



Review of Environmental & Social Management Systems of Phase I, PSRSP for OPRC Project

OPUS International (M) Berhad



Report #1

December 2008

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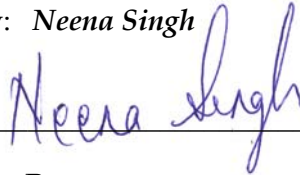
December 2008

Reference I6927

For and on behalf of ERM

Approved by: *Neena Singh*

Signed: _____



Position: *Partner*

Date: *19 December 2008*

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Environment Resources Management (ERM) India has been retained by OPUS International (M) Berhad (*hereafter referred to as OPUS*) to provide support consultancy services on environmental and social aspects under the Phase II - Package 2 contract of the ongoing, World Bank funded, Punjab State Road Sector Project (PSRSP).

Under Phase II - Package 2 contract that OPUS has with Punjab Roads and Bridges Development Board (PRBDB) - which is the implementing agency for PSRSP - OPUS has been retained to devise a strategy for future implementation of output and performance based road contracting (OPRC) for the ongoing management, rehabilitation and maintenance of its state road network.

As part of the support consultancy service inputs to OPUS, this first report (*Report #1 as per the agreement between ERM and OPUS*) from ERM India documents the adequacy of the current data and information on environmental and social aspects in terms of meeting the needs of the OPRC contract.

1.1

BACKGROUND

The World Bank funded, Punjab State Road Sector Project (PSRSP), was approved by the Bank in December 2006. Prior to that, Government of Punjab (GoP) through PRBDB commissioned the preparatory phase consultancy studies since June 2005 and the list of studies undertaken leading to Bank approval is presented in *Table 1.1*. Since the Bank approval in December 2006, PSRSP has progressed to the satisfaction of the Bank in implementing various phases and contractual packages. Some project works are still ongoing and under various stages of implementation. PSRSP is formulated to be completed within six (6) years of its inception and is expected to close by June 2012.

Table 1.1 *List of Preparatory Studies Undertaken For Formulating Phase I - PSRSP*

Package #	Project Title	Consultant
Package 1	Engineering Feasibility studies along with Environmental and Social Screening studies - June 2005	M/s CES (India) Pvt. Ltd. New Delhi
Package 2	Detailed Project Report for Rehabilitation Roads - July 2005	M/s Intercontinental Consultants and Technocrats Pvt. Ltd. New Delhi
Package 3	Detailed Project Report for Upgradation Roads - September 2005	M/s BCEOM Societe Francaise D' Ingenierie France
Package 4	Institutional Development Studies - April 2006	M/s Pricewater House Coopers Pvt. Ltd., New Delhi

Package 5	Independent review of Environment & Social Assessment – April 2006	M/s LEA Associates South Asia Pvt. Ltd. New Delhi
Package 6	Implementation of Resettlement Action Plan – December 2006	M/s Development Institute for System Alternatives (DISA), Lucknow

Source: <http://www.prbdb.gov.in/projects.htm>

PSRSP is the first Bank funded project in Punjab road sector and aims to increase the service levels of the state roads through:

- eliminating the growing bottlenecks in the network;
- increasing vehicle speeds by providing additional geometric capacity;
- reducing transport costs by reducing road roughness;
- reducing accidents;
- strengthening Government of Punjab capacity to plan and manage the network; and
- providing adequate road maintenance for network sustainability.

The project consists of following two major phases:

- Phase 1 - Road upgrading, rehabilitation and maintenance along plan roads of about 1,000 km among other things; and
- Phase 2 - Institutional strengthening of Road Sector stakeholders in the State of Punjab.

The preparatory phase consultancy studies (*refer Table 1.1 above*) and civil works (*about 20 contractual packages*) for upgrading, rehabilitating and periodic maintenance of project roads were taken up under the Phase I part of the project.

Under Phase II, as part of the Institutional strengthening, PRBDB has undertaken the following activities:

- Hiring consultancy services to provide project preparatory support and studies for preparation of contracts for carrying out Rehabilitation and Up gradation of 600 Kms of road length based on Operation and Performance Based Road Contract (OPRC) format;
- Generating awareness on HIV/AIDS;
- Preparation of GIS maps for road network in Punjab;
- Hiring of consultants for Environment Management Plan training and pollution;
- Hiring of consultants for creation of online road safety database management systems; and
- Hiring of consultants for carrying out road user satisfaction survey.

This support consultancy services to OPUS from ERM India is related to the OPRC pilot project (*refer to first bullet above*) to be launched as part of the PSRSP under its Phase II component. More details on this particular OPRC pilot project which is a unique experiment in the road sector being attempted first time in the State of Punjab is presented in the succeeding section.

1.1.1

Phase II - OPRC Pilot

In line with the PSRSP objectives of strengthening GoP capacity to plan and manage the road network and providing adequate road maintenance for network sustainability, PRBDB is exploring the feasibility of implementing the globally successful OPRC model of road construction & maintenance contracting under the Phase II component of PSRSP. As highlighted earlier, OPRC model of contracting is being attempted first time in the State of Punjab and is perhaps only the second such experiment in the Country as well.

Being a unique model of contract which is much different from contemporary road contracting formats, GoP, working through PRBDB, has retained Opus International Consultants Limited & Opus International (M) Bhd JV (OPUS) who have demonstrated global experience in advising and strategizing OPRC projects. OPUS has been retained to advise PRBDB and devise a strategy for implementation of OPRC for the ongoing management, rehabilitation and maintenance of its state road network.

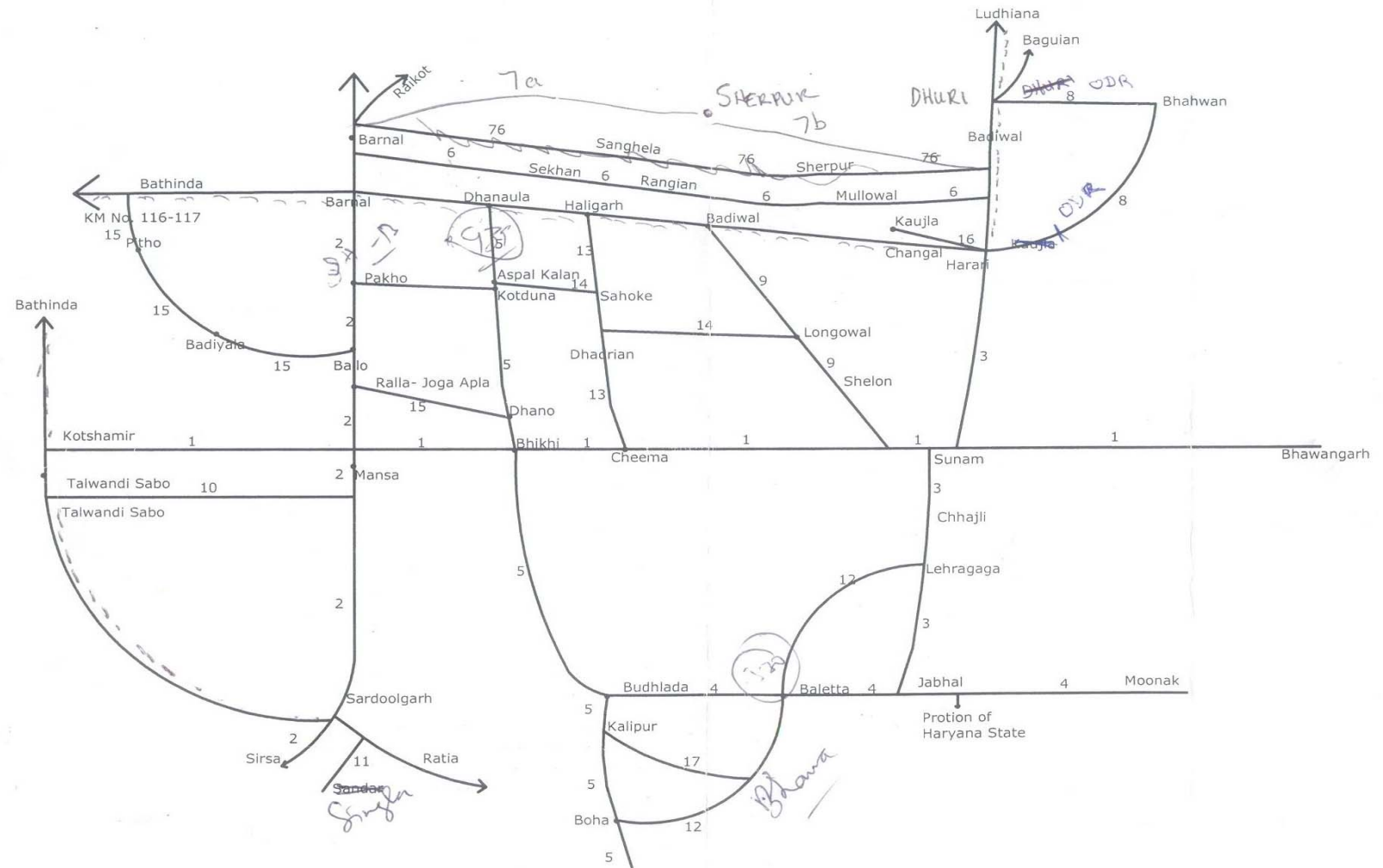
OPUS commenced its services in August 2008. The initial OPRC project network envisaged by PRBDB for feasibility analysis in Mansa and Sangrur districts is about 652 km and the list of network roads explored by ERM during the reconnaissance visit along with OPUS Consultants in September 2008 is presented in *Table 1.2* and a schematic of the same is presented in *Figure 1.1*.

Table 1.2 *List of OPRC Network Roads in Mansa-Sangrur Districts Suggested by PRBDB*

Link #	Name of the Road	Category	Length, Kms
1	Bhawanigarh-Sunam-Bhikhi-Kotshamir Road	SH 12A	107
2	Barnala-Handiaya-Hari Singhwala-Mansa-Sardoolgarh-Sirsa Road (upto State Boundary)	SH 13	94
3	Sangrur-Sunam-Lehra-Jakhal road (upto State Boundary)	MDR 21	49
4	Moonak - Budhlada - Jakhal road	MDR 19	38
5	Dhanaula-Bhikhi-Ratia road (upto State Boundary)	MDR 14/20	60
6	Dhuri-Barnala road via Moolowal-Sekha-Rangian	ODR 6	30
7A	Dhuri- Sherpur	ODR 13	20
7B	Sanghera-Sherpur including bypass at Barnala	ODR/VR	22
8	Dhuri-Bhalwan-Sangrur road	ODR 7/10	23
9	Barbar-Longowal-Sunam Road	ODR 3/5	18
10	Mansa-Talwandi Sabo road	ODR 9	28
11	Sardoolgarh - Ratia road - Sangha upto State Boundary	ODR 22B	16
12	Lehragaga-Ladel-Kishengarh-Bareta-Kulerian-Sher-Hanwala-Boha Road	Link	43
13	Harigarh-Cheema	Link	25
14	Longowal-Pakho	Link	22
15	NH64-Ballo-Bhikhi	Link	31
16	Sangrur-Harari-Changal-Kanjla	Link	9
17	Budhlada-Ratia-Bareta-Kulerian Road	Link	19

Source: Inception Report, OPUS Consultants, September 2008

Figure 1.1 Schematic Diagram of OPRC Pilot Network in Mansa-Sangrur Districts



Network roads in Punjab are classified as State Highways (SH), Major District Roads (MDR), Other District Roads (ODR) and Link Roads also referred to as Village Roads (VR).

PRBDB has contracted OPUS to prepare contracts for upgrading, rehabilitation and maintenance of a pilot road network of approximately 652 km based on Output Performance Based Road Contracts (OPRC). More specifically, the services cover:

- Confirmation of a pilot established around the roads briefly described above (Refer table 1.2 and Figure 1.1).
- Services for Parts A - D, namely:-
 - A: Development of Contract Strategy;
 - B: Review of the Adequacy of Current Information and Collection of Additional Data;
 - C: Preparation of Conceptual Designs, Bidding Documents, Financing Models and Price Estimates; and
 - D: Support to the Procurement Process

1.1.2 List of Pilot Projects Recommended Under OPRC

As can be inferred from Table 1.2, there are 18 links suggested by PRBDB to OPUS for undertaking the feasibility analysis of applicability of OPRC concept. OPUS was required to confirm a pilot network established around the 18 links pre-identified by PRBDB. Accordingly, OPUS has identified and recommended a list of links from the initial 18 links provided by PRBDB which is presented in Table 1.3.

Table 1.3 List of Pilot Links Recommended by OPUS to PRBDB

Network	Link #	Category	Description	Length (Km)
A	1a	SH 12A	Bhawanigarh Sunam	27
A	1b	SH 12A	Sunam Bhiki	26
A	3	MDR21	Sangrur-Sunam-Jakhal	48
A	4	MDR 19	Budlada-Jakhal	28
A	5	MDR14	Bhiki-Budhlada-State Boarder	34
A	9	ODR03/05	Budbar-Sunam	18
			Sub-Total A	181
B	1a	SH12A	Bhiki-Mansa	22.9
B	1b	SH12A	Mansa-Kotshamr	32.1
B	2a	SH13	Barnala-Mansa	46.1
B	2b	SH13	Mansa-State Boundry	46.3
B	5	MDR20	Dhanuala-Bhiki	25
B	10	ODR9	Mansa-Talwindi Sabo	28
			Sub-Total B	200.4
			TOTAL A+B	381.4

Source: Information shared by OPUS Consultants in Dec'08

It is learnt from OPUS that PRBDB is yet to officially approve this final list of 7 links for initiating OPRC pilot project which has been narrowed down from the original 18 links suggested by PRBDB.

1.2 *ROLE OF ERM*

A project team from OPUS with in-depth experience on OPRC-oriented highways rehabilitation/maintenance projects in diverse environments has been mobilized to perform the services for PRBDB in Punjab since August 2008. To the OPUS team mobilized at site, support consultancy services on environmental and social aspects are to be provided by ERM during their contract period with PRBDB,

ERM is entrusted to provide these support consultancy services in the environmental and social components for the services Part A – D, briefly described earlier under *Section 1.1.1*.

1.2.1 *Objective*

The objective of ERMs support consultancy services is to support OPUS during their contract period with PRBDB and provide consultancy inputs in the areas of environmental and social aspects. More specifically the following objectives are to be met:

- To undertake a reconnaissance visit of the OPRC pilot network roads and gather an assessment of the field scenario;
- To review the PSRSP background/project preparatory documents specifically addressing environmental and social aspects to gather an understanding of the project;
- To assess environmental and social assessment and management systems/frameworks adopted in the previous Phase of the project and explore the adequacy of the same for extending the same to current OPRC pilot roads; and
- To advise and provide critical inputs to OPUS on appropriate integration of environmental and social management systems into the OPRC documents.

1.2.2 *Scope of Work*

The scope of work as agreed between OPUS and ERM flows from the original PRBDB requirements specified in the contractual agreement between OPUS and PRBDB under Task A-3 - Legal Framework and EIA and SIA Frameworks. Task A-3 defines the scope of services that needs to be delivered by ERM on environmental and social aspects and its requirements are presented in Box 1.1

To adequately address the environmental and social impacts of the project, the Government of Punjab has prepared a Resettlement and Rehabilitation Policy (R&R Policy) and Environmental Management Plans (EMP) and Resettlement Action Plan (RAP). The objective of these plans is to present the principles and procedures for environmental assessment and resettlement/compensation, respectively as it relates to the roads sub-sector. These frameworks will guide the implementing entities during their detailed designs and implementation on how environmental and social issues will be dealt with and implemented.

The consultant shall integrate the EMP and RAP into the conceptual design to ensure that the environmental and social issues are addressed in accordance with the national legislation and regulations as well as the applicable World Bank Operational Policies (OP) 4.01 on Environmental Assessment and OP 4.12 on Involuntary Resettlement.

Detailed scope of work agreed between ERM and OPUS is presented at *Annex A*.

1.2.3 **Deliverables Under the Contract**

The support consultancy service formulated in the form of focused and appropriately timed environmental and social input reports have been agreed between ERM and OPUS. As per the scope of work agreed (*Refer Annex A*), ERM will prepare and deliver five (5) reports at various stages of the contract.

This first ERM report pertains to Report #1 of the said agreement between ERM and OPUS and covers the following aspect of analysis:

- Adequacy of the current data and information on environmental and social aspects in terms of meeting the needs of the OPRC contract.

Report # 2 and #3 from ERM will be submitted within a month of PRBDB approval of the OPRC pilot network roads as recommended by OPUS (*Refer Table 1.3*). Report #2 pertains to ERM's assessment of field conditions and the adequacy of corresponding screening assessment report (*including the management and legal framework formulated in the screening assessment report*) and Report #3 pertains to outcome of consultations with stakeholders in the recommended OPRC links.

1.2.4 **Reconnaissance Visit**

ERM mobilized its senior environmental and social staff experienced in handling road projects funded by the World Bank, Chanemougam.R and Kumar Rakesh respectively in September 2008.

ERM staff along with OPUS Consultant staff and PRBDB members undertook a reconnaissance visit of all OPRC network roads in Mansa-Sangrur Districts (*Refer table 1.2*) in September 2008. During the site visit, ERM staff also collected all the secondary information, Phase I stage consultancy study reports, policy documents etc from OPUS Consultants. This report is based on

the quick reconnaissance visit and review of study reports, policy documents, management plans etc.

Further site visit to selected OPRC pilot network roads are planned as soon as PRBDB approves the OPUS recommended links.

1.3 *LAYOUT OF THE REPORT*

This report is laid out as below:

- Section 1* presents (this section) the background information on PSRSP, OPUS and OPRC pilot project; the objective, role and scope of work for ERM to deliver support consultancy services to OPUS and the context of this deliverable.
- Section 2* presents the review outcome of PSRSP preparatory phase studies and reports pertaining to Environmental Assessment, Management systems and policy/regulatory framework etc. This section explores the adequacy of extending same or similar approach to OPRC pilot roads.
- Section 3* presents the review outcome of PSRSP preparatory phase studies and reports pertaining to Social Assessment, Management systems and policy/regulatory Frameworks. This section explores the adequacy of extending same or similar approach to OPRC pilot roads.

This report has the following annexes:

- Annex A* Scope of Work agreed between ERM and OPUS

This section presents ERMs assessment of adequacy of following aspects adopted during the preparatory phase of PSRSP to meet the current OPRC requirements:

- Environmental policies, practices and procedures;
- Environmental impact assessment approaches and methodologies;
- Environmental Impact Assessment report pertaining to OPRC pilot links, if any is available;
- Baseline assessment outcomes and relevance to OPRC model;
- Environmental Management Framework;
- Policy, regulatory and legal framework for road projects;
- Institutional Framework;
- Environmental Supervision, Monitoring and Reporting Systems; and
- Environmental training and capacity building needs.

There are some road links currently recommended by OPUS for launching OPRC pilot (*Refer Table 1.3*) which have been subjected to environmental and social screening assessment during the preparatory phase of PSRSP. Hence, the adequacy assessment was essentially undertaken with an objective to assess the above aspects relevance and applicability which to the current OPRC pilot project.

2.1

PREPARATORY PHASE STUDIES AND REPORTS

Continuing the discussions from *Section 1.1*, during the preparatory phase of PSRSP, based on Strategic Options Study (SOS) conducted by Punjab Public Works Department (PWD), GoP identified and prioritized about 1698 km of State Highways (SH) and other roads in the State for improvement under the World Bank funded PSRSP. In order to formulate the PSRSP for World Bank funding, GoP through PRBDB commissioned as many as six (6) consultancy service contracts (*Refer to Table 1.1*). Our interest is limited to the first three consultancy studies which are reproduced below from *Table 1.1*:

- Engineering Feasibility studies along with Environmental and Social Screening studies for the 1698 kms long road links identified by the SOS – June 2005, M/s CES India Pvt Limited (*Referred to as Package I under Phase I*)
- Detailed Project Report for road links cumulating to 254 km long & pre-selected for rehabilitation – July 2005, M/s Intercontinental Consultants and Technocrats (ICT) Pvt. Ltd. New Delhi (*Referred to as Package II under Phase I*)
- Detailed Project Report for road links cumulating to 144 km long & pre-selected for upgrading– September 2005, M/s BCEOM Societe Francaise D' Ingenierie France (BCEOM) (*Referred to as Package III under Phase I*)

Under Package II of Phase I of PSRSP, the following six road links cumulating to 254 km of road length was pre-selected by PRBDB for upgrading. M/s ICT Consultants undertook a detailed Environmental Impact Assessment (EIA) of these links and prepared detailed Environmental Management Plan (EMP) report:

- Chandigarh-Landran-Chuni-Sirhind;
- Nagar-Aur-Rahon ;
- Malerkotla-Dhuri-Sangrur ;
- Tarn Taran-Chabal-Attari;
- Kapurthala-Fatehbad-Tarn Taran; and
- Dharamkot-Kot Ise khan-Zira-Ferozepur.

Under Package III of Phase I of PSRSP, the following four road links cumulating to 144 km of road length was pre-selected by PRBDB for rehabilitation. M/s BCEOM Consultants undertook a detailed Environmental Impact Assessment (EIA) of these links and prepared detailed Environmental Management Plan (EMP) report:

- Patiala – Sirhind, MDR-31;
- ODR 4 from Kharar – Landran – NH-64 (Banur) and ODR 18 from NH-64 (Banur)- Tepla;
- Phillaur – Nagar (Crossing of Mukundpur- Apra Road), ODR 5; and
- Ludhiana – Ahmedgarh – Malerkotla, SH-11.

From the discussions under *Section 1.1.1 and 1.1.2*, it is evident that OPRC pilot road links recommended by PRBDB (*Refer Table 1.2*) are not the same as above mentioned upgrading and rehabilitation road links pre-selected for implementation under Phase I of PSRSP. Hence, the EIA and EMP reports prepared by M/s ICT and BCEOM Consultants were not reviewed as they are not relevant for the current OPRC pilot.

The Feasibility Studies and Environmental and Social Screening Assessment undertaken by CES Consultants for 1698 km long road links under Package I of Phase I, however, cover four (4) of the OPUS recommended OPRC pilot road links which are listed below:

- Link # 1a from Bhawanigarh to Sunam (SH 12A)
- Link # 1b from Sunam Bhiki (SH 12A)
- Link # 1a from Bhiki-Mansa (SH 12A)
- Link # 1b from Mansa-Kotshamr (SH 12A)
- Link # 2a from Barnala-Mansa (SH 13)
- Link # 2b from Mansa-State Boundry (SH 13)
- Link # 3 from Sangrur-Sunam-Jakhal (MDR 21)
- Link # 5 from Dhanuala-Bhiki (MDR 20)

ERMs Observation

Following OPUS recommended OPRC pilot road links were not subjected to any level of Environmental and Social Assessment in the Phase I of PSRSP:

- Link # 4 - MDR 19 from Budlada to Jakhal
- Link # 9 - ODR03/05 from Budbar to Sunam
- Link # 10 - ODR9 from Mansa to Talwindi Sabo

- Link # 5 from Bhiki-Budhlada-State Boarder (MDR)

Under the consultancy services for Feasibility, Environmental & Social Studies for PSRSP, the Consultants have submitted the following two volumes of reports which were relevant to current OPRC pilot links and taken up for review by ERM:

- Final Report, Part C: Environmental Screening Report, Volume I: Main Report, May 2006; and
- Final Report, Part C: Environmental Screening Report, Volume II: Appendices to Main Report, May 2006.

The review outcome is presented in the succeeding sections.

2.2 *ADEQUACY OF ENVIRONMENTAL ASSESSMENT SYSTEMS AND DOCUMENTS FOR COMMON ROADS UNDER OPRC AND PRSP*

The environmental assessment and management systems applied during the Phase I of PSRSP was reviewed for adequacy and applicability to present OPRC pilots on following aspects:

- Environmental policies, practices and procedures;
- Policy, regulatory and legal framework for road projects;
- Environmental impact assessment approaches and methodologies;
- Environmental Impact Assessment report pertaining to OPRC pilot links, if any is available;
- Baseline assessment outcomes and relevance to OPRC model ;
- Environmental Management Framework;
- Institutional Framework;
- Environmental Supervision, Monitoring and Reporting Systems; and
- Environmental training and capacity building needs.

2.2.1 *Environmental Policy*

PSRSP specific environmental policy has not been formulated by GoP. However, the international policies and treaties binding on Government of India and other related national environmental policies that are relevant to PSRSP have been identified and highlighted in the EIA reports prepared for Package II and III under Phase I. Notably, the Screening Report prepared by CES under Package I does not cover the Policy framework applicable on PSRSP. The following international and national policies have been identified under Phase I of PSRSP:

- International Policies binding on GoI
 - Ramsar Convention on Wetlands, 1971
 - Convention on Biological Diversity, 1992
 - UN Millennium Development Goals
 - Convention on International Trade in Endangered Species of Wild Flora and Fauna
 - Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972

- National Environmental Policy Framework
 - National Forest Policy, 1988
 - National Water Policy, 2002
 - National Policy on Resettlement and Rehabilitation for Project Affected Families (NPRR), 2003
 - National Conservation Strategy and Policy Statement on Environment and Development, 1992
 - Wildlife Conservation Strategy, 2002
 - National Environment Policy, 2004

Assessment Outcome:

- The Policy framework as identified under Phase I of PSRSP is relevant and applicable for OPRC Pilot projects as well.
- A quick updating of all the Policies for revisions and new polices that could have taken place between 2006 and 2008 needs to be done. For example the NPRR has been updated in 2006.
- Integration of Policy requirements into EMP needs to be strengthened.
- OPRC projects may require flexibility from the Road Operator/ Contractor to adapt and adhere to new polices and revisions/ update that could occur during OPRC period. This aspect needs to be built into the EMP.

2.2.2 *Environmental Regulations and Clearances*

A detailed identification and analysis of regulatory framework applicable on the PSRSP has been presented in the Screening Assessment report. The regulations and guidelines identified in the report include the following:

- Environment (Protection) Act, 1986;
- Fly ash Notification, 1999 amended to 2003;
- EIA Notification, 1994 amended to 2004;
- Air (Prevention & Control of Pollution) Act, 1981;
- Water (Prevention & Control of Pollution) Act, 1974;
- National Ambient Air Quality Standards and its amendments;
- Forest (Conservation) Act, 1980 and its amendments;
- Forest (Conservation) Rules, 2003 and its amendments;
- Wildlife (Protection) Act, 1972;
- Wildlife (Protection) Amendment Act, 2002;
- Environmental Guidelines for Rail, Road & Highways Projects, 1989 (MoEF);
- EIA Manual published by Ministry of Environment & Forests, January 2001;
- IRC: 104:1988, Guidelines for EIA of Highways Projects;
- IS Codes & CPCB Guidelines for monitoring & analysis of air, water, soil etc.;
- The Ancient Monuments and Archaeological Sites and Remains Act, 1958;
- The Motor Vehicles Act, 1988 and
- World Bank Guidelines for Environmental Assessment.

Among the clearances and permits required to be taken during the time of construction and or operation phases of the project have been identified in the Screening Assessment Report. Environmental clearance under previous EIA Notification, 1994 has been discussed and ruled out for its applicability on PSRSP. The following clearances have been identified:

- Forest clearance for felling of trees from RoW of existing roads from Punjab State Forest Department;
- Permission for withdrawal of groundwater for construction from Central Ground Water Board;
- Permission for sand mining from river bed from Punjab Irrigation Department;
- Installation and operation of Hot mix plants, Concrete batching plants and Crushers require Consent from Punjab State Pollution Control Board under Water and Air Acts;
- Authorization for Storage, handling and transport of hazardous materials from Punjab State Pollution Control Board under Hazardous Waste (Management and Handling) Rules, 1989;
- Consent for discharge of air/ water pollutants from workers camp, equipment and storage yards from Punjab State Pollution Control Board under Water and Air Acts;
- License for Quarries (in case of opening of new quarries) from Department of Mining, Govt. of Punjab; and
- Authorization for disposal of bituminous wastes, if any from Punjab State Pollution Control Board under Hazardous Waste (Management and Handling) Rules, 1989.

Assessment Outcome:

- The regulatory framework and clearance requirements as identified under Phase I of PSRSP are relevant and applicable for OPRC Pilot projects as well.
- Some of the regulations have been revised and updated between 2006 and 2008. Eg. EIA Notification, 1994 has been replaced by September 2006 Notification.
- Detailed review of applicable regulations in light of the revisions and new ones introduced that could have taken place between 2006 and 2008 needs to be done.
- Some more regulations and clearances (such as the one required for locating borrow areas) and local Municipal/ Panchayat permissions needs to be included in the Applicable Regulatory Framework.
- Integration of regulatory and clearance requirements into EMP needs to be strengthened.
- OPRC projects may require flexibility from the Road Operator/ Contractor to adapt and adhere to new regulations and revisions/ update that could occur during OPRC period. This aspect needs to be built into the EMP.

As stated earlier, the Environmental and Social Screening Assessment report prepared by CES India P Ltd covers four (4) of the OPUS recommended OPRC pilot road links. For the remaining three (3) links recommended for OPRC pilot, no study reports pertaining to Environmental and Social aspects are available.

The Environmental assessment approach adopted during the Screening Assessment is quite comprehensive and has adopted the following approach & methodology:

Definition of Project Influence Area

For assessing the regional environmental features, the project influence area (or the study corridor) has been defined as the area falling within 7 km on either side of the project roads which is consistent with Government of India guidelines in this regard.

However, for the roadside features like roadside religious structures, educational institutions, medical amenities, water bodies, roadside trees etc. on which impacts of road improvement are generally confined within few meters of the Right of Way (RoW), the project influence area has been taken as 100 m on either side of the project road which is again consistent and appropriate.

Environmental Aspects Studied During Screening

During screening the following aspects have been covered:

- Sensitive natural habitats (National Parks, Sanctuaries, Wetlands, Protected & Reserved Forests);
- Surface water resources (rivers, canals, ponds etc.);
- Ground water conditions;
- Water use, availability of water & water quality;
- Water logging, flooding & drainage issues (area/road-side);
- Preservation & management of soil resources (erosion, embankment height etc.);
- Loss of trees for upgradation;
- Material sources- earth (borrow area) & aggregates (quarry), environment friendly construction material, e.g. fly ash from power plant;
- Management and disposal of debris and bitumen;
- Baseline pollution (air, noise, soil & water) ;
- Pre-dominant land use;
- Sensitive community properties (religious/ cultural property, water sources etc.);
- Cultural heritage sites;
- Safety related issues & accident due to roadside trees in particular area;
- Collection/ compilation of information on baseline conditions from primary & secondary sources;

- Detail recording spot consultation with stakeholders consisting of name, occupation and opinion of the participants;
- Fill-in data gaps;
- Location specific design recommendation (if required);
- Identification of VECs;
- Framing management measures for avoidance & mitigation of potential adverse environmental impacts;
- Identification of roads with no major environmental issues; and
- Identification of roads for which detailed assessment is required.

Primary Field Survey

In order to augment the data gaps with the available secondary information, the Consultants have undertaken primary survey for assessing baseline quality of air, water and noise at representative and sensitive locations along the project road, as well as within the project's influence area.

Besides the above approaches, the Consultants have adopted the following methodologies as well during the screening assessment:

- Stakeholder Assessment & Consultation;
- Identification of the Valued Environmental Components (VECs);
- Preliminary Analysis of Impacts and Management Measures;
- Scoping for Project Environmental Assessment (EA);
- Location-specific design recommendations to enhance Environmental Quality; and
- Ranking of the road links based on the environmental features present along the roads using Delphi technique based ranking and scoring criteria.

As per the screening criteria adopted in the Screening Assessment report, the four OPRC road links that are covered are ranked to have medium scale of impact. The details of the ranking are presented in **Table 2.1**.

Table 2.1 *Screening Assessment of OPRC Road Links*

Corridor ID as per Screening Report/ (OPRC Link #)	Name of the Link	Score	Scale of Impact	Rank
AD (Link #5)	NH 64 - Bhikhi - Budhlada - Ratia	24	Medium	7
L (Link # 1)	Nabha - Bhawanigarh - NH-71 - Sunam - Bhiki - Harisinghwala - Maur - Kotfateh - Kotshamir	29	Medium	11
P (Link # 3)	Sangrur - Sunam - Lehragagga - Border	29	Medium	12
S (Link # 2)	Dakha - Raikot - Mahalkalan - Jn with MDR - Barnala - Handiaya - Harisinghwala - Mansa - Sardulgarh	24	Medium	5

Source: Final Report, Part C: Environmental Screening Report, Volume I: Main Report, May 2006

Based on the screening assessment and ranking, the environmental assessment scoping recommended in the Report include the following for the subject OPRC road links covered in the report:

- A generic EMP and no need for EIA is recommended for rehabilitating existing 2 lane road along the corridor: Nabha- Bhawanigarh-NH71- Sunam- Bhiki-Harisinghwala- Maur- Kotfateh- Kotshamir;
- A generic EMP and no need for EIA is recommended for rehabilitating existing 2 lane road along the corridor: Sangrur- Sunam. However, in the same corridor from Sunam – Lehragaga - Border where existing intermediate lane is, if proposed for 2 lane upgrading, then a full EIA & EMP analysis is recommended;
- A generic EMP and no need for EIA is recommended for rehabilitating existing 2 lane road with paved shoulders along the road links: Barnala – Handiaya; and Harisinghwala – Mansa. However, in the same corridor from Handiaya - Harisinghwala and from Mansa - Sardulgarh wherein the existing intermediate lane is, if proposed for 2 lane upgrading, then a full EIA & EMP analysis is recommended; and
- Full EIA and EMP analysis is recommended for upgrading existing intermediate lane to 2 lane wide road corridor along: NH64 - Bhikhi - Budhlada – Ratia section.

Assessment Outcome:

- For three (3) links recommended for OPRC pilot, no study reports pertaining to Environmental and Social aspects are available.
- Following the same screening assessment and scoping approach adopted in the Phase I of PSRSP, the three links of OPRC pilot needs to be assessed prior to awarding the OPRC work. Based on the screening and scoping assessment, the level of EA and EMP required needs to be established.
- For the four links covered in the screening assessment report, the upgrading and rehabilitation proposals recommended by OPUS needs to be re-assessed against the scoping outcome to decide the level of EA and EMP under OPRC.
- The Environmental Assessment approach adopted in the Screening Assessment Report is essentially aimed at screening the various road links and is fairly identical to typical EIA approach. However, for OPRC, this EA approach needs to be carefully reviewed and adopted for there is no more screening requirement under OPRC.

2.2.4

Baseline Assessment Outcomes and Relevance to OPRC model

Baseline environmental assessment for all the road corridors and individual road links were assessed comprehensively for the aspects highlighted in Section 2.2.3 (*Refer Environmental Aspects Studied During Screening*). Primary field monitoring for establishing ambient air, water, ambient noise levels and soil quality was conducted in the post-monsoon month of November 2005. In the Sangrur and Mansa Districts adequate amount of primary data have been collected which can be used for representing baseline environmental quality in the region.

Secondary and primary data for the following aspects for each of the road links and corridors have been collated and presented in tabular format with references to road chainages in the Volume II of the Final Report submitted by CES Consultants as Part C: Environmental Screening Report in May 2006

- Topography and Soil;
- Drainage and Irrigation;
- Geology and hydrogeology;
- Climate;
- Main road intersections;
- Major villages, urban areas and settlements;
- Land use;
- List of River/Canal/Nalla/Drain along the Road; and
- List of roadside trees located within RoW.

Assessment Outcome:

- Strip plan maps showing baseline environmental features such as location of trees, intersections, sensitive receptors etc have not been prepared for the OPRC pilot road links. Tabular data could be a useful starting point, but a map format data would be more useful to OPRC pilot project.
- As stated earlier, the three OPRC pilot road links wherein no environmental assessment of any kind has been undertaken, a similar effort to collect baseline environmental quality data will have to be undertaken.
- The data on Ambient Air quality (AAQ), Ambient noise levels (ANL) etc can be used in the OPRC pilot road links as baseline environmental quality prevailing in the region. Some augmentation of AAQ and ANL data in certain urban and semi-urban stretches wherein AAQ and ANL could become stakeholder priority issues can be undertaken during the OPRC implementation stage.

2.2.5 *Environmental Management Framework*

Preliminary analysis of the potential environmental impacts during construction and operation phase along with recommended management measures have been presented in the Screening Report. The Environmental Management Framework (EMF) presented in the Screening report covers the following aspects:

- Legal & Administrative Framework;
- Environmental Clearance;
- Forest Clearance for Felling Roadside Trees;
- Other Clearances;
- Clearances Required by Contractor;
- Environmental Monitoring Plan and program;
- Performance Indicators;
- Institutional/Implementation Arrangements;
- Progress Monitoring and Reporting Arrangements;
- Training;
- Cost of Environmental Management; and

- Guidelines for Management of Quarry/Borrow Areas and Labour /Construction Camps.

The EMF presented in the Screening Report was reviewed and the assessment outcome is presented below.

Assessment Outcome:

Preliminary Impacts and Mitigation Measures

- Generic impacts and mitigation measures are fairly well covered. However, in order to suit the OPRC format, the management measures will need modification, augmentation and customization to suit the OPRC model taking into account the role of OPRC contractor during operational phase.
- The EMP should be strengthened to include more operational phase management measures such as those on road safety and accident spot analysis; tree maintenance; storm water drain maintenance; recurrent consultation process with local user community/stakeholders and using the feedback to manage the road; third party audit system to monitor performance integrating it with any engineering audit proposed by OPUS; and performance incentives based on stakeholder and 3rd party audit outcome.

Institutional Framework

- The institutional framework formulated in the Screening Assessment consists of Contract Management Unit (CMU) and Contract Implementation Unit (CIU) reporting to Project Director within PRBDB. Considering the long term nature of OPRC projects, a stable Institutional arrangement needs to be formulated based on discussions and concurrence from PRBDB.

Environmental Supervision, Monitoring and Reporting Systems

- The Environmental Management Plan Implementation Unit (EMPIU) within CIU where an Officer (preferably in the rank of Asst. Engineer) would be responsible for supervising the implementation of the EMP with the assistance of the Environmental Specialist of the Construction Supervision Consultant (SC). This arrangement for Supervision needs to be re-assessed based on discussions and concurrence from PRBDB.
- Environmental Quality Monitoring program recommended in the Screening Assessment report is comprehensive and adaptable to OPRC Pilot with little modifications, if needed.
- A linear reporting system initiated at the lowermost level and reaching till Project Director level has been envisaged in the Screening Assessment Report. In light of the comments above on Institutional framework and supervision systems, reporting system will also undergo modifications to suit OPRC model.

Environmental Training and Capacity Building Needs

- Environmental Training has been fairly well covered and the training framework recommended in the Screening Assessment report is adaptable

to OPRC projects will augmentation and strengthening to suit the OPRC requirements and long term nature of the project. A provision for recurrent training program to OPRC Contractor and sub-contractor staff and user communities/ stakeholders needs to be built-in considering the long term nature of the project.

Cost Estimates

- Typical cost estimates per linear length of road in km for dust suppression, construction of noise barriers, environmental monitoring, disposal of solid wastes, plantation including 3 years of maintenance and relocation of hand pumps, relocation of temples and training have been provided. This unit cost data needs to be re-assessed in the current year and provision for escalation during the OPRC contract period needs to be included.
- The cost estimates must be linked to a measurable bill of quantities and payment linked to performance as is done in an engineering works.

This section presents ERMs review assessment of following aspects adopted during the preparatory phase of PSRSP to meet the current OPRC requirements:

- Range of social impacts;
- Categories of project affected persons (PAPs);
- R&R Framework to mitigate the negative impacts including a review of R&R Policy formulated by GoP for PSRSP; and
- Review the adequacy of the existing SIA reports.

There are some road links currently recommended by OPUS for launching OPRC pilot (*Refer Table 1.3*) which have been subjected to environmental and social screening assessment during the preparatory phase of PSRSP. Hence, the adequacy assessment was essentially undertaken with an objective to assess the above aspects relevance and applicability to the current OPRC pilot project.

As part of the Social Management Systems and Framework review the following documents among others were essentially reviewed that are relevant to OPRC Pilot project:

- Resettlement and Rehabilitation (R&R) Policy Framework for PSRSP, Government of Punjab, Department of Public Works (B&R);
- Independent Review of Draft Resettlement and Rehabilitation Policy Framework prepared by CES, LEA Associates;
- Final Report, Part C: Environmental Screening Report, Volume I: Main Report, May 2006, CES Consultants; and
- Final Report, Part C: Environmental Screening Report, Volume II: Appendices to Main Report, May 2006, CES Consultants.

3.1 SOCIAL POLICY – RESETTLEMENT AND REHABILITATION

3.1.1 Elements of Resettlement and Rehabilitation Policy

For this World Bank funded, Punjab State Road Sector Project (PSRSP), Punjab Government has worked out a new Resettlement and Rehabilitation Policy Framework which will be relevant to all the projects in the state which require involuntary displacement of people and their assets and other common property resources. The State Government has framed this Resettlement and Rehabilitation Policy in accordance with existing Kandi Watershed R&R Policy, National Policy on R&R for Project Affected Families 2003 (NPR&R) and the World Bank guideline on involuntary resettlement.

The principal objectives as stated in this R&R Policy are as follows:

- To minimize displacement and to identify the non-displacing or least-displacing alternatives;

- To plan the Resettlement and Rehabilitation of Project Affected Families (PAFs), including special needs of vulnerable sections;
- To assist affected persons in maintaining/restoring their former living standards, income
- earning capacity, and production levels.
- To facilitate harmonious relationship between the Implementing Authority (Acquiring Body) and PAFs through mutual cooperation and regular interaction;
- To ensure that the affected persons are meaningfully consulted and provided opportunities to participate in the planning and implementation stages of the resettlement program in order to suitably accommodate their inputs and make this policy more participatory in nature and broad based in its scope.

The Policy recognizes that rehabilitation of roads as such may not cause significant adverse impacts but their upgrading (which involves widening of existing roads, construction of new roads/bypasses, realignments and junction improvement etc.) would entail acquisition of land and structures as well as adverse impacts on other assets, causing disruption of livelihood. Besides, it is likely that some Common Property Resources (CPRs) such as religious structures, passenger shelters at bus stops, hand pumps etc. may also be adversely affected.

The newly framed Punjab Resettlement and Rehabilitation Policy Framework document is a comprehensive document and it conforms to all the basic tenets of the broad policy of the World Bank on the issue of the Resettlement and Rehabilitation as well as the National Policy, 2003.

This policy has also taken into account the provisions of various other Indian and Punjab specific laws regarding land acquisition and environment. The regulations that are relevant to the PSRSP and taken into account in the R&R policy are:

- The Land Acquisition Act, 1894 (as amended in 1984);
- The Punjab Tenancy Act, 1887;
- The Punjab Village Common Lands (Regulation) Act, 1961;
- The Punjab Land Revenue Act, 1967;
- The Punjab Public Premises and Land (Eviction and Rent Recovery) Act, 1973;
- The Punjab Religious Premises and Land (Eviction and Rent Recovery) Act, 1997; and
- Environmental guidelines for rail, road and Highway projects, MoEF, 1989.

It has also laid down a clear entitlement matrix with clear definitions of all the entitlement categories of the project affected persons. It further defines the entitlement packages including compensation and other assistance to be given to the Project Affected Persons (PAFs). The policy deals adequately with the important issue of Grievance Redressal Mechanisms. Monitoring and Evaluation by independent agency has also been provisioned. A broad Institutional arrangement and scope for amendment has been adequately incorporated.

The Policy Framework as discussed above has the elements highlighted below.

Resettlement and Rehabilitation Principles

The Resettlement & Rehabilitation policy is based on the principle that the affected persons are not worse-off on account of the project than they were before. This approach to frame the R&R Policy ensures greater acceptability of the project to the people and is expected to facilitate its effective implementation.

The principles has the following elements:

- General Principles
- Minimization of adverse impacts
- Entitlements
- Land Acquisition
- Compensation and Assistance
- Consultations
- R&R
- Employment Opportunities
- Budget Provisions
- Disclosure of Resettlement Policy and other Project Documents
- Scope for Making Amendments.

Resettlement Planning, Implementation and Monitoring

Resettlement Planning, Implementation and Monitoring framework has the following elements:

- Census and Socio-Economic survey
- Institutional Arrangements
- Creation of Contract Management Unit (CMUs)
- Creation of Social Development Cell at PRBDB Head Office and CMUs
- Implementation Arrangements
- Grievance Redress Committee (GRC)
- District Roads Committees (DRC)
- Construction Supervision Consultant (CSC)
- External Evaluation Agency
- Land Acquisition
- Entitlement matrix

3.1.2

Review Outcome of the Policy

Though the new Resettlement and Rehabilitation Policy Framework covers all the broad tenets of Resettlement and Rehabilitation requirements as highlighted above, the policy however needs to be more focused on the various processes and procedures to be followed by all the implementing agencies during the implementation of the project. It needs to clearly define the role and responsibility with a time line of each institution involved in the implementation of the project.

On the issue of Resettlement and Rehabilitation more clarity is needed as the policy adequately covers all the matters of financial aspect of compensation and assistance to be given to all project affected people.

But this policy does not cover the matters of Resettlement and Rehabilitation adequately. Though it talks about alternate resettlement site and provision in giving jobs (preference to be given to the PAP) it does not explore enough on the alternatives on the issue. The policy has also not covered the issue of utilization of the compensation and the assistance amount to be given to the project affected persons.

All this inadequacies can however be addressed by the implementing agency while executing the project as it can give them a little flexibility on the matters warranting out of the typical needs of each project.

After giving a considerate review of the Punjab Resettlement and Rehabilitation Policy it can be safely concluded that this policy is in tune with all the requirement of the World Bank, National Policy on Resettlement and Rehabilitation and other local and National laws on land acquisition and Resettlement and Rehabilitation issues. It also covers all the key aspects of Resettlement and Rehabilitation. This policy framework is adequate to carry out the OPRC project and no other policy or any other framework is needed.

3.1.3 *Relevance of the Policy on the proposed OPRC Project*

All the road categories in the proposed Mansa - Sangrur OPRC Pilot have no major intervention like road up gradation to 4 - lane. Which means no land acquisition is required in the proposed contract. All the proposed road categories are either proposed for intervention like up gradation 2.5 m paved shoulder on each side or renewal with no geometry change. Only two road categories require intervention for up gradation to 7m pavement width. All the above mentioned interventions require R & R action plan only for the non titile - holders. Hence to successfully implement this contract and to minimize the adverse impact on the people the newly framed Punjab Resettlement and Rehabilitation Policy framework is adequate.

3.2 *ADEQUACY OF SOCIAL ASSESSMENT SYSTEMS*

The document prepared by the Consulting Engineering services (India) Pvt Ltd. has conducted the preparatory studies for feasibility, environment and social studies and preliminary engineering, for package I under Phase I of PSRSP. This report adequately focuses on social aspect of the project area.

The environment screening final report volume 1 & 2 tries to bring out all the relevant social issues impacting the project area. The report has enlisted all the relevant social issues based on the discussions with the stake holders. All the stake holders of the project like the farmers, shopkeepers, local panchayat leaders, local influential persons, religious leaders and community people and local NGOs have been consulted. All the findings of the stakeholders and their opinion have been recorded in the stakeholder table in volume 1 of the report.

The report captures the list of all the educational, religious structures and other common property all along the proposed corridors it has also enlisted the details of land use, the land type etc. and all other socially relevant basic features on both sides of the road.

Based on the intervention required for the upgradation or rehabilitation of the project roads the scoping for the social impact has been done for each of the project activities and its potential impact. Measures to be taken to mitigate such impacts within the R & R policy have also been suggested. The report also recommends to minimize the impact of a large scale displacements and has recommended a proposal for construction of bypasses in such areas. Although the proposed OPRC sector roads do not fall under such corridors, it has recommended adequate and equitable compensation to project affected persons (PAPs) within the framework of the R & R policy. The employability of the PAPs has also been recommended by the report. It has been provided to employ all the local people as laborers preferably the PAPs if any. The use of all the locally available materials during the construction phase also been recommended by the report. Other issues like road safety and traffic management plan has been covered extensively by the report.

3.3

RECOMMENDATIONS

Under the proposed OPRC contract there are not many and major social issues as the proposed roads do not need any land acquisition. However few other relevant measures like public consultation and disclosure plan needs to be developed before embarking upon the project. Also a full and complete social baseline survey of the area needs to be done to identify all the project affected people (PAPs) . Based on that an entitlement matrix as given in the R & R policy for all the PAPs need to be made to negate any adverse impact of the project.

Annex A

Terms of Reference

SCHEDULE 1 - Scope of Services

ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED EXPANSION AND MAINTENANCE OF ROADS IN THE STATE OF PUNJAB

1.0 General Approach to the Assignment

Under the contract with the PRBDB, Task A3: Legal Framework and EIA and SIA Frameworks define the scope of services that needs to be addressed on these aspects, which are presented in Table 1

Table 1. Task A3 - Legal Framework and EIA and SIA Frameworks

As OPRC is a new concept in Punjab State, the Consultant will be expected to look at the existing laws on civil works contracts and see how this concept will be implemented within the scope of the current law. Specifically, laws or legislation pertaining to “citizen empowerment” will be considered in structuring the project design and implementation. The issue of legal ownership of the central and local government roads needs to be looked into. There may also be a need to develop a legal framework for the long term operation of the OPRC-contract also safeguarding the contractor’s investment.

To adequately address the environmental and social impacts of the project, the Government of Punjab has prepared a Resettlement and Rehabilitation Policy (R&R Policy) and Environmental Management Plans (EMP) and Resettlement Action Plan (RAP). The objective of these plans is to present the principles and procedures for environmental assessment and resettlement/compensation, respectively as it relates to the roads sub-sector. These frameworks will guide the implementing entities during their detailed designs and implementation on how environmental and social issues will be dealt with and implemented.

The consultant shall integrate the EMP and RAP into the conceptual design to ensure that the environmental and social issues are addressed in accordance with the national legislation and regulations as well as the applicable World Bank Operational Policies (OP) 4.01 on Environmental Assessment and OP 4.12 on Involuntary Resettlement.

ERM shall provide the necessary sub-consultancy support to **OPUS** in view of the above Task.

Hence, in general, **ERM** will review the policies and procedures on EIA & SIA aspects within the context of the findings and recommendations from the earlier Phase I study reports. **ERM** will undertake a reconnaissance visit across the network to establish whether all of the key issues have been identified. They will then summarise the critical outcomes from these studies in the form of a briefing paper which will be used to ensure that both the conceptual (and subsequent) detailed designs integrate these into all of the upgradation and rehabilitation works. From an understanding of the network, it is expected that a greater level of input will be required within the more heavily congested urban sections than

the more sparsely populated rural areas. **ERM** will also be available to support the Opus team with any presentations required to the GOP/PRBDB/World Bank as necessary.

The above outcomes would be supplemented with the engineering information gathered by **OPUS** for the other tasks of the contract. In particular, **ERM** will provide input and reports on the following:-

- Environmental Screening and Social Screening Report detail and recommendations: The application of the recommendations from these reports, especially on the improvement works required within the more congested urban zones may have significant impacts on the design and construction requirements for these sections. Use will be made of the information relating to the baseline data of air quality, noise level, water quality and tree counting in ensuring both these and the national legislation requirements are included in the conceptual designs
- EIA scoping matrix requirements within the prioritised corridors, Socio-economic surveys of the settlements within the pilot area, Relocation and Resettlement policy requirements, and Generic environmental plan requirements will be used to ensure that policy requirements are reflected in the development of the conceptual designs and implementation of the OPRC concept

Accordingly, **ERM** understands that the Government of Punjab has prepared a Resettlement and Rehabilitation Policy (R&R Policy) and an Environmental Management Plan (EMP) in accordance with the World Bank guidelines to guide the implementing agency/entity in addressing any adverse social or environmental impacts arising out of the project undertaken.

Based upon the above, **ERM** therefore also understands the basis of the sub-consultancy services and hence will adopt an approach to this assignment that will meet the objectives of PRBDB as presented in Table 1 and the principles of the methodology in addressing the EIA and SIA aspects.

In this regard, **ERM** services includes providing support to **OPUS** in the integration of the generic EMP and Resettlement Action Plan (RAP) framework into the concept design of the road networks to ensure that the environmental and social issues are addressed in accordance with the World Bank Operational Policies (OP) 4.01 and 4.02 as well as the applicable and prescribed guidelines and existing available data on

- Socio-economic profile of the affected settlement along the project road networks, common property resources, type and category of settlement patterns, natural resources, etc
- Type, range and intensity of impacts on different categories of stakeholders
- Key environmental issues and social concerns arising due to the project

2.0 Environmental Impact Assessment (EIA)

ERM shall review the following existing reports, guidelines, frameworks and data (but not limited to) on the selected road corridors:

- 1) The Environmental Impact Assessment Report
- 2) The Environmental Management Plan
- 3) The Environmental Assessment & Management Plan (Roads Rehabilitation)
- 4) EIA regulatory / legal framework for road projects

ERM shall in the provision of its services:

- i) Review and assess the adequacy of the RAP framework, Generic EMP, EIA and conduct gap analysis and propose areas of improvement on the RAP framework and EMP;
- ii) Review regulatory / legal framework with respect to EIA of road projects, specifically highlighting the changes in the regulations since the preparation of the EMP / Resettlement Action Plan (RAP) (e.g. The EIA Notification 2006, National Resettlement and Rehabilitation Policy 2007).
- iii) Review the recommendations of the reports for integration of the generic EMP and RAP framework into the concept design stage to ensure that the environmental and social issues are addressed in accordance with the prescribed guidelines as well as the applicable World Bank Operational Policies (OP) 4.01 and 4.02.
- iv) Conduct stakeholders consultation as deemed necessary and the consultations should be carried out with all relevant stakeholder analysis. The objective of the consultation sessions is to improve the project's interventions with regard to environmental management. 12 person days are mandated for consultations and it is assumed that 10-15 community consultations, 3 to 4 NGO consultations and 3 to 4 Government meetings will be held. Additional consultation required will be reimbursed on T & E basis. All such public consultations shall be photographed and minutes taken for record purposes – (Evidences in the form of photographs and video grabs can be taken but not a full length video). These consultations should involve public, NGOs and officials from the concerned departments in adequate strength so as to make it completely represented by the affected population. The residual feedbacks received shall be analysed and **ERM** shall determine how it can be addressed in the final EMP and in the project designs. The consultation programme shall be coordinated with the social and engineering teams and these would form a very important part of the Environmental Assessment.
- v) Collate existing baseline situation with the project activities (in all phases include concept design, pre-construction, construction and operation phase) to determine the potential impacts. These impacts will be identified as significant positive and negative impacts, direct and indirect impacts, short-term and long-term impacts, reversible and non-reversible impacts.

- vi) Identify mitigation measures that have minimum impact, for each of the negative impacts as identified in the Environment Management Plan.
- vii) Support **OPUS** in obtaining the required clearance from the state and central government agencies.
- viii) To review the adequacy of the existing EIA reports and EMP that outline the mitigating measures to address the environmental issues on the identified new road networks and propose to PRBDB additional EIA to be carried out where deemed necessary.

3.0 Social Impact Assessment (SIA)

ERM shall review the following existing reports on the selected road corridors:

- 1) Social Screening Report
- 2) Social Impact Assessment Report
- 3) Resettlement and Rehabilitation Policy Framework.

ERM shall in the provision of its services:

- i) Review the existing documents prepared in order to understand the range of impacts, categories of project affected persons (PAPs) and proposed framework to mitigate the negative impacts.
- ii) Collate existing baseline situation with the project activities (in all phases include concept design, pre-construction, construction and operation phase) to determine the potential impacts. These impacts will be identified as significant positive and negative impacts, direct and indirect impacts, short-term and long-term impacts, reversible and non-reversible impacts.
- iii) To review the adequacy of the existing SIA reports that outline the mitigating measures to address the social impact issues on the identified new road networks and to propose to PRBDB on additional social impact assessment to be carried out where deemed necessary.

4.0 Site Assessment

ERM will undertake a site review of the project road network (approximately 650 km) and carry out ground verification of the available information and assess if the RAP and the EMP are adequate and all key issues / stakeholders have been identified and addressed. The key activities envisaged in this site review are:

- i) Assessment of the RAP and EMP and whether or not they are adequate or any key issues has been missed and not addressed;

- ii) Identify and select stakeholder consultations with the affected groups, government and line agencies, civil society organizations to understand their concerns and expectations from the project; and
- iii) Investigation of the proposed mitigation measures and its effectiveness in addressing the adverse / negative impacts.

5.0 Design Support

ERM will work closely with the design team in providing strategic inputs into project design to ensure that the RAP / EMP requirements are addressed and taken into account during the design process at appropriate stages. These will include inputs into the approach and the prescribed timelines of different activities to be carried out by the design consultant. The input will cover (but not limited to) the followings;

- i) Census survey, its approach, coverage, timing etc;
- ii) Guidance on sequencing of activities related to social and environmental management with respect to detailed design;
- iii) Guidance on interaction required with district and block agencies for land acquisition, forest permissions etc
- iv) Initiation of the environmental clearance process and any other regulatory permits required; and
- v) Community engagement and disclosure, its periodicity and arrangement.

6.0 Others

- i) **ERM** will also be available to assist the design consultants and **OPUS** during their presentations and interface with the PRBDB and the World Bank team. **ERM** will also support **OPUS** in important meetings and hearing processes.
- ii) **ERM** shall integrate the EMP and RAP into the conceptual design to ensure that the environmental and social issues are addressed in accordance with the national legislation and regulations as well as the applicable World Bank Operational Policies (OP) 4.01 on Environmental Assessment and OP 4.12 on Involuntary Resettlement.

7.0 Reports & Deliverables

In line with the activities and tasks as described in the preceding sections, **ERM** will provide the necessary technical notes, reports, drawings and memoranda that document the proceedings, analyses and results of these responsibilities. In particular **ERM** will provide reports and documents for the following aspects that will be needed for appreciation and input to the respective reports that are required for submission to the PRBDB:-

Item	Deliverable	Submission Date	Report
1.	Adequacy of the current data and information on environmental and social aspects in terms of meeting the needs of the OPRC contract.	10 December 2008	Report 1
2.	Site assessment report from the reconnaissance for verification of site conditions including recommendations on mitigation measures for addressing adverse impacts	10 December 2008	Report 2
3.	Outcomes of consultations with stakeholders	10 December 2008	Report 3
4.	Environmental and social requirements that are required to be taken into account for the conceptual designs and OPRC contract documents	15 April 2009	Report 4
5.	Support on Clearances from relevant from state & central government agencies	15 April 2009	Report 5

In terms of interfacing with OPUS, the above key reports will be needed in line with the programme that has been established. However, it is recognized that the reports will be affected by other tasks & activities, including the review that is necessary by the Review Committee formed by PRBDB and the World Bank. In this regard, submission by ERM, although cleared off by OPUS, will be considered as "living" documents until sign off by the PRBDB. The dates as indicated against each key report as described above thus represents the dates for submission and sign off by OPUS and not PRBDB. The terms of payment shall be based upon these milestones with a retention sum of 10% until signed off by PRBDB.

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