.

## **II. PROJECT DEVELOPMENT OBJECTIVES**

### **A. PDO**

14. The project development objective is to enhance the road connectivity of Assam by assisting the Public Works Roads Department to improve and effectively manage its road network.

### **Project Beneficiaries**

15. The primary project beneficiaries will be the inhabitants, businesses, and industries either living along or served through the secondary roads. The project is expected to benefit about 4.5

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<sup>20</sup> The Bank is assisting PWRD to partially meet this requirement through Department for International Development-Trust Fund (DFID-TF) support.

<sup>21</sup> Analysis of the data from survey results is under progress.

<sup>22</sup> “Trade Facilitation Needs Assessment in South Asia”, *CUTS-CITEE*, 2006.

million rural people, who are mostly marginal and small farmers. About 48 percent of the beneficiaries are female. Local laborers will benefit through direct employment of about 20 million person days<sup>23</sup> expected to be generated by the project through road construction and maintenance.

### **PDO Level Results Indicators**

16. The achievement of the PDO will be monitored by the following PDO Level Indicators:
- Increase in the percentage of secondary road network in good and fair condition: *from 25 to 40 percent*;
  - Reduction in travel time on the project corridors: *20 percent reduction compared to the pre-construction levels*;
  - Increase in the safety rating of the project corridors: *from 10 to 40 percent*; and
  - Improved Asset Management: introduced in the majority of the districts.
17. Annex 1 provides details of the Project Outcome and Intermediate Indicators.

## **III. PROJECT DESCRIPTION**

### **A. Project Components**

18. The project has the following three components:

**Component 1: Road Improvement:** This component will support improvement of priority sections of the secondary roads to improve state connectivity and facilitate regional integration. It consists of: (a) civil works for about 500 km of secondary roads (about 300 km road widening and upgrading, and about 200 km pavement rehabilitation and strengthening)<sup>24</sup>. This will also include demonstration of new technologies to promote cost effective, modern, climate resilient, and environment friendly road construction; (b) project preparation, supervision, management, and monitoring support; (c) resettlement and rehabilitation assistance to project-affected people and HIV/AIDS awareness program; and (d) pilots on innovative design and construction of bridges.

**Component 2: Road Sector Modernization and Performance Enhancement:** This component will support implementation of the RSMP to carry forward and deepen various institutional development initiatives already underway<sup>25</sup>. The RSMP will be periodically reviewed and modified during project implementation. The component will concentrate on the following areas<sup>26</sup>:

- (a) *Modernization of policies, engineering practices, and business procedures:* Support system-wide enhancement in PWRD through significant modifications and strengthening of its policies, rules, legal framework, engineering standards, and business procedures

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<sup>23</sup> Equivalent to 10,000 full-time jobs for the six- year duration of the project.

<sup>24</sup> The road sections are divided into three Phases and 20 contracts; details given in Annex II.

<sup>25</sup> Mostly consultancy services and goods including some office infrastructure

<sup>26</sup> Mostly by supporting consultancy services and goods.



based on best practice examples in the road industry. Key activities include development of long-term sector policies and strategies, revision of PWRD's codes and manuals, and engineering manuals for design and construction of roads integrating engineering, social, environment, and safety aspects.

- (b) *Asset management and maintenance*: Support strengthening of existing institutions and systems for asset management through: (i) establishing a strategic core network of key state and regional corridors; (ii) expanding and strengthening the role of the *Road Board*; (iii) setting-up a *Road Maintenance Fund*; (iv) putting in place a simple AMS to prepare prioritized plans for capital works and maintenance; and (v) executing maintenance works under the annual maintenance plans either through performance-based or other innovative systems of contracting maintenance works.
- (c) *Institutional and Human Resource Development*: Support improvement in institutional effectiveness and efficiency of PWRD through implementation of suitable plans for (i) training and professional development of PWRD in identified priority areas including management of social and environmental issues; (ii) improvement of PWRD institutional structure including measures to increase efficiency and staff productivity; and (iii) capacity building of the local construction industry.
- (d) *Streamlining, Standardizing, and Computerizing PWRD key business processes*: Support enhancements and rollout of various modules of APCP to all field offices in a phased manner.

**Component 3: Road Safety Management:** This component will support building of road safety management capacity of related agencies through developing and implementing a multi-sector road safety strategy including: a safe corridor demonstration program and road safety improvement projects on identified road sections; development and operationalization of a road accident database and management system; building road safety capacity for PWRD during design, construction and operation stages; and awareness programs on road safety and work zone safety. It will also support implementation of engineering counter-measures<sup>27</sup> for 300 km of roads under Component 1.

## **B. Project Financing**

### **Lending Instrument**

19. As the project will focus on specific investments in the road sector, a Sector Investment Loan (SIL) has been chosen as the lending instrument to provide IBRD assistance to the project.

### **Project Cost and Financing**

20. Table 1 below shows the total project costs and financing.

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<sup>27</sup> Based on the road safety assessments being undertaken by PWRD with the support of World Bank Global Road Safety, as part of a Bloomberg RS10 Project.

**Table 1: Project Cost & Financing (US\$ million)**

<b>Component</b>	<b>Costs including Contingency</b>	<b>Bank Financing</b>	<b>Percent Financing</b>
A - Road Improvement Component	330.4	262.3	85
a) Civil Works	289.6	246.2	85
b) Design, Supervision and Project Management	19	16.2	85
c) Land Acquisition & pre-construction activities*	21.8	0.0	0
B - Road Sector Modernization & Performance Enhancement	20.0	17.0	85
C - Road Safety Management	11.8	10.0	85
D - Incremental Operating Costs	1.8	1.5	85
Total Base-line costs	364.0	290.9	
Physical & Price contingencies	34.6	27.7	
<b>Total Project Cost</b>	<b>398.6</b>	<b>318.6</b>	<b>80</b>
Front End Fee and Refinancing of Project Preparation Advance	1.4	1.4	100
<b>Total Financing Required</b>	<b>400.0</b>	<b>320.0</b>	<b>80</b>

\*Some pre construction activities are also included under the road improvement contracts

### **C. Lessons Learned and Reflected in the Project Design**

21. Project design reflects lessons drawn from the implementation of numerous road sector projects, both in India and Bank-wide, and the specific Bank engagements in Mizoram and Assam.

22. *Institutional and policy reforms require the active engagement of policy makers and road agency staff.* GOA has set up a High Level Project Steering Committee to oversee the implementation of RSMP, reflecting the priorities of PWRD staff.

23. *Ring fencing of Bank projects and the creation of parallel systems for them should be minimized where possible.* The proposed project implementation structure has been mainstreamed within the existing state roads divisions.

24. *System-wide improvements in the road agency using Bank technical assistance would make highly significant contributions.* Technical assistance in this project will be focused on building existing systems of Assam PWRD and the capacity and skill base to implement them.

25. *The North East Region suffers from a limited working season<sup>28</sup>.* The construction program has been carefully planned, taking into account the available working season and civil works contracts will be closely monitored. The project duration has been set at 72 months.

26. *A comprehensive institutional building program and additional support for project management are required to address the limited capacity in the lagging states.* The project will support a comprehensive capacity building program for PWRD and local contractors. A Project

<sup>28</sup> The effective working seasons is about five-six months in a year mostly during November to April due to the long rainy seasons and subsequent flooding in parts of the state.

Management Consultant (PMC) and experienced resource persons will be mobilized to support effective implementation of various project activities.

27. *State government commitment to fund and improve planning and delivery of maintenance of the entire state road network is essential for sustainability.* This project will support a number of recent GOA initiatives such as the operationalization of the *Road Maintenance Fund*, performance based maintenance contracts, and annual maintenance plans.

#### **IV. IMPLEMENTATION**

##### **A. Institutional and Implementation Arrangements**

28. *Arrangements at the state level:* The project will be implemented by PWRD, mostly using its existing structures with support from various GOA departments including transport, police, revenue, forest, and district collectors and local offices. A Chief Engineer (CE) Office will be responsible for implementation of this project under the overall guidance of the Commissioner PWRD and a High Level Project Steering Committee. The CE office has designated units for engineering designs, procurement, contract management, social, environmental, financial management, computerization, institutional development, and road safety. The PMC, as well as individual resource persons, will be employed to assist the CE Office to effectively implement the project. PWRD is preparing an Operational Manual containing detailed implementation arrangements. All procurement will be undertaken by the CE Office as per the Operations Manual.

29. GOA has established a Road Reforms and Modernization Task Force (RRM-TF) to implement RSMP (Component 2). The CE (Roads) Office will be responsible for operationalization of AMS and implementation of performance-based maintenance contracts through PWRD field divisions. A multi-disciplinary Working Group headed by the Commissioner PWRD, with representatives from the transport, police, health, and education departments, will be responsible for implementing the road safety component.

30. *Arrangements at Project Districts:* PWRD's state road divisions in each district will be responsible for the implementation of all project related activities in their respective districts, including land acquisition and forest clearances, operationalization of AMS, and road safety related activities.

##### **B. Results Monitoring and Evaluation**

31. The results framework in Annex 1 will be used to monitor and evaluate the achievement of the PDO and the outcome indicators. The outcome indicators will be measured through a robust monitoring and evaluation framework under the PWRD's Computerization Project. Progress will be monitored jointly by the Bank and PWRD through quarterly progress reports. Stakeholder perception surveys and project impact assessments (social and economic) will also be undertaken during project implementation. The PMC will undertake a half yearly performance audit of the overall project, including social, environment, financial management and procurement, through a review of sample contracts and stakeholder consultations. The audit will identify the good practices which could be scaled up within the PWRD structures, performance gaps and their reasons, and establish an action plan to address the gaps.

## C. Sustainability

32. **Physical Sustainability:** Good quality project roads will be ensured by using international practices for preparation of engineering designs, construction supervision, and technical audits. Subsequent maintenance of the project roads will be ensured through improved policy, financing, and implementation framework for road maintenance to be supported under the project.

33. **Financial Sustainability:** During the last five years, GOA's maintenance funding has increased by a factor of 10<sup>29</sup>. GOA will receive sufficient maintenance funds from GOI as per the recommendations of the 13<sup>th</sup> Finance Commission and through setting-up the *Road Maintenance Fund*. In addition, the project will support development of a long-term financing strategy that will also explore the possibility of leveraging private sector investments and reorienting GOA's own funds to the priority needs.

34. **Institutional Sustainability:** Institutional development initiatives of the past few years, have gained good momentum and PWRD is now well positioned to intensify them. The project will be implemented mostly through the existing PWRD structure, facilitating easy percolation and integration of the system-wide enhancements in the PWRD structure and their sustainability beyond the project closure.

## V. KEY RISKS AND MITIGATION MEASURES

### A. Risk Ratings Summary

**Table 2: Summary of Risk Ratings (Details are available in Annex 4)**

Risk Category	Rating	Risk Category	Rating
Stakeholder	Low	<i>Project Risk</i>	
<i>Implementing Agency</i>		Design	Moderate
Capacity	Moderate	Social and Environment	Moderate
Governance	Moderate	Program and Donor	Low
		Delivery Monitoring and Sustainability	Moderate
Overall Risk Rating: <i>Moderate</i>			

### B. Overall Risk Rating Explanation

35. As discussed in the Operational Risk Assessment Framework (ORAF) and summarized above, the overall risk for achieving the PDO is rated moderate; individual risk categories have all been rated moderate or low. There is strong support to road sector investments and reform both at the national and state levels. The project will build on the Bank's considerable experience in similar projects in India, including projects in Assam. Project investments will benefit a large under-served rural population and do not involve significant environmental or social issues. The state is committed to good governance, and has already initiated a number of steps in this regard.

36. The principal risk is that construction sector capacities in Assam are relatively less developed. Project design incorporates a number of risk management measures, including

<sup>29</sup> From US\$ 5 million in FY 2003/04 to US\$ 53 million in FY 2010/11.

significant implementation support from a core team of experts from the Bank's New Delhi office, complemented by international staff and consultants at appropriate times. While GOA has shown strong commitment to reforms, the continuity of this commitment during project implementation and acceptability of the reforms by PWRD staff are the associated risks. To mitigate these, the RSMP has been prepared through active consultations with GOA and PWRD and captures their immediate priorities and perceived needs. The reforms will also be led mainly by PWRD staff with adequate support from experienced resource persons.

## **VI. APPRAISAL SUMMARY**

### **A. Economic and Financial Analysis**

37. The economic evaluation of the proposed road investments was carried out using Highway Development and Management Model-4 (HDM-4), which compares the annual streams of economic cash flows associated with a "with-project" and a "without-project" scenario, and computes the Net Present Value (NPV) and the Economic Internal Rate of Return (EIRR). The overall EIRR for the 300 km of roads selected for upgrading, including short bypasses which are a part of the selected corridors, was 45 percent, with an NPV of US\$650 million, discounted at 12 percent. Detailed economic analysis was also carried out for 200 km of roads identified for rehabilitation. The EIRR for this was 37.4 percent, with an NPV of US\$25 million, discounted at 12 percent. Based on these computations, the EIRR for the entire project is expected to be above 40 percent, with an NPV of about US\$680 million.

38. **Fiscal Analysis:** As a special category state, Assam will receive Bank financial assistance as per GOI's standard arrangements, which is currently 90 percent grant and 10 percent loan. GOA has made adequate budget provisions including counterpart funding of US\$80 million during the project duration. The state also has adequate fiscal capacity to provide the matching funds required as a pre-condition for the release of the amounts it will receive from the Thirteenth Finance Commission funds over a four-year period. These funds, taken together with the additional resource mobilization for *Road Maintenance Fund*, will provide the required financing for maintenance.

### **B. Technical**

39. **Selection of Roads:** Roads in the secondary network to be improved under the project were selected taking into account state, regional, and international connectivity, through a major road re-classification exercise and extensive stakeholder consultations. Missing sections in the existing corridors were given priority to maximize the benefits of these corridors. About 12 road sections out of the 20 selected sections directly serve the relatively poor and backward areas of the state.

40. **Engineering Designs:** Roads will be improved to mostly two-lane standard by adopting uniform standards for a defined section, and by providing adequate geometry, pavement, drainage, bridges, and road safety engineering measures, including special treatment for urban sections, improved junctions, and some wayside facilities (such as parking spaces and bus stops). Total formation width will be 9-12 m, as per Indian Roads Congress (IRC) standards, and gravel/paved shoulders and four lanes or extra widening will be provided in specific locations if

warranted by the traffic level. PWRD has already prepared engineering designs for 300 km of roads using internationally recognized design software under the guidance of specialized experts. Independent design reviews have also been carried out.

41. **Unit costs** for the project are relatively high as compared to other Indian states due to the large number of bridges, high embankments to mitigate flood damage, high cost of construction material due to long haulage, high cost of owning and operating equipment due to the relative scarcity of spare parts, less availability of skilled and semi skilled workers, and the limited construction period due to prolonged and heavy monsoons.

42. **Pilot Projects on New Technologies:** PWRD has already prepared standard bridge designs using pre-cast girders. These designs will be further modified using latest bridge design and construction technologies and piloted under the project. The project will also support innovative technologies demonstrating the use of new/improved and cost-effective materials, climate proofing, and environment friendly design and construction of roads suitable for heavy rains and floods encountered in the state. This will include use of crushed rock or improved aggregate-based roads covered with chip sealing or thin bitumen surfacing.

### **C. Financial Management**

43. The project has adequate financial management arrangements to account for and report on project expenditures. Assam State Roads Board (ASRB), a society registered under the Societies Registration Act, 1860 and under the administrative control of PWRD, has been authorized by GOA to be the agency responsible for all project related payments, including those to contractors and consultants, other than LA. ASRB is currently responsible for implementation of the GOI funded PMGSY project and other schemes of GOA. ASRB will draw funds from the budget of GOA on a quarterly basis to meet the expenditures under the project which will be based on both the projected requirements of funds and submission of periodic utilization reports. All payments to contractors and consultants including payment of statutory dues will be centralized (in line with practices established and used for the PMGSY project, wherein payments are directly credited to the contractor's bank account based on certified running bills). For this, the project will enter into similar arrangements either with the State Bank of India (SBI) or other commercial banks. Decentralized payments will be limited to resettlement and rehabilitation (R&R) and operating costs only, for which a system of monthly imprest and settlement of accounts/bills will be adopted by the project. This arrangement will facilitate a single accounting centre and the project will procure and install an off-the-shelf accounting package.

44. The section on financial management detailing the project's financial management arrangements has been developed and included in the operations manual. The finance function will be headed by an officer deputed from the finance and accounts cadre of GOA, currently the senior financial advisor to the ASRB, who will be supported by a qualified accountant contracted from the market and accounts staff on contract basis/ deputation, to manage the accounting and financial management function in the project.

## **D. Procurement**

45. Procurement for the proposed project will be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers" (January, 2011) [Procurement Guidelines]; "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" (January, 2011) [Consultancy Guidelines]; and the provisions stipulated in the Legal Agreement.

46. ***Procurement Risk Assessment and Mitigation:*** All procurement under the project will be undertaken in PWRD by the CE ARIASP Office, which is familiar with Bank procurement procedures through implementation of ARIASP and AACP. The Procurement Capacity Assessment carried out by Bank staff concluded that the staff in CE's office has limited experience in procurement for works using International Competitive Bidding (ICB) method of procurement in Bank projects and procurement staffing arrangements need to be strengthened. Accordingly, PWRD has set-up a procurement unit in the CE office with six designated officers to handle all procurement matters as a prime responsibility. The Bank Team has provided training and support to PWRD officials who will be involved in project procurement. PWRD will also develop a comprehensive training program to be implemented over the life of the project, including on procurement and contract management. OM will include all procurement processes, decision making, and safe upkeep and management of records. PWRD will also establish a comprehensive system for handling complaints as a part of the Governance & Accountability Action Plan (GAAP).

47. ***Procurement Plan:*** PWRD has already prepared a procurement plan for procurement to be taken up during the first 18 months of project implementation which has also been agreed with the Bank. It will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

## **E. Social (including Safeguards)**

48. ***Social Impacts:*** About 60% of the project road improvement works will improve road access to the backward districts in the state. The project will entail some potential adverse social impacts from loss of land, livelihood, and unavoidable resettlement. This has been minimized or mitigated in a structured and transparent manner.

49. ***Management of Social Risks:*** A social assessment was carried out, comprising: (a) social screening for about 420 km of roads; (b) a census and socio-economic survey of inhabitants of all structures and land within the corridor of impact (COI) for phase I of the upgrading component; and (c) consultations/focus group discussions and small group meetings. The assessment found that widening of roads to two lanes does not require extensive resettlement, as road improvement work will be carried out within the existing right of way (ROW) wherever possible. Approximately 80 percent land is intermittently available in stretches for the Phase I project corridors, though land for milestone I of Phase I roads is available. Consultations with affected communities helped to minimize the extent of resettlement as well as adverse effects on Common Property Resources (CPR) and road safety. Outputs from the assessment have been integrated into the design where technically feasible.

50. In Phase I upgrading works, 13.173 hectares of private land will be acquired. The land acquisition (LA) process has been initiated. The land will be acquired by March 2013 for Phase I and by March 2014 for Phase II corridors. The census survey results show that 1,315 families (3,630 Project Affected Persons or PAPs) including titleholders will be affected, of which 173 families (548 PAPs) will be displaced. The project will impact a total of 101 CPRs in Phase I, consisting of 31 religious structures, seven community assets, and 63 government buildings<sup>30</sup>.

51. The social assessment also helped in the preparation of an entitlement framework as part of the Resettlement Policy Framework (RPF), as well as the Resettlement Action Plans (RAP) for Phase I corridors in accordance with OP 4.12. The RPF has helped to prepare RAPs for Phase II corridors. A similar process of social assessment based on the process provided in the RPF is being followed for Phase III works. Implementation, monitoring, and evaluation arrangements are discussed in detail in Annex 3.

52. **Indigenous Peoples (OP 4.10):** Some project corridors pass through areas where indigenous peoples' (IP) communities are settled, and the project affected persons includes 62 households belonging to the IP communities. The Social Assessment results show that the social and economic features of these households are similar to other categories of Project Affected Households (PAHs)/PAPs. However, considering the backwardness of the IP population in the region, a separate Indigenous Peoples Development Plan (IPDP) has been prepared for Phase I and II roads, based on consultations with the indigenous community. This Plan also includes the Indigenous Peoples Management Framework (IPMF), that will be the basis for preparing the IPDP for Phase III roads.

53. **Involuntary Resettlement (OP 4.12):** GOA has endorsed an R&R Policy and Entitlement Matrix consistent with the Bank's policy. RAPs for all the four upgrading works under Phase I have been prepared and disclosed both "in country" on July 19, 2011, and in the Bank's InfoShop on July 27, 2011. RAP for most of the Phase II roads has also been prepared. Apart from corridor specific RAPs, a resettlement policy framework has been prepared that is being used to prepare RAPs for Phase II corridors. The RPF will also be used for Phase III roads which are rehabilitation roads in case of any unforeseen adverse impacts. Assam PWRD has assigned adequate staff in the Environment and Social Cell to implement the RAP and will commission an experienced local NGO to provide implementation support. The RAP implementation will be monitored by Construction Supervision Consultants (CSCs) and will be evaluated by an independent consultant at mid-term and end term.

## **F. Environment (including Safeguards)**

54. **Environmental Impacts:** Project activities, if not properly managed and mitigated, could have adverse environmental impacts. These include: felling of roadside trees; impacts on water bodies; impairment to natural drainage; construction phase impacts related to camp site operation, dust generation and pollution from plants, machinery and other equipment; disposal of debris and other wastes arising due to pavement scarification and dismantling of bridges; impact on environmentally sensitive receptors (such as schools and health facilities) located along the road corridors; and potential indirect impacts on biodiversity rich areas or ecologically important

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<sup>30</sup> Having only minor impacts such as shifting of boundary wall etc.



features. However, since most of the road improvement works will be within the existing right of way (ROW), their direct adverse impacts on environment are expected to be limited in nature.

55. **Environment Management:** The overall environment management strategy for the project involves: (a) environment screening to identify key issues including those related to biodiversity/wildlife;; (b) corridor-specific Environmental Impact Assessment (EIA) along the with preparation of an Environment Management Plan (EMP) for upgrading works; and (c) preparation of a generic Environment Management Framework (EMF) for road rehabilitation and strengthening works. Management measures will be appropriately incorporated in the engineering design and bidding documents.

56. **Bio-diversity Management:** In view of Assam's rich biodiversity, biodiversity protection and management forms the core of the project's over-all environment management approach. This includes: (a) avoidance of impacts on critical/ecologically significant natural habitats through a carefully designed screening mechanism; (b) comprehensive assessment and appropriate design of remaining sub-projects (where a balance between local development needs and environmental protection can be made possible through minimization/mitigation efforts) in line with the requirements of regulatory norms and Bank operational policies; and (c) creation of tools and systems for improving/strengthening the over-all capacity of PWRD in dealing with biodiversity and other environment management issues in a systematic and incremental manner.

57. Based on the above approach, no road passing/traversing through a designated protected area will be financed under the project. Work on other roads (located within 10 km but not passing through a designated protected area) will be taken-up only after: (a) a comprehensive environmental impact assessment study, with a focus on wildlife issues has been completed (the sub-project/road will be considered for inclusion under the project only if the findings suggest that project intervention/s are beneficial to people/local communities and would not create adverse impact/s on environment); (b) preparation of a specific environment management plan put together and disclosed after extensive consultation with wildlife experts, NGOs, and local communities and; (c) obtaining of the required regulatory permissions/clearances.

58. The project will help PWRD in improving its overall management of environment issues through: (a) capacity building of PWRD, contractors and other associated stakeholders through a training manual/codes of practice to manage environmental (including bio-diversity) issues in planning, design and construction of roads; (b) promoting use of environment friendly and climate resilient road construction; (c) use of improved contract conditions to promote environment, health and safety during construction; and (d) introduction of technical specifications such as those for slope stabilization/bio-engineering measures to reduce soil erosion; re-use of debris and rehabilitation of material sources.

**India: Assam State Roads Project**  
**Annex 1: Results Framework and Monitoring**

<b>Project Development Objective (PDO):</b> The project development objective is to enhance the road connectivity of Assam by assisting PWRD to improve and effectively manage its road network.													
PDO Results Indicators	Level	Core	Unit of Measure	Baseline	Cumulative Target Values <sup>31</sup>					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition, etc.)
					YR 2	YR 3	YR4	YR 5	YR6				
Secondary road network in good or fair condition			%	25	30	32	35	38	40	Yearly	Road condition Surveys	PWRD	IRI < 4 or surveys as per the operational manual
Reduction in travel time on the project corridors <sup>32</sup>			%	0	0	0	0	20	20 <sup>33</sup>	Pre- and post-construction	Pre- and post-construction speed surveys	PWRD	Average of cars, trucks, and buses
Safety Rating of project corridors			%	10	10	10	20	30	40	Pre- and Post-construction	iRAP Survey	PWRD	% of km having 3+ iRAP star rating <sup>34</sup>
Improved Asset Management <sup>35</sup>			Number	0	0	20	25	30	50	Every Year	Project Progress Reports	PWRD	Indicating use of improved asset management practices
<b>INTERMEDIATE RESULTS</b>													
<b>Intermediate Result (Component 1): Road Improvement</b>													

<sup>31</sup> The project has a six-year duration. The result monitoring will start from the second year of project implementation.

<sup>32</sup> Current average speed for cars, buses, and trucks is around 30 km/hr, 25 km/hr, and 20 km/hr, respectively.

<sup>33</sup> 20 percent reduction in the average travel time for cars, buses, and trucks from the pre-construction level.

<sup>34</sup> The rating is based on a comprehensive road safety assessment procedure developed by the International Road Assessment Program. This indicator will apply to the 300 km roads for widening and strengthening on which the road safety countermeasures will be applied.

<sup>35</sup> Sum of the districts (i) preparing annual maintenance plans using the asset management module of APCP; (ii) using a performance-based or other system of maintenance contracting for state roads; (iii) having a web-based system allowing road inventory and condition data for state roads for public viewing; and (iv) using computerized workflow of APCP for project management. Maximum value of this indicator could be four times the number of districts in the state, i.e., 88 (four times 22).

Road improvement and rehabilitation of 500 km core network roads	☒	Km	0		50	200	300	500	Every year	Project progress report	PWRD	
Pilot projects on innovative design of bridges.					Design finalized	Construction of 10 pilot bridges initiated		Pilot project completed	NA	Project progress reports	PWRD	
<b>Intermediate Result (Component 2): Road Sector Modernization and Performance Enhancement</b>												
Increased maintenance funding		Rs million	2500	4000	4250	4500	4750	5000		GOA budget reports and PWRD records		
Annual district performance reports and maintenance plans published		%	0		10	30	40	50	Yearly	Using APCP		% districts
Effective execution of maintenance works		%	5		10	20	30	50	Yearly	Project progress reports		% districts contracting routine maintenance for a minimum of 20% of their network
Institutional strengthening of PWRD		%		<i>Road Fund</i> Operational Strategic core network established	Project preparation manual adopted by PWRD PWRD prepares a capacity building plan for the construction industry and starts its implementation	Revised PWRD code adopted by GOA Institutional and expenditure review completed PWRD adopts an HR and professional development strategy for its staff	Productive improvement for mechanical staff implemented Revised sector strategy adopted by GOA <i>Road Board</i> performing to its new rules as an apex body for the sector	Public procurement manual adopted Value engineering assessment complete Productivity enhancement plan for mechanical staff implemented				

Training of PWRD staff		%	0	5	10	15	20	25				% staff receiving minimum one week training annually
<b>Intermediate Result (Component 3): Road Safety Management</b>												
Development and Implementation of road safety strategy			iRAP assessment complete	Process initiated to prepare a road safety strategy	GOA adopts a road safety strategy	Road safety integrated in engineering tools	Road Accident data-base operational in pilot locations	Safe Road Demonstration program implemented				
Road safety improvements <sup>36</sup>		Km	0	0	100	150	200	300				As per iRAP surveys

<sup>36</sup> Through implementation of engineering countermeasures identified through the ongoing road safety assessments supported by the World Bank Global Road Safety Facility.

**India: Assam State Roads Project**  
**Annex 2: Detailed Project Description**

1. The project is designed to enhance the effectiveness of the Bank's support by complementing the traditional support for road investments with technical and knowledge support to improve overall road sector management. The improved road sector management will be achieved by facilitating gradual transformation of PWRD into a modern road agency by supporting the incorporation of good practices into sector policies, strategic planning, and project and asset management. Thus, the project will allow GOA to use Bank support to leverage ongoing road development programs and address key sector issues. The project will help GOA to sustain its large road network being developed under various programs and reduce the maintenance backlog through improved maintenance systems and additional resources which will start flowing once the *Road Maintenance Fund* is operationalized. The project will have three components: (a) Road Improvement; (b) Road Sector Modernization and Performance Enhancement; and (c) Road Safety Management

2. **Component 1: Road Improvement:** This component will support improvement of priority sections of the secondary roads to improve state connectivity and facilitate regional integration. It will have the following sub-components.

3. **Sub-component 1 (a): Civil works for about 500 km of priority sections of secondary roads (consisting of 300 km of road widening and upgrading, and 200 km of pavement rehabilitation and strengthening).** The selection criteria, engineering designs, and contract packaging are detailed below:

- **Selection of the Road Improvement Works:** PWRD undertook a strategic options study in 2002, followed by a comprehensive road re-classification exercise to define and establish a coherent secondary road network of SHs and MDRs. The network was established using the Indian Roads Congress (IRC) guidelines and through extensive stakeholder consultations, both at state headquarters and in the districts. The road sections selected for this sub-component have been identified as priority sections of the major traffic corridors in the secondary road network. These sections have been selected on the basis of their EIRR (minimum 12 percent), regional and state linkages, economic activities and the poverty level within their area of influence, and regional distribution. Missing sections in the existing long corridors have been given priority to maximize the benefits of these corridors.
- **Engineering Designs for Road Improvement Works:** Most of the road designs have been prepared by the PWRD Design Cell, which is equipped with modern road design software. PWRD has also mobilized experienced resource persons to guide its design team and to independently verify the designs. The road designs will also be reviewed by the supervision consultants before the start of construction.
- **Design Standards:** Roads will be improved to mostly two lane standards by adopting uniform standards for a defined section and by providing adequate geometry, pavement, drainage, bridges, and road safety engineering measures including special treatments for

urban sections, improved junctions, and wayside facilities, e.g., parking places and bus stops. Total formation width has been kept 9-12 m as per IRC standards and site conditions; gravel/paved shoulders and four lanes or extra widening will be provided in specific locations if warranted by the level of traffic. The designs have been prepared using IRC standards by suitably incorporating treatment for flood affected areas and experience gained from other Bank projects. They also include various measures to mitigate the negative social and environment impacts such as keeping civil works within the existing RoW to reduce/avoid requirements for additional land including protecting forest areas and environmentally sensitive features, improved drainage, slope stability and bio-engineering measures and generous compensatory afforestation.

- **Demonstration Roads:** PWRD plans to improve two road sections as demonstration corridors, using good practice examples available from other Indian states, as well as from other countries, for road geometry, technical specifications, management of social and environment issues, pavement design, roadside facilities, road safety, road signs, and construction technologies. All pre-construction activities, including land acquisition, will be completed before the start of construction to see their impact on contractor performance. These demonstration corridors will be from the Phase II roads and their current designs will be modified as required.
- **Unit Costs:** Unit costs estimated for this project are 10–20 percent higher as compared to other Indian states due to: (a) the relatively large number of rivers and streams to be bridged; (b) high embankments, drainage structures, and protection measures to mitigate flood damages; (c) high cost of road building aggregates due to their long haulage and limited availability; (d) high cost of owning and operating equipment due to the relative scarcity of spare parts and repair facilities; (e) lack of skilled and semi-skilled workers in Assam, resulting in higher wages; and (f) the very limited construction period due to the prolonged rainy season and heavy monsoons.
- **Contract Packaging:** Road improvement works for widening and upgrading have been arranged into 14 contract packages, consisting of two ICB and 12 NCB packages. Road rehabilitation and strengthening works have been arranged in six contract packages. These contract packages are grouped in three Phases: Phase I and Phase II consist of four and 10 contracts, respectively, for road improvement and widening works; Phase III contains all the six packages for road rehabilitation and strengthening works. Road Works of all the three Phases will be implemented simultaneously; bids for all Phase I contracts have been invited. Bids for another 5 contracts from Phase II and Phase III would be invited by mid March 2012. Bids for all the remaining works would be invited during the first six months of the project implementation.

4. **Sub-component 1 (b): Project preparation, implementation, and management support.** This sub-component will support the preparation of engineering designs and related surveys and investigations, including pre-investment studies, engineering supervision of the Bank-funded road improvement works, project management services, and results monitoring (including stakeholders' perception surveys and project impact surveys).

5. **Sub-component 1 (c): Resettlement and rehabilitation assistance to project-affected people, preconstruction activities, and support to HIV/AIDS awareness program.** This sub-component will support: (a) land acquisition; (b) utility shifting comprising water, electricity, telegraph, telephone and communication appurtenances, not otherwise included in the bill of quantities (BOQ) of the main contracts; (c) resettlement and rehabilitation; and (d) training and monitoring.

6. **Sub-component 1 (d): Pilots on innovative technologies.** This sub-component will support demonstration of new technologies and materials in the design and construction of roads and bridges (mostly for the road sections under sub-component 1 (a) above) to achieve: cost-effectiveness; ease of construction; and environment friendly and climate proof road infrastructure to withstand floods and prolonged rains. This will be done with the help of experienced Research and Development, and academic institutions. PWRD has already prepared standard bridge designs using pre-cast beams and has piloted them in a few locations. These will be further modified based on experience gained thus far, and international practices for design and construction of bridges. The modified designs will be piloted through construction (using Bank funding) in a few locations to demonstrate improved designs and their construction to PWRD staff and local contractors.

7. **Component 2: Road Sector Modernization and Performance Enhancement:** This component will support implementation of the RSMP to carry forward and deepen various institutional development initiatives already underway<sup>37</sup>. RSMP will support improved road sector management and institutional effectiveness of PWRD by putting in place good practice sector policies, strategic planning, and project and asset management, and building public and private sector capacities to use those. This component will also support strengthening of PWRD infrastructure including office modernization and strengthening of RRL (equipment for materials testing, surveys and investigations, and training facilities), and bridge and road design cells.

8. GOA has already embarked on a substantial institutional strengthening program, which was supported by the Bank in previous projects. GOA has now prepared a Road Sector Modernization Program (RSMP-2012–2017; Table 3) to further expand and deepen the ongoing institutional strengthening initiatives. RSMP consists of the priority needs identified during various consultations, assessments, and a stakeholder’s workshop organized during project preparation. It will principally focus on: (a) enhancing both the quality of delivery and effectiveness of various road programs; and (b) sustaining the assets created. RSMP elements are linked with actions identified in the project-facilitated Governance & Accountability Action Plan (GAAP), to strengthen the interventions that deal with the operational risks and governance challenges in project implementation. RSMP will be a live document and will be periodically modified during implementation to reflect lessons learned. Various activities under various sub-components of this component are shown in Table 3.

9. **Asset Management and Maintenance:** The project will have a special focus on improved asset management to ensure sustainability of the road infrastructure being built under various programs. The project will support the following activities:

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<sup>37</sup> Mostly consultancy services and goods including some office infrastructure

- ***Establishing a Road Maintenance Strategy*** to define and put in place a clear and comprehensive framework to institutionalize road maintenance in PWRD by incorporating the international best practices for asset management, financing, and execution of maintenance works. GOA has already formulated an initial draft for the strategy.
- ***Asset Management:*** An Asset Management System (AMS) will be developed through suitable modifications in the existing Road Maintenance Management Module of APCP. The AMS will classify the road network into various categories based on traffic and other parameters; define level of service standards for each category; and prepare prioritized plans for capital and maintenance works to achieve and/or maintain the defined standards. AMS will also include a web-based GIS module offering road-inventory and prioritized plans for public viewing. AMS will be institutionalized through a suitable strategy mandating its use as a planning tool, allocation of available funds as per the prioritized plans, and adequate institutional arrangements for using AMS.
- ***Setting Up a Road Maintenance Fund:*** GOA will set up a *Road Maintenance Fund* to mobilize additional funds for road maintenance through various measures. The *Road Maintenance Fund* is expected to be functional within the first year of project implementation. Together with the GOI maintenance grants from the 13<sup>th</sup> Finance Commission and GOA's current level of funding, the *Road Maintenance Fund* will ensure adequate funds for road maintenance.
- ***Road Board Strengthening:*** GOA intends to elevate the status of the existing *Road Board* to an apex body consisting of major stakeholders to provide overall policy direction and oversight to road sector development, specifically on investment decisions, asset management, coordination of various road sector programs, and management of the *Road Maintenance Fund*.
- ***Innovative Maintenance Contracting:*** GOA has already introduced simple models of performance based maintenance contracts to be further refined and scaled-up under the project. These will be funded by GOA.
- ***Gang Labor Productivity:*** The project will support measures to redeploy about 8,000 maintenance gang laborers for productive use.
- ***Improved Institutional Structures and Technologies:*** The existing structure of PWRD will be suitably modified to orient it more towards maintenance ensuring sustainability of its road infrastructure being created under several programs. This will also include improved engineering tools promoting the use of latest technologies and practices used in modern road agencies.



**Table 3: Road Sector Modernization Program (RSMP-2012–2017)**

Key Issues	Reforms already Undertaken/Issues	Reforms to be Initiated/Undertaken during Years 1 to 3	Medium-term Reforms
<i>Modernization of policies, engineering practices, and business procedures</i>			
<p>Lack of a clearly defined and robust policy, as well as a financing and institutional framework to manage the sector.</p> <p>PWRD Code has not undergone any revision since 1954 and many of its provisions are no longer relevant.</p> <p>Inadequate funds for road development and maintenance.</p> <p>Outdated road engineering and business procedures.</p>	<p>GOA established the Assam Road Sector Policy in 2002 that now needs revision to reflect the current priorities.</p> <p>Recently GOA has enacted a Road Act.</p> <p>GOA has established a Road Board as an apex body to provide overall policy direction and oversight to the sector but it needs strengthening.</p> <p>GOA has established a Road Fund to mobilize additional funds for road maintenance through collection of cess and other means. This resource mobilization process is pending.</p> <p>PWRD has set up a Task Force to find ways and means to mobilize adequate resources for road maintenance.</p> <p>PWRD has established an R&amp;R policy, and has begun using modern road design software.</p> <p>PWRD has initiated the process to revise the PWRD Code and to prepare a procurement and contract management manual.</p>	<p>Revise the existing policy into a long term and comprehensive sector development policy covering strategic planning, asset management, maintenance, safety, financing, capacity building, and modernization aspects.</p> <p>Revise PWRD codes and other operational manuals using good practice examples from other Indian states and international practices.</p> <p>Prepare a procurement and contract management manual for PWRD wide use.</p> <p>Set up and operationalize a Road Maintenance Fund measure to ensure adequate and regular stream of maintenance funds.</p> <p>Strengthen the Road Board so that it can effectively assume its intended role and responsibilities.</p>	<p>Using the umbrella of the Road Sector Policy, develop separate strategies on specific issues such as road sector financing, safety, and human resources development.</p> <p>Introduce pilot PPP projects and other improved methods of bidding for road improvement works.</p> <p>Undertake value engineering assessments of existing practices to achieve cost-effectiveness and better level of service. Prepare manuals for project preparation and construction to reflect the findings of the assessment and integrating social, environment, engineering, and road safety aspects.</p>

<b><i>Asset Management and Maintenance</i></b>			
<p>Lack of systematic road network planning and rational criteria to make investment decisions.</p> <p>Inadequate maintenance: Most government programs focus on road construction without ensuring subsequent maintenance of the assets created.</p> <p>There is a lack of clearly defined policies to plan, fund, prioritize, and implement maintenance works.</p>	<p>PWRD has established a secondary road network through a road reclassification exercise.</p> <p>PWRD has started to prepare annual maintenance plans using the maintenance management module under APCP.</p> <p>PWRD has introduced simple performance based maintenance contracts in one district.</p> <p>PWRD has started to prepare a road maintenance strategy.</p>	<p>Define and adopt design, construction, and maintenance, and level of service standards for various categories of roads.</p> <p>Modify and enhance the current maintenance management module of APCP into an AMS with GIS interface and use it to prepare multi-year/annual prioritized plans for capital and maintenance works. AMS will have a web-base facility allowing road inventory data-base for public viewing. At least 80% of the funds to be used according to the priorities established under AMS.</p> <p>Scale up the system of performance-based maintenance contracts/other improved systems of maintenance contracting to a minimum of five districts including the use of latest technologies.</p> <p>Finalize the road maintenance strategy within the overall framework of the road sector policy</p>	<p>Undertake a regional planning and prioritization study to establish a strategic core network consisting of major traffic corridors.</p> <p>Institutionalize maintenance in the PWRD structure by implementing recommendation of the maintenance strategy including facilitating development of specialized maintenance contractors.</p> <p>Scale up the system of performance-based maintenance contracts/other improved systems of maintenance contracting to the remaining districts of the state.</p> <p>Evolve and implement measures to improve gang labor productivity by redeploying them to productive uses.</p>
<b><i>Institutional Development and Performance Enhancement of PWRD</i></b>			
<p>Low institutional effectiveness and sub-optimal performance of PWRD.</p> <p>Inadequate capacity of PWRD staff and their limited exposure to modern industry practices.</p> <p>Low productivity and</p>	<p>PWRD established an ISAP based on an institutional study in 2005 and implemented many initiatives contained in it.</p> <p>PWRD has implemented various training programs for its engineers.</p> <p>PWRD has established a Centre of Excellence.</p> <p>PWRD has established a Road Design</p>	<p>Prepare a comprehensive plan to modernize various units of PWRD (through an institutional and sector expenditure review) so as to improve their efficiency, productivity, service delivery, transparency, and value for money of sector investment.</p> <p>GOA takes a policy decision to allocate sufficient budget for institutional development and modernization of PWRD.</p>	<p>Implement productivity and efficiency enhancement, re-training, and other measures as per the plan prepared through the institutional and expenditure review for the mechanical staff, maintenance gangs, and other PWRD staff.</p> <p>Strengthen the Centre of Excellence by inducting highly qualified and motivated staff and acquaint them with</p>

<p>inefficient use of some staff such as mechanical wing and gang labor.</p> <p>Delays in project preparation and implementation.</p> <p>Low capacity of construction industry.</p>	<p>Cell and implemented and strengthened its Bridge Design Cell and Road Research Laboratory.</p>	<p>Prepare and implement an HR professional growth strategy including a training plan that ensures at least a week of professional training per year to all PWRD staff.</p> <p>Strengthen the bridge and road design cells, and RRL with modern equipment and training infrastructure.</p> <p>Prepare a capacity enhancement program of the local construction industry, including an assessment of the feasibility of establishing an academy of construction, as well as a private sector-led equipment bank to lease equipment to contractors.</p>	<p>the latest road industry examples available locally and internationally.</p> <p>Implement the capacity enhancement program of the construction industry, including divesting existing PWRD equipment to the private sector, establishing an academy of construction to train contractors staff, and establishing a private sector managed equipment Bank (if found feasible).</p>
<p><b><i>Streamlining, standardizing, and computerizing key business procedures of PWRD</i></b></p>			
<p>Delays in decision making, low staff productivity, inadequate record keeping, poor data-base, and lack of efficient business procedures</p>	<p>PWRD has implemented APCP covering 12 offices. This takes forward automation of the various processes for project approvals, procurement, contracts payments, and project management, and simultaneously initiated the process to refine and standardize the main business processes of PWRD.</p>	<p>Establish an IT strategy for PWRD</p> <p>Prepare a project cycle manual to further refine and standardize key business processes of PWRD and initiate roll out of APCP to 20 more offices of PWRD using the manual.</p>	<p>Scale up APCP in 80% of locations according to the project cycle manual.</p>

10. **Component 3: Road Safety Improvement Component:** This component will support building of road safety management capacity of related agencies through developing and implementing a multi-sector road safety strategy including: a safe corridor demonstration program and road safety improvement projects on identified road sections; development and operationalization of a road accident database and management system; building road safety capacity for PWRD during design, construction and operation stages; and awareness programs on road safety and work zone safety. It will also support implementation of engineering counter-measures<sup>38</sup> for 300 km of roads under Component 1.

11. **Capacity Building of PWRD Design Cell:** This sub-component will finance technical assistance to the PWRD Design Cell to ensure that the International Road Assessment Program (iRAP) recommendations on engineering counter-measures are fully integrated in the detailed designs of the road improvement works for the 300 km of upgradation roads under the project.

12. **Road Safety Strategy and Projects:** This sub-component will provide support to the GOA in developing a road safety investment strategy which includes short, medium and long-term projects, and related monitoring and evaluation tools. The following activities will be financed under this sub-component:

- Technical assistance to review road safety management capacity in Assam and develop a road safety investment strategy;
- Implementation of selected high priority short term projects identified as per the strategy;
- Development and implementation of a crash data collection and management system;
- Development of a robust monitoring and evaluation system to monitor the performance of all projects implemented under the road safety component of ASRP.

13. **Implementation of a Safe Corridor Demonstration Program:** This sub-component will support the development, implementation, and evaluation of a result focused multi-sector Safe Corridor Demonstration Program. The road section(s) that will constitute the safe corridor(s) are yet to be finalized. The following activities are proposed to be financed under this program:

- Improving the engineering condition of the two safety corridors based on the iRAP recommendations, to achieve a minimum of three-star safety rating.
- Strengthening the enforcement activities along the corridors by providing necessary consulting services, training and equipment (e.g., speed control radars and breath analyzers) to traffic police units responsible for the corridors.
- Enhancing road safety education, and awareness for the population using and residing along the corridor; this will include targeted awareness campaigns for specific risk factors (e.g., drunk driving, helmet and seat belt use, etc.). It is expected that this initiative would lead to development of a framework for targeted mass campaigns through the electronic and print media, partially supported by the project.
- Improving the emergency medical response time and trauma care along the corridors by providing technical assistance, training and equipment for response teams (“108” service).

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<sup>38</sup> Based on the road safety assessments being undertaken by PWRD with the support of World Bank Global Road Safety, as part of a Bloomberg RS10 Project.

14. ***Capacity Building for PWRD Staff:*** This sub-component includes the establishment of a Road Traffic and Safety Unit in PWRD to undertake various road safety initiatives. It will finance delivery of necessary capacity building programs and equipment to assist the development of engineering guidelines and best practice manuals for traffic and construction safety, formulate standards on safety inspection/audit, and also formulate a state-wide rolling program of safety improvement.

**India: Assam State Roads Project**  
**Annex 3: Implementation Arrangements**

**Project Institutional and Implementation Arrangements**

1. **Overall Implementation Strategy:** The project will be implemented by PWRD, using its existing structures to the extent possible through support from other GOA departments, including transport, police, health, revenue, forest, and district collectors and local offices. An adequately staffed Chief Engineer office has been functional in the state for more than a decade to implement various Bank funded projects, including the rural road improvements under ARIASP and AACP, the State Technical Assistance Project, other technical assistance activities, and project preparation activities related to this operation. The CE office will be responsible for implementing the project under the overall guidance of the Commissioner PWRD and a High Level Project Steering Committee. The CE office has designated units for engineering designs, procurement, contract management, social, environmental, financial management, computerization, institutional development, governance and accountability, and road safety. The CE office has engaged retired revenue officers and environment specialists to facilitate land acquisition, utility shifting, and forest clearances for road works.

2. The current structure of the CE Office is the following: A CE, a Superintending Engineer (SE), four Executive Engineers (EEs), and eight Assistant Executive Engineers (AEEs)/ Assistant Engineers (AEs), each designated with different responsibilities under the project; two experienced Environmental and Social Management consultants to manage social and environmental safeguards management issues; and several mid/junior engineers (JEs), social and environmental staff, and other support staff. The financial management aspects, including responsibility for all project related payments, will rest with ASRB. An officer from GOA's finance and accounts cadre has been designated as the Senior Financial Advisor of ASRB.

3. **Operations Manual (OM):** An Operations Manual has been prepared by PWRD. It defines detailed implementation arrangements for various project components, including project monitoring, procurement, fund flow, financial management, and management of social and environmental aspects. OM has been agreed by the Bank. PWRD is undertaking necessary internal approvals to operationalize the OM. It may also be modified as required, during the project implementation based on the implementation experiences. Any modification in the OM has to be agreed with the Bank.

4. **Implementation Arrangements in the Project Districts:** PWRD established separate state road divisions in each district in 2005. These will be responsible for implementing all project related activities in their respective districts, including employer's representatives for the road strengthening and widening works, implementation of road rehabilitation works, land acquisition and forest clearances, operationalization of AMS including data-collection, preparation, and implementation of performance-based or other maintenance contracts, implementation of activities under the road safety component, and coordination with local administration and local communities.

5. PWRD SEs in the field will closely monitor and guide the field divisions in implementing all project related activities in their respective jurisdiction. The SEs will undertake regular

management meetings with the contractors, and also coordinate with the district administration, forest department, water supply, electricity, and revenue departments to resolve any land acquisition, site readiness, material availability, and law and order or social issues.

6. **Road Coordination Committee:** Wherever required, PWRD will constitute road coordination committees consisting of local leaders and educated persons to mobilize community support for road construction and project implementation and to establish a channel for receiving community feedback on project implementation.

7. **Project Management Consultant (PMC):** The PMC consultant will be mobilized to provide high quality technical advice and implementation support to PWRD. The PMC will also undertake half-yearly project performance audits of the overall project.

8. **Resource Persons:** Experienced resource persons will be engaged on need basis to provide implementation and knowledge support to PWRD, especially on asset management, computerization, maintenance, sector policies, engineering designs, quality assurance, road safety, and construction industry development.

9. Table 4 summarizes the implementation arrangements for the project.

**Table 4: Implementation Arrangements**

<b>Identity</b>	<b>Role and/or Responsibility</b>	
<b>Overall Implementation Arrangements</b>		
High Level Project Steering Committee	Overall project monitoring, interagency coordination, guidance, and high level project related decisions by GOA. The Committee will meet each quarter during the project implementation.	
Commissioner, PWRD	Overall project performance monitoring and guidance to PWRD on project implementation, and assignment of responsibilities within PWRD; coordination with other GOA departments.	
CE office	Overall responsibility of project implementation, all project related procurements, and coordination with various units of PWRD and GOA offices.	
Assam State Roads Board	All financial management aspects, i.e., receiving project funds from the finance department, making all project payments, accounting and financial reporting, and project audit.	
PMC	Technical assistance and proactive implementation support to all project related activities including regular performance audits	
Field divisions of PWRD	Implementation of all project related activities in the field.	
<b>Component I: Road Improvement</b>		
	<b>Project Preparation</b>	<b>Implementation</b>
<b>CE Office</b>	Overall responsibility for project preparation including engineering designs and bid documents, preparation of RFPs for different consultancies (construction supervision, project management, engineering designs, etc.).	Overall responsibility for implementation of various project components. Implementation of RAP and EMP; timely decision for award of work contracts/consultancies. Review of progress, coordination with districts, and management meetings with contractors/consultants. Interdepartmental coordination for speedy and timely resolution of issues like forest

		clearances/shifting of utilities.
<b>Superintending Engineers</b>	Reviewing engineering designs for cost-effectiveness and soundness, assistance in bid evaluation, coordination with revenue, forest, and other GOA departments.	Holding of management meetings by employer's representative in the field with contractors and consultants on regular basis, resolution of issues for timely and speedy construction of the work, facilitation of the land acquisition process, and site readiness issues.
Bridge Design Cell	Development of innovative bridge designs.	Overall supervision and monitoring of the pilot project on innovative bridges.
Construction Supervision Consultants	Reviewing of engineering designs and making of suitable changes with the approval of the CE.	Construction supervision of road improvement works as engineer. Monitoring on a regular basis the quality of construction, execution of works, certification of the contractors bills, and monitoring of RAP and EMP implementation. For road rehabilitation and strengthening works, the supervision consultants will only monitor the quality of construction and compliance to contract specifications.
PWRD Field Divisions	Preparation of initial engineering designs including ground surveys, assessing land acquisition, forestry clearances, and utility shifting. Liaison with the concerned district officers for timely and speedy land acquisition, tree cutting, and shifting of utilities.	Implementation of road rehabilitation works as engineer. Employer's representative for road widening and strengthening works. Responsible for land acquisition, shifting of utilities, and other site readiness activities, monitoring the quality of construction, and certification of contractors bills.
Design Consultant	Preparation of engineering designs including screening of projects from environmental and social as well as economic aspects, and preparation of environmental management plans and RAP.	Finalization of design changes during execution of works.
NGOs		Providing support to PWRD in the implementation of RAP and EMP.
Independent Consultants for Evaluation of RAP Implementation		Mid-term and end-term evaluation of RAP implementation.
R&D institutions	Technical advice on introduction of innovative technologies	Monitoring the construction of roads using new technologies
<b><i>Component II: Road Sector Modernization and Performance Enhancement</i></b>		
Road Reforms and Modernization Task Force (RRM-TF)	Overall implementation of RSMP.	
Sub-Groups of RRM-TF	Responsible for different tasks like Policy, Planning, Procurement and Contracting, Human Resources Development, Computerization, Management Information System, Monitoring and Evaluation, Quality, Design and Standards,	



	Social and Environment, Asset Management and Maintenance, and Governance.
CE Office	Coordination of activities of the sub-groups for proper and timely implementation.
IT Cell	Overall responsibility of the APCP including rollout of various modules of APCP to the remaining field offices of PWRD.
RRL	Design and implementation of pilot projects on new technologies and all training activities.
CMO	Overall responsibility for implementation of GAAP with support from various units of PWRD.
<b><i>Component III: Road Safety Management</i></b>	
Road Safety Working Group	Managing all activities of the road safety component.
CE ARIASP, Traffic Cell , and RRL	Implementation of various activities with the assistance of RRL. CE office will be responsible for overall coordination with various departments.

## **Financial Management, Disbursements, and Procurement**

### *Financial Management*

10. Assam State Roads Board (ASRB), a society registered under the Societies Registration Act, 1860 and under the administrative control of PWRD, has been authorized by GOA to receive the project funds from the finance department. ASRB was set up in 2003 and is currently responsible for the implementation of the GOI-funded PMGSY, which is the main program, with approx US\$300 million being received from the Ministry of Rural Development (MORD) and five other small schemes funded by GOA and other agencies. The CE (ARIASP & RIDF), who is the Project Director, will be designated as the drawing and disbursement officer for the project.

11. ***Budget and Funds Flow:*** Project funds will flow through the budget of GOA, for which necessary provision has been made in the 2011–12 budget for both the Bank share and counterpart share. The Funds will be drawn from the state treasury in advance on a quarterly basis to meet the expenditures of the project. This will be based on both the projected fund requirements and submission of periodic utilization report. The funds drawn will be deposited into a project specific ASRB bank account to be opened in a scheduled commercial bank.

12. ***Accounting Arrangements in ASRB:*** The accounting and financial management systems in ASRB are scheme-based. The respective CEs managing the individual schemes are responsible for contract payments, accounting and financial reporting to respective funding agencies, e.g. GOI/GOA, etc. The ASRB will also follow a project specific accounting system with a centralized payment and accounting function. This will include:

13. ***Centralized payment of all contract payments and statutory dues<sup>39</sup>:*** This will be done by way of advice from the project to the scheduled commercial bank for direct credit to the bank account of the contractors. The advice prepared will be based on certified running bills/PCs, memorandum of payment, and authorization statements submitted by the concerned EE and approved by the supervision consultants. The project will issue a payment advice to the Bank after certain checks, which will include (i) ensuring that cumulative payment against running bills does not exceed the contract value and arithmetical accuracy; (ii) bank guarantee is valid

<sup>39</sup> Based on the model currently followed by ASRB for the GOI-funded PMGSY

and in force and insurance is valid; and (iii) appropriate deduction of taxes as per agreement and adjustments for retention money and mobilization advances. Appropriate service standards will be documented based on agreement with the selected bank to ensure that there are no significant delays in effecting the payments. With respect to statutory payments (IT, VAT, Forest Royalty and Labour Cess) advice will also be sent to the bank along with the challans and after payment, the challan will be sent to EEs for issue of TDS certificate to the contractors.

14. **Decentralized payments:** Payments relating to R&R and operating costs will be decentralized. The payments for R&R will be made by account payee (bearer cheques for payments below Rs 5,000), for which the EEs will receive an imprest. At the end of the month, all the vouchers along with a statement of expenditure and bank reconciliation will be sent to the CE Office for accounting and replenishment of funds/imprest.

15. **Accounting and financial reporting:** All payments will be effected between the 1st to the 25th of every month, and the accounting records (cash book & off the shelf accounting system) will be regularly recorded. At the end of the month, the accounts will be updated based on reports/vouchers from the divisions related to R&R and operating costs. This will facilitate generation of monthly, quarterly, and annual financial reports/statements. The current in-house capacity with respect to financial management within ASRB as an entity is limited to payments and recording in cash book. Accordingly the senior financial advisor of ASRB (on deputation from the finance cadre of GOA) has been designated as the head of the project finance function and is supported by an accountant on deputation from PWRD. This will be augmented by contracting a qualified accountant and additional accountants deputed from PWRD or on contract. Based on actual implementation experience in the first year, the need for part-time accounting support from a firm of chartered accountants will be assessed.

16. **Internal Control and Contract Management and Variations:** The internal control aspects have been documented in the Operations Manual of the project. Variations beyond 15% of the original contract value will be subject to prior review by the Bank. Approval for other variations shall be in accordance with the provisions in OM with necessary checks and balances. Contractor ledger will be maintained to monitor payments, variations (both BOQ-related and price variations). As all contractors, consultancy, and statutory dues are proposed to be centralized, no internal audit is proposed. The Project Management Consultants will carry out periodic performance review of the project implementation.

17. **Audit Arrangements:** The external audit of the project financial statements will be carried out by the AG, independent of the annual entity audit report of the Board. This would be as per the standard TOR agreed between DEA, CAG and the Bank. Accordingly, the following reports will be monitored in ARCS:

<b>Implementing Agency</b>	<b>Audit</b>	<b>Auditors</b>	<b>Due Date for Audit Submission</b>
CE Office, ASRP	Project financial statement	CAG	30th September (6 months after the end of each fiscal year)
DEA/GOI	Designated account	CAG	30th September (6 months after the end of each fiscal year)

18. With a view to enhancing transparency and disclosure, the annual audit report and audited financial statements will be hosted on the website of the project.

#### *Disbursements*

19. ***Disbursement Arrangements:*** Disbursements will be based on quarterly Interim Unaudited Financial Reports (IUFs) which will be submitted to the Bank within 45 days of the end of each quarter through the office of CAAA. A Designated Account (DA) would be maintained in the Reserve Bank of India for the project and would be operated by the CAAA. The overall ceiling for the advance is USD 25 million. The initial advance amount into the Designated Account and subsequent increases upto the established ceiling will be based on the projected needs of the project and will be made at the request of project authorities through GOI. This will be maintained throughout the project life and adjusted towards the end of the project. The Bank will replenish DA equivalent to the amount claimed on eligible expenditure by the project and as reported in the IUFs.

20. ***Retroactive Financing:*** Project expenditures incurred after June 1, 2011 up to a maximum of US\$10 million, will be eligible for retroactive financing.

#### *Procurement*

21. ***General:*** Procurement for the proposed project will be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works and Non-Consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers" dated January 2011 (Procurement Guidelines); and "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers" dated January 2011 (Consultancy Guidelines); and the provisions stipulated in the Legal Agreement.

22. ***Procurement Capacity and Risk Assessment of Implementing Agency:*** All procurement under the project will be undertaken in PWRD by the CE Office, which is familiar with Bank procurement procedures through implementation of ARIASP and AACP. The Procurement Capacity Assessment carried out by Bank staff concluded that the staff in the CE Office has little experience in procurement for works using ICB method of procurement in Bank projects and staffing arrangements for handling various procurements under the projects require strengthening. As a result, the procurement risk has been assessed as "Substantial". As risk mitigation, PWRD has established a procurement unit in the CE office having 6 designated officers to handle all procurement matters as a prime responsibility. The Bank team has provided training and support to PWRD officials who will be involved in project procurement. PWRD will also develop a comprehensive training program to be implemented over the life of the project, including on procurement and contract managements. OM will include all procurement processes, decision making, and safe upkeep and management of records. PWRD will also establish a comprehensive system for handling complaints as a part of the GAAP.

23. ***Procurement of Works:*** The road improvement works involving widening and strengthening are envisaged to be procured in 14 contract packages consisting of two ICB and 12 NCB packages. The road rehabilitation and strengthening works are envisaged to be procured in six contract packages. Discussions with project authorities and interaction with the contractors

during the project preparation indicated that international bidders are unlikely to participate in packages below US\$20 million due to logistical problems and low working season. At the request of the project, the Bank has agreed to increase the ICB threshold to US\$20 million. Contract packages are in the range of US\$2 million to US\$30 million. Bids for the four Phase I contracts of the first 109 km of roads have been invited and for another five contracts pertaining to Phase II and III are expected to be invited by mid March, 2012.

24. **Procurement of Goods, IT System, and Non-Consulting Services:** Procurement of goods for the proposed project will include purchase of road safety equipment, survey equipment, computers, software, laboratory equipment, furniture, etc. The procurement plan for goods will be developed during project implementation. While some proprietary software will be procured by direct contracting, other goods and software will be procured by ICB, NCB, shopping, and/or using Director General of Supplies and Disposals (DGS&D) rate contract within the shopping threshold.

25. **Selection of Consultants:** The project includes several major consultancy contracts: (a) Construction Supervision; (b) Project Management Consultant (PMC); (c) Road Asset Management System; and (d) Consultancy Services for preparation of DPR for Stage-II roads (second phase). RFP for Construction Supervision Consultancy has been finalized and that for selection of PMC is expected by March, 2012.

26. **e-Procurement:** The Bank assessed and cleared the e-GP system of PWRD for single envelope system which will be used for all NCB works for Phase-II and Phase-III.

27. **Procurement from Government-owned Entities:** The project does not envisage use of Bank funds for any goods and services to be sourced from government-owned entities. However, in the event that certain goods, works, and services are required to be sourced from government-owned entities, such procurement shall be subject to meeting the eligibility criterion in paragraph 1.10 (b) of Procurement Guidelines and paragraph 1.13 (b) of Consultants Guidelines. Otherwise, such goods, works and services shall be procured using GOA funds.

28. **Procurement Plan:** For contracts to be financed by the Bank, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time-frame will be agreed between the Borrower and the Bank in the procurement plan. The procurement plan for the first 18 months of project implementation has been prepared by PWRD and the same has been agreed by the Bank. The procurement plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. It will also be available on the Bank's external website. The table below summarizes the thresholds for the various methods of procurement for goods works and consultancy services and the Bank's prior review thresholds for each.

**Table 5: Thresholds of Various Methods of Procurement**

	<b>Method of Procurement /Selection</b>	<b>Prior Review Threshold (US\$ Equivalent)</b>	<b>Remarks</b>
Works	International Competitive Bidding for estimated cost > US\$20 million.	>5,000,000	
	National Competitive Bidding for estimated cost >US\$30,000 and up to US\$20 million.	>5,000,000	In addition, the first NCB contract for works irrespective of value will be subject to the Bank's prior review.
	Direct Contracting as per paragraph 3.7 of Guidelines.	>10,000	For direct contracting less than US\$10,000, in principle clearance to be obtained before proceeding for procurement.
	Shopping for estimated cost up to US\$30,000.	Nil	-
Goods, IT System, and Non-Consulting Services	International Competitive Bidding for estimated cost > US\$300,000.	>500,000	In addition, first contract under ICB and NCB for each of Goods, IT System, and Non Consulting Services irrespective of value will be subject to Bank's prior review.
	National Competitive Bidding for estimated cost >US\$30,000 and up to US\$300,000.	>5,00,000	
	Direct Contracting as per paragraph 3.7 of Guidelines.	>10,000	For direct contracting less than US\$10,000, in principle clearance of Bank to be obtained before proceeding for procurement.
	Shopping for estimated cost up to US\$30,000.	Nil	-
Consultancy Services	Competitive Selection for firms (Quality and Cost-based Selection; Quality-based Selection; Fixed Budget; Least Cost Selection; and Selection Based on Consultant's Qualifications).	> 200,000	In addition, first contract for each method of selection irrespective of value will be subject to the Bank's prior review.
	Single Source selection for firms as per para 3.8–3.10 of Guidelines.	>10,000	For contracts less than US\$ 10,000, in principle clearance to be obtained before proceeding for procurement.
	Individual Consultant as per para 5.1–5.6 of Guidelines.	>50,000	

- Notes: (a) Pre-qualification: Pre-qualification is not envisaged for any contract.  
(b) Works estimated to cost less than US\$20,000,000; and Goods and IT equipment estimated to cost less than US\$300,000 equivalent per contract may be procured

under contracts awarded on the basis of NCB procedures as per paragraph 3.3 and 3.4 of the Procurement Guidelines and the following additional provisions:

- Only the model bidding documents for NCB agreed with the Government of India Task Force (and as amended from time to time) shall be used for bidding.
  - Invitations to bid shall be advertised in at least one widely circulated national daily newspaper, at least 30 days prior to the deadline for the submission of bids.
  - No special preference will be accorded to any bidder either for price or for other terms and conditions when competing with foreign bidders.
  - Except with prior concurrence of the Bank, there shall be no negotiation of price with the bidders, even with the lowest evaluated bidder.
  - Extension of bid validity shall not be allowed without the prior concurrence of the Bank (i) for the first request for extension if it is longer than four weeks; and (ii) for all subsequent requests for the extension irrespective of the period (such concurrence will be considered by the Bank only in cases of Force Majeure and circumstances beyond the control of the implementing agency).
  - Re-bidding shall not be carried out without the prior concurrence of the Bank. The system of rejecting bids outside a pre-determined margin or “bracket” of prices shall not be used in the project.
  - Rate contracts entered into by the DGS&D will not be acceptable as a substitute for NCB procedures. Such contracts will be acceptable for any procurement under shopping procedures.
  - Two or three envelope system shall not be used.
- (c) Advance procurement and retroactive financing: Retroactive financing up to an amount of US\$ 10 Million will be available under the project, for financing expenditures incurred within 12 months prior to the date of Loan signing to procure eligible activities procured under agreed guidelines.
- (d) Domestic Preference: The provisions of Appendix-2 of the Procurement Guidelines, providing for domestic preference in the evaluation of bids, are not applicable as requested by the PWRD.
- (e) Short list comprising entirely of national consultants: Short list of consultants for services, estimated to cost less than \$500,000 equivalent per contract, may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

29. Summary of the Procurement Packages and Consultancy Services in the Procurement Plan Subject to International Competition.

**Procurement Packages (Works, Goods & IT System)**

Ref. No.	Contract Description	Estimated Cost (US\$ million)	Procurement Method	Pre-Qualification	Review by Bank (Prior / Post)	Expected Bid Opening Date
<b>Works</b>						
ASRP/P1S1/ICB/S H-46/ 1	Improvement of Dudhnoi Goalpara Road	29.66	ICB	No	Prior	Feb, 2012
ASRP/P1S1/ICB/SH-2(CM)/5	Improvement of Chapaguri Manas River Road	25.67	ICB	No	Prior	May, 2012
<b>IT System</b>						
APCP/G-IT/16	System integration for scaling up and rolling out the APCP  Note: Out of the total estimated cost of US\$ 8.7 million, an amount of US\$ 1.02 million is included under DFID Trust III and balance under ASRP	8.7	ICB	No	Prior	Dec, 2012

**Consultancy Services**

Ref. No.	Contract Description	Estimated Cost (US\$ million)	Selection Method	Review by Bank (Prior / Post)	Expected Date of Proposal Submission
C-1	Construction Supervision Consultancy for stage - I of Phase-I roads( civil costs of stage-I roads	10.18	QCBS	Prior	Feb, 2012
C-2	Consultancy services for preparation of Detailed Project report for stage-II of Phase -I roads (300 kms)	1.11	QCBS	Prior	Dec, 2012
C-4	Consultancy services for Project management during the implementation of the project	3.00	QCBS	Prior	May, 2012

30. **Post Review:** All contracts not covered under prior review by the Bank will be subject to post review during Implementation Support Missions and/or special post review missions, including missions by consultants hired by the Bank.

**Environmental and Social (including safeguards)**

*Social*

31. **Impacts:** The project will have positive social impacts by improving the secondary road network which will benefit the large rural population of Assam, businesses in the project area, and indirectly the entire NE region. While the project has made efforts to avoid land acquisition and resettlement, it will still require a limited amount of both. In addition, the population in the project area includes indigenous people, some of whom will also be affected by land acquisition and involuntary resettlement. As such, the project triggers OP 4.12 on Involuntary Resettlement, as well as OP 4.10, Indigenous Peoples.

32. **Land Acquisition and Impacts:** A social assessment carried out as part of project preparation found that most of the road widening and improvement work will not require extensive resettlement. Wherever possible, road improvement work will be carried out within the existing ROW. Approximately 80 percent land is available in stretches for Phase I roads. Consultations with affected communities helped to minimize the extent of resettlement as well as adverse effects on common property resources (CPR) and road safety. Outputs from the assessment have been integrated into the design where technically feasible.

33. The land acquisition process has been initiated for all Phase I and for most Phase II roads.

34. Resettlement Action Plans (RAPs) have been prepared for the first and second phase of the project, where the land acquisition and resettlement requirements have been identified. The Resettlement Policy Framework (RPF) has been prepared to help mitigate any unforeseen adverse impacts for phase III roads which are primarily rehabilitation roads. These RAPs and the RPF are consistent with Government laws and guidelines, as well as the Bank OP 4.12. The RAP and RPF have been prepared through many rounds of formal and informal consultations throughout the project area with both primary and secondary stakeholders. These consultations provided inputs to the various environmental and social issues and in identification of the felt needs of the communities.

35. The RAPs and the RPF (were disclosed in-country on July 19, 2011 and in the Bank's InfoShop on July 27, 2011.

36. **Scope of Land Acquisition and Resettlement:** The table below summarizes the number of affected persons and the extent of land to be acquired for the project.

**Table 6: Details of Project Affected Persons and Extent of Land Acquisition Required**

Impact Category	Number	
	Phase I	Phase II (estimated)
Private land (in ha)	13.173	29.154
Number of persons	3,630	1,088
Number of families	1,315	3,000
Displaced families	173	
Common property resources		
Religious	31	22
Community owned	7	0
Government owned	63	36
Private structures		
Residential structures	467	254
Commercial structures	570	698
Residential cum commercial	50	12



37. **Compensation:** GOA has prepared a project specific resettlement and rehabilitation policy (R&R Policy) for the project, comprising an Entitlement Matrix, which is acceptable to the Bank. The Entitlement Matrix along with the complete R&R Policy is part of the project OM.

38. **Income restoration:** Income restoration of those adversely affected is built into the R&R policy. Over and above compensation, the R&R policy has provisions for various kinds of assistance, employment opportunities in the project and skill upgrading/training for self employment for all those who are adversely affected by the project.

39. **Compensation and rehabilitation payments:** Project includes all costs involved for LA and R&R.

40. **Indigenous Peoples (IPs):** Assam has many indigenous communities who are perhaps the most vulnerable sections of the society and the project corridor passes through some of the areas where these communities are settled. Sixty-two IP households are included in the Phase 1 RAPs. An Indigenous People's Development Plan (IPDP), which meets the requirements of OP 4.10, has been prepared for the Phase I and II program based on the consultations discussed above and has been disclosed along with the RAPs. The IPDP includes construction of community halls along with drinking water facility, bus shelters and income restoration measures. The IPDP includes an Indigenous Peoples Management Framework (IPMF) to help prepare the IPDP for the Phase III roads.

41. **Institutional Arrangements:** PWRD has established a social and environment Cell headed by an EE and supported by AEs and JEs to guide PWRD and the implementing NGO in addressing social issues. PWRD has also engaged retired revenue officials to assist in land acquisition issues. To accelerate the speedy implementation of the project, a state-level R&R and district-level R&R Cell have been constituted. These cells are entrusted with the responsibilities of looking after the implementation of RAP as per the provisions of the R&R Policy. NGOs will assist PWRD in implementing the RAP and the IPDP. NGO will work as an interface between the PWRD and the PAPs and the tribal communities. It will train and orient the PAPs and tribal community on planning, formulation, preparation and execution of an annual action plan.

42. **Grievance Redress:** GOA will set up district-level Grievance Redress Cells to address grievances of PAPs related to implementation of the RAP and the IPDP. Each cell will include a representative of the PAPs.

43. **Monitoring and Evaluation:** RAP implementation will be closely monitored by qualified specialists, who will report to the Project Director on a monthly basis. The Project Implementation Unit (PIU) will appoint an external monitoring and evaluation agency within the tenth month of project implementation to evaluate the level of compliance with the RAP. The agency will submit its report to the PIU within 30 days upon the completion of the monitoring and evaluation process.

44. **Sexually Transmitted Diseases (STD):** Effective preventive plans for awareness building on STDs and facilitating convergence on state health programs has been included in the

RAPs. Standard clauses for delivery of an HIV awareness program to construction staff have been included in bid documents.

45. **Gender:** As part of gender empowerment, specific self-employment training has been planned to involve women in all stages of the project. The project will also form self-help groups of affected women which will later on will be scaled up to non-affected persons as well.

46. **Road Safety:** Based on the feedback during community consultations, the RAP includes measures to address road safety issues. These include (i) road safety awareness programs and road user education, (ii) junction improvements near built-up areas though dividers and speed barriers near hotspots, (iii) guard rails and cautionary road signs at steep curves.

#### *Environment Management and Safeguards*

47. **Environmental Issues:** In view of the project's potential impacts on the environment, the Bank's OP 4.01 on Environmental Assessment has been triggered, and the project is designated as Category A. Project activities, if not properly managed and mitigated, could have adverse environmental impacts. These include: (a) felling of roadside trees; (b) adverse impacts on water resources (such as beels); (c) impairment to or worsening of the local/regional drainage; (d) construction phase impacts, including those related to campsite operation, dust generation, and pollution from plants, machinery, and vehicles and disposal of debris and other construction wastes; (e) potential indirect impacts on biodiversity rich areas or ecologically important features (such as wetlands); (f) impact on environmentally-sensitive receptors (such as schools and health facilities) located along the road corridors from increased noise and air pollution during the construction and operation stages; and (g) the potential for poorly planned or managed development induced by the improved roads.

48. **Environment Management:** The direct adverse impacts on environment are expected to be limited in nature as the construction works will be largely limited to the existing ROW. However, in view of the geographical/environmental setting of the state, some indirect and/or induced impacts may arise if project interventions are not properly planned or executed. In view of the likelihood of such impacts, the overall environment management strategy and approach for the project involves: (a) Environment Screening, to identify key issues, including those related to biodiversity/wildlife and integration of the findings into the decision making process of sub-project selection/design; (b) Corridor-specific EIA along with preparation of EMP for upgrading works and; (c) preparation of a generic EMP for the rehabilitation works.

49. Management measures are being appropriately incorporated in the engineering design and bidding documents. Slope stabilization/bio-engineering measures using vegetative material have been proposed as part of design interventions to reduce soil erosion, siltation of water bodies, and road maintenance cost apart from improving road aesthetics. In addition to this, the EMPs address construction-stage impacts such as: (a) air and noise pollution including dust generated from material transport, crushers, and asphalt plants; (b) water and soil pollution from spills of fuel, lubricants, and construction camp wastes; (d) operation and rehabilitation of borrow pits, quarries, and construction camps; (e) traffic safety and management; (f) worker's health and safety and; (g) debris management. EMPs also include monitoring plans and reporting arrangements for various environment related activities.

50. **Bio-diversity Management:** In view of Assam's rich biodiversity and as a home to several signature species, including the tiger and one-horned rhinos, biodiversity protection and management forms a key consideration in the overall environmental management approach for the project. There are three key elements of this biodiversity management strategy: (a) avoidance of impacts on critical/ecologically significant natural habitats through a carefully designed screening mechanism; (b) comprehensive assessment and appropriate design of remaining sub-projects (where a balance between local development needs and environmental protection can be achieved through minimization/mitigation efforts) in line with the requirements of regulatory norms and the Bank's operational policies; and (c) creation of tools and systems for improving/strengthening the overall capacity of PWRD in dealing with biodiversity and other environment management issues in a systematic and incremental manner. This will include preparation of a comprehensive guidance manual/codes of practice to deal with environment and social issues and training of PWRD and other associated stakeholders (including Forest and Wildlife Wing officials) on management of biodiversity issues associated with the road sector activities such as selection, design, construction and operation stages.

51. Following the above-mentioned approach and using findings from the environmental screening exercise, no road passing/traversing through a designated protected area will be financed under the project. Work on other roads (located within 10 km but not passing through a designated protected area) will be taken-up only after: (a) a comprehensive environmental impact assessment study, with a focus on wildlife issues has been completed (the sub-project/road will be considered for inclusion under the project only if the findings suggest that project intervention/s are beneficial to people/local communities and would not create adverse impact/s on environment); (b) preparation of a specific environment management plan put together and disclosed after extensive consultation with wildlife experts, NGOs, and local communities and; (c) obtaining of the required regulatory permissions/clearances..

52. Following the above approach, SH-31—Jorhat to Morioni—the nearest point of which is about 2 km from the road from the Hollongapar Gibbon Wildlife Sanctuary, has been included as a part of Phase I. In this case, the corridor-specific EA study (covering identification/ assessment of wildlife issues) including a site specific bio-diversity assessment, and EMP preparation have been completed. The study has established that there are no wildlife related concerns with regard to the up-grading of this road. The main reason here is the buffer of human settlements and other human activities being carried out between the sanctuary area and the road. Also, the required regulatory clearances (such as that from the Chief Conservator of Forests-Wildlife, based on the field report from the concerned Forest and Wildlife Department official) are in advanced stages of processing. The PWRD has confirmed that the road improvement contract will be awarded only after the final clearance letter is obtained.

53. Corridor specific EIAs and EMPs have been prepared and finalized for four roads under Phase 1 program (upgrading works to be taken-up in the first year of the project), in accordance with Bank requirements. The same is in advanced stages for the other sub-projects that would be subsequently taken up under the upgrading works component of the project. In addition, a generic EMP has been prepared for the Phase 2 program (rehabilitation works). An EMF has been prepared to guide PWRD in the overall sub-project selection, screening (including on biodiversity/wildlife issues); carrying out of EIAs; preparation of EMPs for project roads;

institutional arrangements; and monitoring to facilitate compliance with the requirements specified in the World Bank Operational Policies and GOI/GOA regulations.

54. **Consultation and Disclosure:** Consultations with both primary and secondary stakeholders<sup>40</sup> on design proposals were conducted throughout the project area and suggestions/views were sought on environmental and social issues. The Environment and Social Screening Report, EMF, EIAs, and EMPs were disclosed, along with the RAPs and IPDP for Phase 1 works in the Infoshop on July 27, 2011. These documents are also available on the GOA website and were disclosed for public reference on July 19, 2011. The executive summary in the local language has also been uploaded on the GOA website. The safeguard documents have also been placed in the PWRD field offices. Once the implementation commences, regular consultations with local stakeholders on issues related to environmental and social aspects are expected.

55. **Institutional Arrangements:** PWRD has established an Environment Management Cell headed by an EE and supported by an Environment Expert, AEs, and JEs to address environmental management and safeguards related matters of the project.

56. **Capacity Building for Environmental Management:** The project will result in improving PWRD's capacity in its overall management of environment issues through appropriate training programs. To take such initiatives forward, an EMF has been prepared to provide overall guidance, including on aspects related to selection, design, and implementation of sub-projects. The framework would also provide strategic direction on improved wildlife conservation and bio-diversity management.

57. **Monitoring and Evaluation:** The application and implementation of EMF/EMPs will be closely monitored (using parameters prescribed in the EMPs) by qualified specialists (including those on the CSC team), who will report on a regular basis. A comprehensive evaluation report will be prepared by the Environment Management Cell at mid-term and end-term.

58. An evaluation exercise (site-specific) will be carried out by an Independent Environmental Committee (constituting of officials/experts from the forest department, wildlife wing and the State Pollution Control Board) with the assistance of the Environmental Management Cell (PWRD) once a year. A third party audit/review agency will also be selected by the PIU within the first year of project implementation to evaluate the level of compliance with environment, health, and safety requirements and will issue reports every six months.

#### *Overall Monitoring and Evaluation*

59. **High Level Project Steering Committee:** GOA has set up a High Level Project Steering Committee headed by the Additional Chief Secretary, GOA, which includes representatives from PWRD, finance, revenue, forest, information technology, electricity, transport, traffic police, health department, planning, water supply, and other departments of GOA. The committee will

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<sup>40</sup> Primary stakeholders including: (i) the roadside community having their temporary or permanent residences, (ii) roadside shop owners/vendors and (iii) Road users; and secondary stakeholders such as project officials working on road projects in the area, officials from Forest and Wildlife Department, NGOs, and a few academicians.

meet every quarter, or as required, to review progress of project implementation, resolve any inter-agency coordination issues, and facilitate project related decisions that are outside PWRD's immediate purview.

60. ***Monitoring by Commissioner PWRD:*** Commissioner PWRD will review the progress on project implementation every month, which would include undertaking regular review meetings with contractors. The review meetings will be attended by the police, health, and transport departments during the review of the road safety component.

61. ***Third Party Monitoring:*** PWRD will undertake regular quality monitoring of the project roads every quarter, either by RRL or independent experts.

62. ***Stakeholders Perception and Project Impact Surveys:*** Two rounds of road user satisfaction surveys will be carried out, the first after six months of the project implementation and the second just before project completion, to assess the perception of road users on the quality of road infrastructure and the level of modernization and effectiveness of PWRD. Project impact surveys will also be undertaken to identify the social and economic benefits of the improved roads, as well as other impacts of the project.

63. ***Quarterly Progress Report and Monitoring Indicators:*** The physical and financial progress of various project components will be monitored through quarterly progress reports to be prepared by PWRD and submitted to the Bank. The report will include the status of achieving agreed targets for various monitoring indicators. A full-fledged computerized Management Information System (MIS) system will be developed for the project under scaling up of the APCP during the first 18 months of project implementation.

64. ***Results Monitoring and Evaluation:*** Project results will be monitored using the results framework detailed in Annex 1. Most of the data on the status of the result indicators, including road condition, travel time, and road safety ratings, will be collected by PWRD field divisions.

**India: Assam State Roads Project**  
**Annex 4: Operational Risk Assessment Framework (ORAF)**

<b>Project Stakeholder Risks</b>		<b>Rating</b>	<b>Low</b>
<p><b>Description :</b></p> <p>(a) Little support for the proposed project by general public</p> <p>(b) Inadequate cooperation of stakeholder departments leading to delays in land, environmental, and forestry clearances and encumbrance removal.</p>	<p><b>Risk Management:</b></p> <p>(a) Already, there is good public and political support for the project as the demand for the project roads is widely felt by the general public and is long pending with GOA. Awareness of the project and its potential benefits will be disseminated through full disclosure of the project information (as per the GAAP) and public consultations with project-affected communities.</p> <p>(b) GOA has established a High Level Project Steering Committee to coordinate with various departments on land acquisition, utility relocation, and environmental and forestry clearances. The PWRD has also mobilized experienced revenue and forest officers to advise it on these issues.</p> <p>- <b>Resp: Client   Stage: Prep/Imp   Due Date: N/A   Status:</b></p>		
<b>Implementing Agency Risks (including Fiduciary Risks)</b>			
<b>Capacity</b>		<b>Rating:</b>	<b>Moderate</b>
<p><b>Description:</b></p> <p>(a) Risk of poor capacity and oversight of DPRs leading to poor quality of works, and time and cost overruns.</p> <p>(b) Risk of mis-procurement and delays in completion of contracts and/or poor quality of works.</p> <p>(c) Risk of not following agreed FM procedures and reporting arrangement.</p> <p>(d) Delays in submitting harmonized monthly accounting reports may hamper disbursements.</p>	<p><b>Risk Management :</b></p> <p>(a1) Independent reviews of all engineering designs to ensure good quality. PWRD to build in-house capacity through strengthening of road and bridge design cells, enhancing the operation of the newly-established Centre of Excellence and setting up customized training programs for staff for project management.</p> <p>(a2) PWRD to recruit experts/resource persons in various subjects to provide hands-on support in overseeing project preparation and implementation. In addition, a project management consultant will also be mobilized.</p> <p>- <b>Resp: Client   Stage: Prep   Due Date : / Status:</b></p> <p><b>Risk Management :</b></p> <p>(b1) CE Office to put in place a proper structure and ensure a dedicated team to deal exclusively with procurement issues.</p> <p>(b2) CE Office will develop a comprehensive training program, including on procurement and contract management, to be implemented over the life of the project.</p> <p>(b3) CE Office to prepare an operation manual to ensure that procurement processes and decision-making is widely disseminated to staff, that there is safe upkeep and management of records, and that auditing of filing practices is included in the TOR for</p>		

	<p>project audits. (b4) Ensure proper packaging of contracts to allow both ICB and NCB for works.</p> <p>- <b>Resp: Client   Stage: Prep   Due Date : / Status:</b></p>
	<p><b>Risk Management :</b></p> <p>(c) Prepare robust FM manual clearly explaining FM arrangements, auditing, reporting, and disbursement. (d) Establish a computerized FM system in PWRD, such as “TALLY” software.</p> <p>- <b>Resp: Client   Stage: Prep     Due Date : / Status:</b></p>
<p><b>Governance</b> <span style="float: right;"><b>Rating:</b> <b>Moderate</b></span></p>	
<p>(a) Risk of not complying with fiduciary and safeguard policies. (b) Risk of roads lacking adequate facilities and/or safety features to benefit road users. (c) Risk of sustainability of assets due to inadequate funds for maintenance.</p>	<p><b>Risk Management :</b></p> <p>(a) Develop and promote the use of a comprehensive complaint handling system by all project stakeholders and beneficiaries. (b) Conduct periodic Road User Surveys and initiate public information and communications facility/capacity (c) GOA will set up a road maintenance fund that will ensure adequate maintenance funding. Maintenance funding framework will also improve due to maintenance grants from GOI under the 13<sup>th</sup> Finance Commission.</p> <p>- <b>Resp: Client   Stage: Prep     Due Date : / Status:</b></p>
<p><b>Project Risks</b></p>	
<p><b>Design</b> <span style="float: right;"><b>Rating:</b> <b>Moderate</b></span></p>	
<p><b>Description:</b></p> <p>Risk of delayed implementation of TA component.</p>	<p><b>Risk Management :</b></p> <p>TA component builds on the ongoing institutional development initiatives that were launched by GOA of its own. It is also designed keeping in view the needs and acceptability of the PWRD staff.</p> <p>- <b>Resp: Client   Stage: Prep     Due Date : / Status:</b></p>
<p><b>Social &amp; Environmental</b> <span style="float: right;"><b>Rating:</b> <b>Moderate</b></span></p>	
<p><b>Description:</b></p> <p>(a) Unwillingness of some project-affected people to accept the compensation amount worked out by revenue as per the LA Act. (b) Delays in land acquisition and RAP implementation. (c) Delays in obtaining regulatory environmental clearances may affect project implementation.</p>	<p><b>Risk Management :</b></p> <p>(a) Create awareness among PAPs regarding the entitlement matrix, with top-up over the compensation amount through public consultations, publications, and project website. GOA has agreed in principle for negotiated settlement. (b) PWRD already has 80% of the land available intermittently. For the remaining roads, GOA expects to issue notification under section 6 of the LA Act shortly. (c) GOA to hire an NGO or a consultant to implement the RAP, which will be evaluated periodically by an independent consultant. The social cell within PWRD has been strengthened by appointing retired revenue officials with vast experience in LA and R&amp;R issues.</p>

	(d) A representative of the Assam Environment and Forestry Department is on the High Level Project Steering Committee (established by GOA) to facilitate environmental and forestry clearances, from the respective department.		
	- <b>Resp: Client   Stage: Prep</b>     <i>Due Date : / Status:</i>		
<b>Program &amp; Donor</b>		<b>Rating:</b>	<b>Low</b>
<b>Description:</b>			
	- <b>Resp: Partners   Stage: Prep</b>     <i>Due Date : / Status:</i>		
<b>Delivery Monitoring &amp; Sustainability</b>		<b>Rating:</b>	<b>Moderate</b>
<b>Description:</b>			
(a) Risk of delays in project delivery due to long rainy season and floods, and/or weak project management.			
(b) Risk of poor sustainability of assets created under the project.			
(c) Increase in civil works costs compared to appraisal estimated due to implementation delays and additional works.			
	<b>Risk Management :</b>		
	(a1) Adjust the contract duration and contractor’s work program considering the limited working season and duration of rainy season.		
	(a2) Build capacity of PWRD in contract management and dispute resolution, organize regular management meetings with contractors, and close monitoring by project management consultant.		
	- <b>Resp: Partners   Stage: Prep</b>     <i>Due Date : / Status:</i>		
	<b>Risk Management:</b>		
	(b1) Project will establish an improved framework to plan, fund, and implement maintenance works.		
	(b2) International engineering practices will be used for project preparation and implementation, including quality monitoring, thereby ensuring good quality of built infrastructure.		
	- <b>Resp: Client   Stage: Prep</b>     <i>Due Date : / Status:</i>		
	<b>Risk Management:</b>		
	(c1) Review of engineering designs before construction		
	(c2) Making reasonable provisions for price variations and unforeseen works in the original estimates.		
	(c3) Close monitoring of civil contracts to avoid implementation delays.		
	- <b>Resp: Client   Stage: Prep</b>     <b>Due Date :   Status:</b>		



**India: Assam State Roads Project**  
**Annex 5: Implementation Support Plan**

**Strategy and Approach for Implementation Support**

1. The strategy for implementation support has been developed based on (a) the nature of activities involved in the project; (b) their commensurate risk profile in accordance with the ORAF; and (c) the assessed capacity of the implementing agency. Its objective is to make implementation support more flexible, efficient, and responsive to the client's needs. As the overall project risk is rated moderate, and none of the risk categories is rated higher than moderate, Bank implementation support will focus on traditional aspects of project implementation, consistent with Bank requirements.

2. **Technical Aspects:** The Bank will provide technical support through international and domestic sector experts/resource persons in various subjects, who will provide advice on the technical aspects of bid documents as well as on formulating medium and long-term strategies related to improved planning, financing, asset management, safety, and governance aspects. The task team will monitor progress of activities under the Sector Modernization Component in building in-house capacity of PWRD through strengthening of road and bridge design cells, enhancing the operation of the newly-established Centre of Excellence, and setting up customized training programs for staff on project management. The task team will confirm that the project management and other consultant support provided to the project agencies is effective.

3. The Task Team Leader (TTL) will maintain regular contact with key officials of PWRD to exchange views on strategic issues of project implementation and address any critical issues, including compliance with legal covenants and implementation of the recommendations of the performance audits carried out by the PMC consultant in all areas, including procurement, financial management, social, and environment.

4. **Fiduciary Aspects:** Bank FM and Procurement specialists will confirm that: (a) dedicated specialized teams remain in place to deal with procurement and FM issues and the agreed procedures under the OM are widely disseminated and adhered to; (b) procurement is being undertaken as per the procurement plan; (c) the auditing, reporting, and disbursement arrangements are adhered to; and (d) the computerized FM system (e.g., "TALLY" software) is operational. The FM and Procurement Specialists, together with the Governance Specialist, will monitor the disclosure of project information on the PWRD website and the use of a comprehensive complaint handling system by all project stakeholders and beneficiaries.

5. **Environment and Social Aspects.** The environment specialist will provide guidance to PWRD towards effective management of environmental issues during design and construction and will confirm that regulatory clearances are in place. The environment specialist will ensure that the bio-diversity issues are effectively managed by PWRD. The social specialist will ensure that the land acquisition process is functioning effectively and there is timely availability of necessary land for the contractors. The specialist will also ensure that awareness is created among PAPs

regarding the key features of the entitlement matrix through public consultations, publications, and the project website, and that GOA hires an NGO or a consultant to implement the RAP, as well as an independent consultant to periodically evaluate RAP implementation. Both specialists will make field visits on at least a semi-annual basis to ensure that EMPs and RAPs are being implemented in a satisfactory manner and resolve any issues in a timely fashion. They will also ensure that related training programs and capacity building activities are implemented both for PWRD and contractors staff.

### Implementation Support Plan (ISP)

6. The Bank will provide implementation support through regular interactions, semi-annual implementation support missions and, if required, thematic review missions. In addition, project progress will be reviewed during the joint portfolio/sector/state review meetings between GOI and the Bank, as well as through quarterly progress reports. Key members of the Bank team, including the TTL, the highway engineer, as well as specialists in FM, procurement, social, environment, and governance, are mostly based in the India country office, which will facilitate timely, efficient, and effective implementation support to the client. High-level international expertise will be provided through the Bank’s own international staff and experienced consultants in identified areas to introduce best practice road industry examples.

7. The ISP given in the table below indicates the focus areas and skill needs required to provide implementation support during the initial and subsequent periods of the project. It will remain a living document and will be reviewed regularly and updated as and when required during the implementation.

**Table 7: Implementation Support Plan**

Time	Focus	Skills Needed	Resource Estimate (SWs)
First 12 months	Task Team Leadership	Leading the road sector projects	10
	Technical review of the civil works bidding documents	Highway Engineer, Co/TTL	8
		Road Safety Specialist	2
		Procurement Specialist	4
	Road sector reforms	Asset management, public sector reforms, skill enhancement, sector policies, construction industry development	12
	Road safety component monitoring	Road Safety Specialist	2
	Computerization initiative	IT Specialist	4
	Environmental monitoring	Environmental Specialist	2
	Resettlement/Land acquisition/Other social issues monitoring	Social Development Specialist	2
	Review of FM	FM Specialist	2
GAAP, ORAF monitoring	Governance Specialist	4	
Innovative Bridges	Bridge design expert	3	
12–60 months	Task Team Leadership	TTL	7 SWs/year
	Major improvement works, Performance-based maintenance	Highway Engineer	6 SWs/year

	Review of procurement documents	Procurement Specialist	2 SWs/year
	Road sector reforms	Asset management, public sector reforms, skill enhancement, sector policies, construction industry development	10 SWs/year
	Road safety component monitoring	Road Safety Specialist	3 SWs/year
	Computerization initiative	IT Specialist	4 SWs/Yr
	Environmental monitoring	Environmental Specialist	2 SWs/year
	Resettlement/Land acquisition/Other social issues monitoring	Social Development Specialist	2 SWs/year
	Review of FM	FM Specialist	2 SWs/year
	GAAP, ORAF monitoring	Governance Specialist	3 SWs/year
	Innovative Bridges	Bridge design expert	2 SWs/year

Note: SW—Staff Week

**India: Assam State Roads Project**  
**Annex 6: Economic and Financial Analysis**

**Economic Analysis**

1. In 2001, PWRD commissioned a Strategic Options Study (SOS) updated in 2009 which prioritized 1,476 km of roads from the core states' roads network of 8,525 km for improvement. For each of these identified roads, the cost-benefit study determined the EIRR and NPV by discounting the net benefits over the life of the investment at 12 percent. The roads were selected for improvement options based on the NPV and social and environmental consideration. All project roads with EIRR <12 percent were screened out and the roads not justified for upgrading were selected for rehabilitation.

2. The economic appraisal of the proposed project was carried out within the broad framework of cost-benefit analysis under "with" and "without" project situations for a 20-year period for roads selected for upgrading and a 15-year period for those selected for rehabilitation. Cost-benefit analysis compared the benefits accrued to the economy through reduction in vehicle operating costs, time savings for the current traffic, changes in consumer surplus for generated traffic, and savings in operating costs of the diverted traffic with the economic costs of improving and maintaining of roads through the life cycle, and society costs (land acquisition, resettlement, and loss of amenities). The analysis was carried out using HDM-4.

3. **Road Characteristics:** Most of the roads marked out for improvement under the project are currently single lane with a width of 3.5 m or less. These roads have a roughness varying from an IRI of 6 to a high of 12, with majority above 9, classified as very poor.

4. **Unit construction costs** for the upgrading and widening component were based on the analysis and adoption of unit rates collected from different sources and market rates for basic work items as well as the calculation of quantities by the consultants based on the detailed design. Base work costs were increased by about 10 percent for the widening and upgrading component to include physical contingencies, price escalation, and establishment of contractors. The average cost of about US\$650,000 per km includes substantial widening, strengthening, and shoulder reconstruction of the existing single lane and less than two-lane carriageway to 7 m of carriageway and 1 to 1.5 m of shoulders, and about US\$150,000 per km for rehabilitation of a single-lane road.

5. **Traffic:** Traffic estimates for the base year were arrived at through routine traffic counts over seven days at 15 locations for the Phase I roads. Traffic volumes on the roads varied from about 3,000 AADT (Annual Average Daily Traffic) to about 12,000 AADT on the identified roads. Generally, over 50 percent of the traffic consisted of two-wheelers, whether bicycles or motorcycles, and other Non Motorized Traffic (NMT) made up only a small percentage of total traffic.

6. Future traffic demand was assessed based on estimates of normal, induced, and diverted traffic growth. Normal traffic growth was estimated using the elasticity method.

The traffic growth for each of the corridors has been estimated based on the economic potential of the influence area of the project road for local traffic and growth perspective of the adjoining states for through traffic. Three levels of economic growth potential were developed for the state—high, medium, and low. For each of the districts, the traffic growth was estimated using the realizable economic growth for the state. The elasticity values used were modified for every five-year period for different vehicle types. Diverted traffic was estimated for roads having competing routes. These project roads, once improved, would be shorter in distance and part of the traffic from the parallel route is expected to divert on the project road. The details of the diverted traffic for the project roads amenable for getting diverted traffic are given in the Feasibility Report. The analysis did address the impact of NMT on the speed of conventional traffic and a friction factor was used to reduce the road capacity depending on the volume of NMT traffic and road width.

7. **Methodology:** Net benefits—the difference between the cost and benefits to the road users—for the alternatives were calculated for each road link using the HDM-4 model. The program models the effects of pavement deterioration and maintenance as a function of traffic levels, and calculates the annual costs of road construction and maintenance intervention measures as well as the costs of road user vehicle operation and travel time component. The economic costs for upgrading and widening, including social costs, were spread over two to three years starting from 2012 for two-lane, based on the length of the road. For two-year construction, the costs were split into 60 percent in the first year and 40 percent in the second year, while for the three-year construction period, the break-up of costs was assumed as 20 percent, 40 percent, and 40 percent in the first, second, and third year respectively. The economic benefits were reduced road user costs, primarily the savings in vehicle operating costs, and passenger and freight time savings from wider and better pavements reducing congestion, improving speeds and reducing road roughness, reduced recurrent costs, and savings from reduced accidents. Road improvement will lead to time savings for vehicles, crew, passengers, and freight, as well as savings in the inventory cost of goods in transit.

8. The value of passenger time was computed based on average wage rate of users of different road vehicle type using the study of the Ministry of Road Transport and Highways. The average value of passenger time was estimated using the proportion of different types of trips: INR 25 (US 50 cents) per car passenger hour and INR 12 (US 24 cents) per bus passenger hour. For goods in transit, time values were worked out using the inventory cost method with a market rate of interest on the value of goods. Additional weight was applied for perishable goods.

9. Financial costs were converted to economic costs by a conversion factor of 0.9 and a discount rate of 12 percent was applied throughout the analysis. The total period for the economic analysis was considered as 20 years with two to three years for construction for upgrading project. The economic analysis assumes that construction will start in 2012.

10. **Alternatives Considered:** The feasibility considered three options with various pavement and shoulder widths and type of shoulders, paved and soft, in relation to projected traffic. These options were (a) rehabilitation; (b) widen to 7 m with 1 m gravel

shoulders; and (c) widen to 5.5 m and 1 m gravel shoulders. The upgrading alternatives were selected from the IRC standards for two-lane roads in plain areas.

11. **Summary of Results from Economic Analysis:** The economic viability of the project remains robust to all tested risks, with the EIRR remaining above 12 percent in all scenarios. After selecting the Phase I roads, another 200 km of roads from the long list were selected for upgrading and/or rehabilitation based on their economic returns, equity, and importance for the overall development of the state within the framework of the total available budget for GOA and Bank funding.

12. The findings of the economic analysis for the roads selected for upgrading suggests an overall EIRR of 45 percent and an NPV of US\$650 million and for the rehabilitation roads an EIRR of 37.4% and an NPV of US\$25million. The economic viability of Component 1 remains robust to standard sensitivity tests carried out, in turn, with cost increase, benefit decrease, and combined effect of project cost increase and benefit decrease. A summary of these results along with road wise summary of the economic results is given in Tables 8 and 90 below.

**Table 8a: Benefit - Cost Analysis Summary**

	Economic Costs	
	Upgradation Roads	Rehabilitation Roads
Benefits (US \$ million)	786	40
Cost (US \$ million)	149	15
Net Benefits (US \$ million)	650	25
EIRR %	45	37.4

**Table 8b: Evaluation Result Summary**

Road ID.	Road Name	Length (Km)	Financial Cost (Rs Million)	Traffic (AADT)		EIRR (%)	NPV (Rs Million)
				Total	Of which commercial		
SH-3	Narangi–Bhakatgaon– Morigaon– Nagaon– Nalitali	142.65	3,520	9,593	1,374	45	13,027
SH-46	Dudhnoi–Goalpara– Pancharatna	41.6	1,485	6,347	420	45	4,073
SH-31	Jorhat–Moriani– Mokokchang	17.35	615	12,229	3,005	29.9	825
SH-32	Borhola–Goronga	12.53	410	3,952	639	13.2	30
SH-2	Chapaguri–Manas– Barpeta	63.5	2,110	6,442	1,520	73	10,245
SH-45	Soibari–Sapekhathi	10.97	275	2,796	93	na	na
SH-22 & 42	Gogamukh–Ghilmara – Dhokuakhana	38.0	1,330	4,500	500	17	469

**Table 9: Sensitivity Analysis**

Case	EIRR (%)	NPV (Rs. in Million) @ 12%	EIRR (%)		NPV (Rs. in Million) @ 12%	
			Widening Roads	Rehabilitation Roads	Widening Roads	Rehabilitation Roads
Base Case	45	650	37.4	25		
Costs increased by 20%	40	607	33.3	22		
Benefit decreased by 20%	39	480	32.6	15		
Costs increased by 20% and benefits decreased by 20%	34	450	28.5	12		

## **Fiscal Analysis**

13. The fiscal analysis for the project concentrates on fiscal sustainability as it relates to the ability of GOA to provide counterpart funds, and the necessary maintenance funds for the long term sustainability of the project roads. Government of Assam achieved a turnaround in financial position from 2005-06 due to a number of reforms undertaken. These included: (a) implementation of a Medium Term Fiscal Reform Program; (b) enactment of Fiscal Responsibility Legislation; (c) expenditure compression and, (d) debt restructuring. The Government has run a fairly conservative fiscal regime, after going through a crisis in the nineties, and its overall fiscal position has become sustainable. The government averaged a fiscal surplus of 0.9 percent of GSDP over 2005-08 and a current surplus of 3.2 percent of GSDP. The implementation of a pay revision award resulted in an abnormal increase in salary and pension expenditures and the fiscal deficit increased to 4.6 percent of GSDP in 2009-10 with a marginal current deficit. However, fiscal projections of the Government show the fiscal deficit is expected to decline gradually to revert to a fiscal surplus by 2013-14. The fiscal space for undertaking this project is therefore comfortable. The Medium Term Fiscal Plan for GOA is shown in Table 10 below.

14. The centre -state fiscal devolution arrangements are favorable so far as Assam is concerned. GOA receives 60-65 percent of its revenues from the centre and 50 percent of this is in the form of grants. Nearly 80 percent of the grants from the centre are for plan expenditure, particularly capital expenditure. Being a special category state Assam receives 90 percent of its annual borrowing requirement as grants from the centre. The 13<sup>th</sup> Finance Commission awards provided for a 138 percent increase over the 12<sup>th</sup> Finance Commission grants. The states own revenues have also been increasing although slowly to about 5.5 percent of GSDP. Expenditure is dominated by current expenditure (85 percent) on salaries, pensions and interest. Expenditures on capital projects are low compared to other states and the analysis suggests that GOA has the fiscal space to increase expenditure on capital projects such as in the transport sector.

15. Assam is a relatively low debt state with a debt to GSDP ratio of 27 percent at the end of 2009-10. This provides the borrowing space for the project without adversely affecting the state's debt profile. The fiscal turnaround from 2005-06 enabled the state to obtain debt relief of about Rs 10 billion under the twelfth Finance Commission's award. The state also swapped Rs. 8150 million of high cost debt.

16. Given this fiscal analysis, and that as a special category state the central government provides 90 percent of loan as a grant (including this assistance), the risks are low that GOA is not able to meet its financial obligations under the project.

17. The state, due to its meager financial resources, depends heavily on GOI funds for road development. The state has been receiving funds from various centrally sponsored schemes initiated by GOI, as shown in Table 11. However, Assam's secondary roads have been suffering from consistent under-funding. Of the total capital budget of US\$1.7 billion (Rs. 82,900 million) for the last five years (excluding NHs), about 86 percent is allocated for PMGSY/rural roads, leaving only around 14 percent for the secondary

roads. Of the total expenditure, only 20% has come from the state's own budgetary resources; the rest is received as part of the central grant from GOI.

18. Of greater concern are the resources available for maintenance of the assets created under the project. To date, maintenance has been under-resourced and the sector has a long history of build–neglect–rebuild of roads. Table 12 shows that early in the decade, the maintenance shortfall was substantial, with at times only 10–30 percent of requirements being met. Recently, the situation has improved, with 50–60 percent of requirements being met now. This is still a substantial shortfall but it is likely that the situation will improve further over the next five years when the 13<sup>th</sup> Finance Commission's grants in aid take effect. Over the coming five-year period, the 13<sup>th</sup> Finance Commission funds will provide about US\$615 million, which, together with the matching funds from the state, will provide 100 percent of the required financing (the GOI share is about US\$73 million). GOA needs to provide its own share of funds (US\$ 542 million) in order to receive the GOI grants. Looking forward, there are two key priorities: mobilizing the state share of the maintenance funds and developing the institutional capacity and systems to effectively spend the funds.

19. GOA will be setting-up a *Road Maintenance Fund* in the early stages of project implementation to mobilize adequate funds for road maintenance through various measures. The Road Maintenance Fund together with the GOI grants under the 13<sup>th</sup> Finance Commission and GOA normal maintenance funding will be able to meet 100 percent of the maintenance funding requirements, currently estimated to be about US\$ 100 million per annum.

20. Component 2 of this project will focus on the issue of developing the capacity and systems to undertake effective maintenance. It will also support the state to develop longer term sustainable finance options which do not rely on grants in aid from the federal government. The project will support revision of the road maintenance policy and in the setting up of the Road Maintenance Fund.



**Table 10: Medium-Term Fiscal Plan: Fiscal Data as share to GDP- Government of Assam**

Items	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
	Actual (%)			Projection (%)				
<b>1.Total Revenue Receipts</b>	22.0	23.0	23.0	24.0	24.0	24.0	24.0	24.0
<b>Own Revenues (a+b)</b>	8.0	8.0	9.0	9.0	8.0	8.0	8.0	8.0
<b>a) Own Tax Revenue</b>	5.0	5.0	5.7	6.0	6.0	6.0	6.0	6.0
<b>b) Non-Tax Revenue</b>	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
<b>Transfer from the Centre (a+b)</b>	14.0	15.0	14.0	15.0	15.0	15.0	16.0	16.0
<b>2. Recovery of Loans and Advances</b>	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
<b>3. Revenue Expenditure (a to d)</b>	18.0	18.0	24.0	23.0	22.0	21.0	21.0	20.0
a) Interest	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
b) Salary	7.0	7.0	9.0	9.0	9.0	8.0	8.0	8.0
c) Pension	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
d) Others	7.0	7.0	11.0	10.0	10.0	9.0	9.0	8.0
<b>4. Capital Outlay</b>	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
5. Lending	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>6. Revenue Deficit [surplus (+)/deficit (-)]</b>	4.0	5.0	-2.0	1.0	2.0	2.0	3.0	4.0
<b>7. Fiscal Deficit [surplus (+)/deficit (-)]</b>	1.0	2.0	-5.0	-2.0	-1.0	-1.0	0.0	1.0
8. Year End Debt Stock	28.0	28.0	27.0	26.0	24.0	23.0	21.0	20.0
9. Year End Outstanding Guarantees	1.0	1.0	0.3	0.4	0.3	0.2	0.1	0.1
10. Debt Stock including Guarantees	29.0	29.0	27.0	26.0	24.0	23.0	21.0	20.0

**Table 11: Road Sector - Expenditure vis-à-vis Sources of Finance (Rs Crore)**

Road Category	2006-07	2007-08	2008-09	2009-10	2010-11	Total	Percent
State Highways & Major District Roads	135	138	280	278.5	309.5	1141	14%
Rural Roads	757	1091.5	1567	1747	1986	7148.5	86%
<b>Total Road Sector Expenditure (excluding NHs)</b>	<b>892</b>	<b>1229.5</b>	<b>1847</b>	<b>2025.5</b>	<b>2295.5</b>	<b>8290.5</b>	
<b>Sources of Finance (excluding National Highways)</b>							
Annual Plan- Normal	65.5	69	176	167	187.5	665	8%
Mukhyamantri Pakipath Nirman Achani - MPNA	0	28	55.5	65.5	45.5	194.5	2%
Additional Central Assistance - General	0	1	6.5	24	15.5	47	1%
Central Road Fund	13	38.5	19	35	47.5	153	2%
Centrally Sponsored Scheme for Inter State Connectivity	0.5	0	0.5	1.5	1.5	4	0%
Centrally Sponsored Scheme for Roads of Economic Importance	4	0	0	1	0	5.5	0%
RIDF ( Rural Infrastructure Development Fund) ( NABARD funded)	79	107.5	84.5	64	69.5	404	5%
Assam Agricultural Competitiveness Project	70.5	136.5	135	111	0	453	5%
Annual Plan - Tribal Sub Plan	5	8.5	10	14.5	19.5	57.5	1%
Annual Plan - Scheduled Caste Component Plan	18.5	24.5	33.5	39.5	52.5	168.5	2%
Non Lapsable Central Pool of Resources	46	36.5	60.5	58	49.5	250	3%
North East Council	76.5	104.5	147	138	98	564	7%
PMGSY ( Pradhan Mantri Gram Sadak Yojana)	513	676.5	1119	1307	1708	5323.5	64%
<b>Total Sources of Finance</b>	<b>892</b>	<b>1,230</b>	<b>1,848</b>	<b>2,026</b>	<b>2,296</b>	<b>8,290</b>	

**Table 12 – Maintenance –Requirement vis- a –vis Funds allocated**

Financial Year	Requirement/ PWRD Estimate (Rs Crore)	Budget Allocation for Maintenance (Rs Crore)			Actual Maintenance Expenditure (Rs Crore)	% Shortfall
		Total Budget Allocation	State	Finance Comm. Grant		
2002–03	180	25	25	0	25	86%
2003–04	250	25	25	0	20	90%
2004–05	255	65	65	0	60	75%
2005–06	280	90	90	0	90	68%
2006–07	285	180	90	90	100	37%
2007–08	425	185	95	90	175	56%
2008–09	450	260	100	160	140	42%
2009–10	465	235	100	135	155	49%
2010–11*	495	250	265	2	260	46%

Note: 12th Finance Commission Grant Allocation for 2005–06 to 2009–10 is \$72.62 million (Rs 363 cr)

\* 13th Finance Commission Funding for 2010–11 to 2014–15 is \$760 million, which will only start from FY 2011–12. It includes GOA and GOI shares of about US\$ 660 million and US\$ 100 million respectively.

**India: Assam State Roads Project**  
**Annex 7: Governance and Accountability Action Plan**

1. Assam is promoting forward-looking initiatives to make its governance citizen-friendly, transparent, and responsive, including e-procurement and computerization of business procedures in PWRD. GOA has also introduced other reforms such as citizen's charter, public hearings, and an online complaint handling system to promote administrative accountability in the state.
2. Assam has an established system for investigation of alleged cases of irregularities in respect of duties discharged by public servants. There are two vigilance agencies in the state to investigate public complaints: (a) the State Vigilance Commission<sup>41</sup> and (b) an Anti-corruption Branch attached to the home department that makes detailed inquiries into complaints and submits reports to the concerned departments for taking corrective action. There is also an independent authority called the Lokayukta<sup>42</sup>, which has jurisdiction over all government agencies, officials, and legislators (except for the Chief Minister and cabinet ministers), in the state.

**Governance and Accountability Arrangement in PWRD**

3. Within the overall governance context in the state, PWRD has undertaken several measures to improve its governance and accountability arrangements. The notable ones include:
  - Computerization of business procedures;
  - Creation of a departmental web portal (<http://apwd.in>);
  - Implementation of e-procurement for all tenders above US\$0.25 million value;<sup>43</sup>
  - Development and adoption of Standard Bidding Document (SBD) based on international practices;
  - Establishment of the ASRB with a mandate of overall planning, development, and maintenance of the road networks;
  - Formulation of an Assam Roads Policy;
  - Initiation of performance-based road maintenance contract in one district (Jorhat) and intention to scale this up to more districts during 2011; and
  - Online contractor registration system with about 3,100 contractors being registered so far.

**Governance and Accountability Arrangement in the Chief Engineer Office**

4. The CE Office has benefited from the state-wide and PWRD-wide governance initiatives. It has also been involved in the implementation of the Bank-financed projects, ARIASP and AACP, and thus possesses the capacity to implement the proposed project adopting Bank guidelines. As part of the project implementation of ASRP and the requirements for a follow-on project, the CE Office has undertaken several steps to

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<sup>41</sup> Established in 2010 along the lines of the Central Vigilance Commission.

<sup>42</sup> Under the Assam Lokayukta and Upalokayuktas Act, 1985 (with amendments) and the Assam Lokayukta and Upalokayuktas Rules, 1988.

<sup>43</sup> Extension of e-procurement for all works under Rs 5 million is already in process.

improve its governance structure and its ability to implement the project effectively and transparently, including:

- Adoption of R&R policy and constitution of Grievance Redress Cell to address grievances of PAPs;
- Payment of invoices centrally through ASRB;
- Conduction of Road User Satisfaction Survey on a periodic basis;
- Adequate financial management systems comprising budgeting, accounting, internal controls, financial reporting, and auditing that would be strengthened during the implementation of ASRP; and
- Proposal to make e-payments on invoices of Contractors/Consultants.

### **Key Governance Risks**

5. In terms of governance, Assam's road sector suffers from some of the same issues applicable to the road construction industry across India: project delays due to issues in land acquisition and rehabilitation and/or environmental clearances, poor coordination among departments, law and order problems in some areas, frequent design changes, poor project planning, funding and management, contractual failures and resource constraints, and corruption in the construction industry<sup>44</sup>. Based on the assessment of the applicable GOI Acts, ongoing state and department-wide governance initiatives and rules, and systems and processes in PWRD, the overall governance risk of the project has been assessed as moderate. Some of the principal areas where governance could be strengthened include building the capacity of project agencies to implement the project in accordance with Bank procurement, financial management, and environment and social policies and requirements, as documented in the legal documents and the OM. Other areas include strengthening institutions, procedures, systems and human resources through actions delineated in RSMP.

### **The GAAP**

6. The GAAP has been prepared taking into consideration the key risks in project implementation, lessons learnt from ARIASP and AACP, and the existing and proposed measures to mitigate the impact of these risks on the achievement of the PDO. The GAAP (Table 13) builds on GOI's Right to Information Act, 2005 (RTIA), the Prevention of Corruption Act (1988), the MORTH's Results Framework Document (2010) and the several initiatives of GOA (listed above) to foster governance in PWRD. These have been designed to improve the PWRD's procedures and capacity for better governance and create a forum for public participation through actions to enhance transparency, systems of quality control, project management, monitoring and grievance redress. Each of these is given in brief in the following sections.

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<sup>44</sup> World Bank. 2008. *Indian Road Construction Industry—Capacity Issues, Constraints, and Recommendations*. Washington, DC: World Bank.

**Table 13: Governance and Accountability Action Plan (GAAP)**

<b>1. Policy Actions to Enhance Transparency</b>			
<b>Risk Area</b>	<b>Action(s) to be Taken to Mitigate Risk</b>	<b>Timeline/Status</b>	<b>Implementing Officials</b>
Lack of transparency and accountability that may adversely affect project outcomes.	<b>Project-level</b>		
	Formulate a <i>public disclosure policy</i> and disclose all project information through a <i>dedicated, clear and updated ASRP website</i> .	Policy already formulated and agreed upon;	PIO, APIO, All CE staff
	Prepare and disclose district performance reports comprising road network condition, physical and financial progress, unit costs, time and cost overruns, third-party quality assessments and road safety ratings.	Continuous	CE Office
	Coordinate with the DIPR for public consultations and to highlight project issues at the village/district levels.	As needed	DIPR, ASRP
	<b>Entity-level</b>		
	Conduct independent audit of RTIA requests to identify systemic deficiencies.	Annual	PIO/CE Office
	Widely publicize—both internally and externally—the existing Civil Service Conduct Rules governing <i>sanctions</i> for staff.	July 2011	PWRD, Vigilance officials
<b>2. Measures to enhance procedures</b>			
Corruption/collusion in procurement; weak financial management and complaint handling procedures.	<b>Project-level</b>		
	Establish complaint-handling cell, appoint a complaint monitoring officer (CMO) and internal vigilance officer (IVO) and establish procedures to deal with different types of complaints.	By effectiveness	CE Office, Vigilance officials
	Maintain an updated database on complaints received and action taken; conduct independent audit of complaint handling system to identify systemic weaknesses.	From project start; audit to be conducted twice over project period.	PIO, APIO, IVO
	<b>Entity-level</b>		
	Revise e-procurement process to be consistent with World Bank requirements on robustness and user-friendliness.	By negotiations	CE Office
	Enable online contractor registration.	March 2012	CE Office
	Maintain list of blacklisted contractors and consultants on ASRP website.	By appraisal	CE Office
Undertake and <i>accomplish comprehensive revision of PWRD Code</i> including standardization of preparation of cost estimates.	As in RSMP	Upon approval by GOA	

<b>3. Measures to strengthen institutions</b>			
Weak complaint handling mechanisms, project management, quality control, and asset maintenance.	<b>Project-level</b>		
	Develop a <i>project MIS</i> for effective project monitoring and review and link it to the web for quick review and follow-up action.	To be developed during the first year of project implementation.	CE Office
	Commission <i>impact assessment studies</i> and user satisfaction surveys to obtain user feedback.	Annual	CE Office
	Empanel <i>third-party mechanism</i> to review DPRs and conduct concurrent technical audit of the quality of works.	By negotiations	CE Office
	Start <i>compiling database</i> on number of bids, bid prices, unit prices, specifications, and contractor performance for district-wise benchmarking of unit costs.	Starting with the first contract.	APCP team
	Conduct <i>social audits</i> to assess work quality and implementation, in coordination with the local authorities.	Based on frequency of complaints.	CE Office
	<b>Entity-level</b>		
	Pilot an <i>online system</i> for registering, tracking and monitoring of complaints under the project for department-wide rollout by end of project.	June 2012	Vigilance officers and CMOs
	Take steps to create an Academy/Centre of Excellence for training PWRD staff and local construction industry and an equipment pool.	As in the RSMP	Upon approval by GOA
	Maintain <i>asset registers</i> under the Road Information System.	June annually, once AMS is operational.	PWRD
<b>4. Measures to enhance human resources (all at entity-level)</b>			
Weak implementation arrangements that may adversely affect project processes and results	Identify staff training needs, finalize training plan, and conduct appropriate PWRD-wide staff training.	As in RSMP	PWRD
	Conduct knowledge-sharing workshops for ASRP staff and contractors/developers on performance based and other improved contracting methods.	Periodically	CE Office, Bank
	Conduct training on RTIA for all ASRP officers and staff.	Continuous	PIO, APIO

### **Actions to improve information disclosure**

7. The RTIA (2005) mandates the disclosure of and universal access to information wherever in the public interest. Compliance with the Act is required for all public entities including the CE Office. To enable the ASRP staff to respond better to public requests for information, periodic training programs will be arranged under ASRP for in-depth

understanding of the RTIA. To catalyze best practice in information dissemination<sup>45</sup>, the project will provide support for the creation of a project-specific website<sup>46</sup> and to computerize all project records, to facilitate their access and retrieval. For disclosure of information on ASRP in a systematic manner, GOA has formulated a disclosure policy<sup>47</sup>, with the documents to be disclosed, and their frequency and mode. In addition, the CE Office /PWRD will interact with the Department of Information and Public Relations (DIPR) on disseminating project-related information at the district and village levels through brochures, public announcements, hoardings, and newspaper advertisements. The project also envisages an annual audit of the requests received under the RTIA for identifying systemic weaknesses that may need to be addressed for better governance.

### **Actions to Enhance Complaint Handling**

8. To manage project-related complaints, the existing complaint handling process<sup>48</sup> will be followed. ASRP will support the pilot of an online system for registering, tracking, and monitoring of complaints, and based on its success, implement the same throughout the department by the end of the project. An independent audit of the complaint handling system would also be conducted at least twice over the duration of the project to evaluate its effectiveness. Based on the frequency of complaints/grievances received, social audits will be conducted to assess work quality and implementation, in coordination with the local authorities<sup>49</sup>. Details of all complaints received and their resolution will also be included in the quarterly project progress reports to the Bank. Tracking of the status of complaints, related investigations and measures taken will be reported monthly by the CMO to the CE Office.

### **Actions to Enhance Quality and Project Monitoring**

9. The current quality monitoring system involves three levels of checks—by the contractor, CSC, and the CE Office engineers (Client). In addition, the Quality Assurance wing of PWRD has been mandated to conduct quality inspections. Further, the Works Monitoring Cell of PWRD is also responsible for monitoring quality through specific investigations, either on the advice of PWRD or based on complaints received from the public or media. However, at present, there is no independent verification of project quality.

10. To enhance the quality of works and broaden stakeholder participation in ensuring quality, third-party concurrent technical audit/monitoring of project works<sup>50</sup> will be piloted through the use of empanelled state quality monitors<sup>51</sup> and/or reputed engineering

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<sup>45</sup> Guidelines for which are given in *Publishing Information on Public Construction Projects*, Construction Sector Transparency Initiative (CoST) Working Paper 2, March 2010

<sup>46</sup> As done by Orissa Works Department on the Orissa State Roads Project.

<sup>47</sup> See Operations Manual.

<sup>48</sup> See Operations Manual.

<sup>49</sup> As done under the PMGSY.

<sup>50</sup> Guidelines for which are given in *How third party oversight of public construction projects can increase value for money and fight corruption*, CoST Working Paper 3, August 2009

<sup>51</sup> Along the lines of the National Quality Monitors proposed in the MORTH's RFD for 2010-11

colleges/technical institutions. This will complement the task force constituted by GOA with outside experts for ensuring quality in all civil works.

### **Actions to Enhance Institutions and Project Coordination**

11. GOA has established ASRB to be responsible for planning, developing, and maintaining a safe, eco-friendly and socially responsible road network in the state. To enable ASRB to fulfill its mandate and develop its capacity to undertake more road projects in the future, it needs to embrace best practices. Steps have been initiated to acquire required technical assistance to strengthen ASRB’s structure, functional capabilities, and corporate governance practices.

### **Monitoring Indicators for Compliance and Outcomes**

12. A Complaint Monitoring Officer has been tasked with the implementation of the GAAP. The CE Office and the Bank team will review implementation of the GAAP during implementation support missions and at mid-term through the performance benchmarks (shown in Table 14). This will enable evaluation of the GAAP’s effectiveness and present an opportunity for any systemic and policy enhancements.

**Table 14: Performance Benchmarks**

<b>S. No.</b>	<b>GAAP Element</b>	<b>Performance Benchmark(s)</b>
1.	Information disclosure	Frequency and comprehensiveness of project website updates and information on citizen information boards at site(s); annual audit report assessment of systemic weaknesses.
2	Complaint handling	Periodic review of statistics based on records on the ASRP website; field-level checks, review of quarterly reports to the Bank and audit assessment of the system to ensure that problems are being reported and acted upon.
3	Quality Control/ Project Coordination/ Technical Audit	Harnessing of third parties in review of project design and monitoring periodicity of reports of the impact assessment and user satisfaction surveys. Timeliness in completion of tasks by ASRP.
4	Institutional improvements	Progress in implementation of online complaint system, procurement and project management database, the AMS and APCP, standardization of business processes and review/restructuring of the PWRD.
5	Capacity	Progress on professional development strategy for staff; percentage of staff and officers sent for training, including on RTIA.

### **Indicative Costs**

13. The cost of GAAP implementation is part of the technical assistance component of the project and comprises: (a) cost of developing the website; (b) costs to enhance the existing online system to incorporate the complaint handling mechanism; (c) costs to commission third-party monitors/quality assurance consultants; (d) costs to commission the annual impact assessment and user satisfaction surveys; (e) cost of training staff; and (f) costs of technical audit and audits of the RTIA request and complaint handling system.