**Government of Odisha (GOO)**
**Chief Engineer, World Bank Projects, Odisha**
**Odisha State Roads Project**

# Consultancy Services for Road Sector Institutional Development Loan # 7577-IN

## MID TERM STATUS REPORT
**(Revised)**

Intercontinental Consultants and Technocrats Pvt Ltd

*In joint venture with*
Grant Thornton Advisory Pvt. Ltd.

*In association with*
ARKITECHNO
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# Government of Odisha
# Chief Engineer, World Bank Projects, OWD
# Odisha State Roads Project

## Consultancy Services for
## Road Sector Institutional Development

## Loan # 7577-IN

# *Mid Term Status Report (Revised)*

December 2013


**Client:**

**Odisha Works Department**

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**Consultant:**

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# Abbreviations

| | |
|---|---|
| ACP | Assistant Commissioner of Police |
| ACR | Annual Confidential Report |
| AE | Assistant Engineer |
| APPWD | Andhra Pradesh Public Works Department |
| BBD | Benkelman Beam Deflection |
| BOLT | Build Own Lease and Transfer |
| BOOT | Build Own Operate and Transfer |
| BOT | Build Operate and Transfer |
| CE | Chief Engineer |
| CEO | Chief Executive Officer |
| CRN | Core Road Network |
| DBFOT | Design Build Finance Operate and Transfer |
| DC | Development Commissioner |
| DPI | Design Planning and Investigation |
| DRRP | District Rural Road Plan |
| DTL | Deputy Team Leader |
| EASL | Equivalent Standard Axle Load |
| EE | Executive Engineer |
| EIC | Engineer in Chief |
| EPC | Engineering, Procurement & Construction |
| FGD | Focussed Group Discussion |
| FPRA | Forum for Prevention of Road Accident |
| FYP | Five Years Plan |
| GDP | Gross Domestic Product |
| GIS | Geographical Information System |
| GNI | Gross National Income |
| GOI | Government of India |
| GOO | Government of Odisha |
| GTAPL | Grant Thornton Advisory Pvt. Ltd. |
| HR | Human Resource |
| HRD | Human Resource Development |
| HRM | Human Resource Management |
| IAL | ICTPL Axle Load Point |
| ICT | Information and Communication Technology |
| ICTPL | Intercontinental Consultants and Technocrats Pvt. Ltd. |
| IDS | Institutional Development Strategy |
| IEC | Information, Education and Communication |

| | |
|---|---|
| IRC | Indian Roads Congress |
| ISAP | Institutional Strengthening Action Plan |
| JE | Junior Engineer |
| KBK | **K**alahandi, Nuapada, **B**olangir, Sonepur, **K**oraput, Rayagada, Malkanagiri and Nawarangpur |
| LASA | LEA Associates South Asia Pvt. Ltd. |
| LCV | Light Commercial Vehicle |
| LWE | Left Wing Extremist |
| MD | Managing Director |
| MDR | Major District Road |
| MIS | Management Information System |
| MLA | Member of Legislative Assembly |
| MoRT&H | Ministry of Road Transport and Highways |
| MP | Member of Parliament |
| MSA | Million Standard Axle |
| MVD | Motor Vehicle Department |
| NABARD | National Bank for Agriculture and Rural Development |
| NDT | Non Destructive Testing |
| NGO | Non-Governmental Organisation |
| NH | National Highway |
| NHAI | National Highways Authority of India |
| OBCC | Odisha Bridge and Construction Corporation Ltd. |
| OD | Organisational Development |
| ODR | Other District Road |
| OPWD | Odisha Public Works Department |
| ORSAC | Odisha Space Application Centre |
| OSRP | Odisha State Roads Project |
| OSRTC | Odisha State Road Transport Corporation |
| OWD | Odisha Works Department |
| PMU | Project Management Unit |
| PPP | Public Private Partnership |
| PRD | *Panchayati Raj* Department |
| PWD | Public Works Department |
| QPR | Quarterly Progress Report |
| R&B | Roads and Bridges |
| RACI | Responsibility, Accountability, Consultation and Information |
| RD | Rural Development |
| RDC | Road Development Corporation |
| RDD | Rural Development Department |

| | |
|---|---|
| RDQP | Research Development and Quality Promotion |
| RIDF | Rural Infrastructure Development Fund |
| RLW | Registered Laden Weight |
| ROW | Right of Way |
| RR | Rural Road |
| RSA | Road Safety Assessment |
| RSAP | Road Safety Action Plan |
| RSID | Road Sector Institutional Development |
| RTA | Road Transport Authority |
| RTI | Right to Information |
| RTO | Road Transport Officer |
| RW | Rural Work |
| SBD | Standard Bidding Document |
| SCERT | State Council Educational Research and Training |
| SCRB | State Crime Record Bureau |
| SE | Superintending Engineer |
| SH | State Highway |
| SPV | Special Purpose Vehicle |
| STA | State Transport Authority |
| SWOT | Strengths, Weaknesses, Opportunities and Threats |
| TIMS | Training Information Management System |
| TL | Team Leader |
| TNA | Training Needs Assessment |
| ToR | Terms of Reference |
| VDF | Vehicle Damage Factor |
| VR | Village Road |
| WB | World Bank |

# Executive Summary

During 2008-09, the Government of Odisha (GOO) has initiated Institutional Development studies for road sector in Odisha and has developed an Institutional Strengthening Action Plan (ISAP) 2008-18 to carry out reforms in the road sector. The ISAP 2008-18 identified various key areas to implement in order to improve the development and management of road sector.

The GOO has procured the services of various consultants to assist GOO in implementation of the ISAP objectives in the following key functional areas:

1. Road Sector Instructional Development (RSID)
2. Road Asset Management system
3. IT/ ICT Strategy Development and Implementation
4. Road User Satisfaction Survey (to indicate scale of user's response to proposed reforms)

Since inception of the RSID project in April 2012, the Consultants have been engaged in the assessment of various key functions of OWD and other agencies operating in the road sector. The RSID consultants have thoroughly reviewed the ISAP objectives, Key Result Areas and actions identified against key result areas. Though the ISAP was prepared in 2008, considering the objectives and key result areas identified, it is observed to be still relevant for the intended reforms in the road sector. At the time of writing this report, significant progress has been made towards achieving the key result areas in ISAP, which was delegated to RSID consultants.

As a part of Mid Term Status Review (MTSR), the RSID consultants presented Project Background, Objective, Scope of Services and overall Project Management. The Consultants also made comprehensive review of mobilization of key personnel, described project meetings, workshops and presentation. The list of deliverables submitted as a part of the project was also included in the MTSR.

The objectives/deliverables included in the RSID project are high level and strategic. They are a new Road Sector Policy, revised OPWD Code and Manual, Training Needs Assessment (TNA) of OWD Staff and a new Human Resource Development (HRD) Policy, Reorganization and Strengthening of OWD, multi-departmental Road Safety Action Plan, Road Network Master Plan, Vehicle Axle load Regulation and Management System, Future Road Funding options and development of a Road Fund Board, Road Toll Collection and Management and Future Institutional Options for improved management of the road network.

The progress on achieving each of the objectives is explained in Chapter 4. However, a need was felt to build a consensus on several emerging issues. And hence various meetings were held with senior OWD officials for this purpose. The meetings included individual discussions with officers, presentations based on ISAP topics, brainstorming sessions, seminars and workshops. These efforts have been outlined in the 10 annexures of MTSR report.

Further it was realized that there is a need for widening the sphere of activities of RSID within the Term of Reference by sharing information on collaboration with other institutional development

consultants. Their studies are also focused on overall strategy and developing actions to achieve the ISAP objectives. In this respect, consultants are engaged in development of:

1. Road Asset Management system
2. IT/ ICT Strategy Development and Implementation
3. Road User Satisfaction Survey (to indicate scale of user's response to proposed reforms)

The various outputs from Asset Management Consultants have a bearing on RSID studies. For example, the funding requirements estimated for maintenance by the Asset Management System will be an input to the road sector funding assessment. The outputs of engineering surveys carried out by Asset Management Consultants were used for preparations of Road Network Master Plan. Further, the management of Asset Management System as also IT/ ICT strategy has been taken into account while assessing the restructuring and future institutional options for the road sector. Similarly, the results of assessment of restructuring and reorganization options and results of Training Needs Assessment (TNA) were shared with the IT/ ICT consultants.

Considering the ongoing progress of the tasks outlined in the ISAP matrix, critical milestones for their successful completion were identified and are shown in **Table 6-3.** Currently, the RSID team is engaged in following up with the concerned agencies for expediting clearances and approval on key result areas which include OWD Staff Training and HRD, Road Safety Action Plan, Preparatory works for Road Network Master Plan, Vehicle Axle Load Regulation and Management System, Revised OWD Code and Manual and Standard Bidding Documents (SBDs).

Overall, at the time of writing this review, the Consultants have made significant progress on all the RSID tasks, in spite of the in approval of Inception Report as well as mobilization of the Team Leader. The Team now expects to complete the remaining elements of the assignment on time subject to expeditious feedback and comments from the client on submission.

# SECTION 1

# INTRODUCTION

# 1 Introduction

The economic progress made by the Odisha State in recent years has resulted in more than 15 per cent annual growth of motor vehicles (MVs). Many parts of the road network in Odisha are facing problems of congestion and high incidence of road accidents. On the other hand, many parts of the State are not adequately connected to the economic, education and health facilities due to poor accessibility. To make matters worse, the agencies are not equipped with robust policies, strategies, human resources and institutional arrangements to meet the future challenges in road sector. It is anticipated that the State will continue to grow at this rate in near future and therefore, it has been realised by the Government of Odisha (GOO) that a sustainable road network, robust strategies, policies and institutions have to be in place to manage the future demands for road infrastructure in Odisha.

In continuation to equip the state to meet the future challenges in mobility and accessibility, the GOO with the support of the Government of India (GOI) has embarked on the World Bank (WB) assisted Odisha State Road Project (OSRP) to upgrade the major road network in Odisha. This project is intended to enhance both the major road transport infrastructure as well as the strengthening of institutions for efficient and sustainable management of road sector.

GOO has appointed **Intercontinental Consultants and Technocrats Pvt. Ltd (ICTPL), New Delhi, in joint venture with Grant Thornton Advisory Pvt. Ltd. (GT-APL), UK and in association with ARKITECHNO Consultants (India) Pvt. Ltd., Odisha**, to provide consultancy services for Road Sector Institutional Development (RSID) Study to assist in the realisation of the project objectives. The Odisha Works Department (OWD) is the Client for this study. The Consultants were mobilized for this Study in April 09, 2012. The following are the major tasks involved in the RSID study, the deliverables of which are at various stages of completion:

- Road Sector Policy and Strategy;
- Road Safety Engineering and Planning;
- Road Network Master Planning;
- Vehicle Axle Load Regulation and Management;
- Future Roads Funding and Management thereof;
- Road Toll Collection and Management;
- Re-organisation and Strengthening of OWD;
- Training and HRD;
- Revision of Works Code and Manual; and
- Future Road Sector Institutional Options.

As per the Terms of Reference (ToR), it is required for the consultant to submit a Mid Term Status Review (MTSR) report after 14 months from the date of mobilization for the project. This report conforms with this requirement, and the contents of the report explain in detail the background of the study, the progress achieved on all the tasks during the initial 14 months (till June 08, 2013), meetings and consultations held with various stakeholders, and the way forward to complete the objectives of the project.

# SECTION 2

# BACKGROUND OF THE STUDY

# 2 Background of the Study

## 2.1 General

The improved transport system has been considered as the major development agenda of the state towards poverty eradication. The onus of achieving this strategic objective has been entrusted to Works Department (OWD) of GOO. Therefore, efficient functioning of OWD is the key to economic growth and satisfaction of the communities. To meet the expectations, it needs to adapt itself to contemporary tools of planning, design, construction technology, road safety, plants/equipment and other modern techniques. Besides, there is a strong need to develop vision, mission (in line with broad 'Vision' and 'Development Goals' of Odisha) of the OWD and then to undertake Institutional Development measures by:

- Institutional Strengthening and Restructuring
- Capacity building

## 2.2 Project Background

To carry forward its laid strategic objectives, Government of Odisha (GOO) conceived a plan to upgrade major roads in the state and sent a proposal for Loan Assistance to The World Bank (WB) during the year 1997–98. The WB however suggested that the proposed project should not only include improvement of the Road Transport Infrastructure, but also focus on improving and upgrading the Institutional Capacity of OWD. Accordingly, the GOO undertook an 'Institutional Development Strategy' (IDS) Study' during 1998–99 by engaging a Consultant. The study identified several key result areas to be addressed in OWD and concerned road sector institutions over short (0–2 years), medium (2–5 years) and long term (5–10 Years).

Based on the recommendations of the IDS Study, the GOO decided to undertake Road Sector reforms and update the policies and enhance the capacities in planning and efficient management of Road Sector.

As an integral part of the new project, GOO agreed to undertake development of an integrated Institutional Strengthening Action Plan (ISAP) in a phased manner during the proposed Odisha Road Sector Project (OSRP). The GOO constituted a 'Task Force' to revise the IDS, update its vision and findings where appropriate, and develop an ISAP with the assistance of a Consultant and in consultation with the WB. Based on the WB suggestions on Road Sector Reforms, the Task Force inputs and GOO requirements, the ISAP was formulated in 2007 with focus on Institutional Strengthening and Capacity Building of OWD. The ISAP suggested undertaking various activities over the period 2008-2018. The ISAP included clear, monitor-able targets and milestones for a planned range of policy, capacity and resource improvements in the following fields:

i. Road Sector Strategy (Regulatory and Strategic Context);
ii. Core Processes in Road Management;
iii. Organisational Structure and Management;
iv. Financial Management, Audit and Administration;
v. Information and Communication Technology (ICT) and MIS; and

vi. Human Resource Development (HRD) and Capacity Building.

As a follow up action, the implementation of ISAP activities in the road sector as suggested under ISAP 2008–2018 was endorsed by the State Government in 2009. This also facilitated monitoring of ISAP results by the GOO and the Bank.

In order to carry forward the objectives of ISAP on reforms in Road Sector in general and the OWD in particular, OWD initiated actions to procure the services of a Consultant as per WB guidelines on procurement for Road Sector Institutional Development (RSID). M/s Intercontinental Consultant Technocrats Pvt. Ltd. (ICTPL) in joint venture with Grant Thornton Advisory Pvt. Ltd. (GTAPL) in association with ARKITechno Consultants (India) Pvt. Ltd. have been retained by OWD to provide such services over a period of 30 months (April 2012-Oct 2014).

## 2.3 Project Objectives

The broad objective of consultancy services is Road Sector Institutional development. However, the specific objectives of the RSID consultancy can be stated as:

- to enhance the institutional capacity of OWD and where appropriate, other concerned GOO road sector agencies engaged in road infrastructure development
- to improve the engineering aspects and planning for road safety management in the State
- to initiate mechanism for sustainable future growth of the road sector with the resources dedicated to roads infrastructure development.

## 2.4 Scope of Services

The achievement of this overall objective will, at varying stages, involves policy and institutional interventions in the roads sector, in accordance with the ISAP. This requires diverse forms of technical assistance, training and capacity building services, policy studies and implementation support (including legal and statutory aspects).

To achieve the above goal the Consultants have proposed to carry out a set of distinct Tasks integrated into one overall 'package'. The 'package' of services includes:

- Broad-based 'decision-making' involving major stakeholders;
- 'Facilitation and support' to the Client in the process of preparing and presenting recommendations to the GOO;
- Subsequent implementation of the accepted package (once GOO decisions are made); and
- Provide assistance for drafting and/or development of documentation of a legal and/or statutory nature.

The specific tasks comprising the assignment are:

- Comprehensive revision and updating of Odisha Public Works Department (OPWD) Code and Procurement Manual;
- Development and Establishment of a state-level strategic policy and vision document for the Odisha road sector;

- Completion of an OWD-wide Training Needs Assessment (TNA) followed by implementation of TNA based staff training programme supported by an HRD Policy;
- Finalization and operationalization of current department plans for enhancement of staffing structures and some related re-organization of OWD;
- Development of a multi-sectoral road safety action plan;
- Development of a comprehensive main road network master plan for Odisha road network with multiyear plans and annual plans for roads development;
- Report on study of roads funding options for possible creation of a State Road Fund;
- Development of a framework for effective Road Toll Collection & Management, based on recently enacted Tolling Act;
- Report on Vehicle Axle Load Regulation & Management besides support for development of a Vehicle Overload Management and Information System; and
- Review the present institutional structure arrangements of the state road sector and recommend most effective options for improved delivery of services and governance.

## 2.5 Project Management

The management of the project has been structured, taking into account the functional and operational hierarchical structure of OWD and GOO and for smooth approval of deliverables and decision making process during the course of assignment.

At operation level, the Consultants reports to Head, Project Management Unit (PMU) – which is Chief Engineer (CE), WB Projects, OWD. The PMU remains the main link between the OWD and RSID Consultants. The provision of PMU has been included as part of the WB suggested project management structure. The CE (WB) and Head of PMU have nominated Shri R. R. Bohidar, SE as the Nodal Officer for coordinating the activities during consultancy services. The major responsibilities of nodal officer includes providing needful support and assistance in undertaking various sub tasks by the consultants, which could involve meetings, interactions, feedback and data/information collection from the project stakeholders or other GOO officials. In addition, the PMU has constituted 10 task forces (one for each specific task as mentioned in section 1.4), which are now mostly headed by one CE and two superintendent/executive engineers, as depicted in **Table 2-1.**

From the consultancy team, Team Leader is responsible for timely submission of deliverables as per agreed project schedule and to undertake technical correspondence with the PMU and relevant GOO officials. The consultancy team comprises of 15 subject matter experts consultants as indicated in **Table 2-2.**

## Table 2-1: Responsibility Matrix for Tasks under RSID

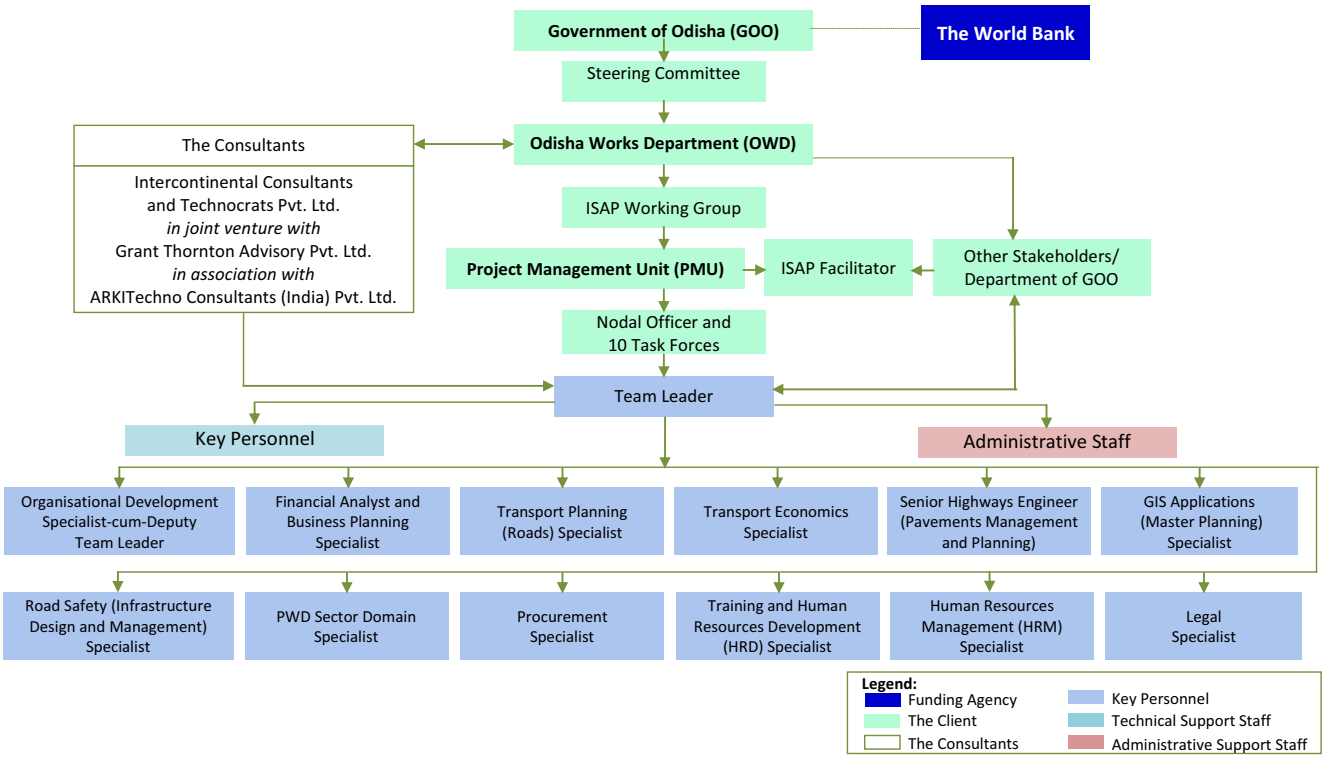
| CE/EIC | Nodal Officer | | | | |
|---|---|---|---|---|---|
| | Dr. NC Pal | Er. MR Misra | To be named | Er. BC Tripathy | Er. KB Panda |
| EIC, RW & CE,DPI & Roads | **Road Network Master planning** TL/PK Nanda/Chandi Ganguly/B Muthuthevar/D Vasudevan | | | | |
| CE,DPI & Roads | **Road Sector Policy & Strategy** TL/Chandi Ganguli/B Muthuthevar/Dipak Rao | | | | |
| Addl. Secy. (Works)&CE, DPI & Roads | | **Future Road Sector Institutional Options** TL/A Basu | | | |
| EIC, Civil, CE, Buildings | | | **Reorganization & Strengthening of OWD** TL/CP Bohra/SN Swaroop/A Basu | | |
| CE,NH CE, Designs | | | | | **Revision of OPWD Code & Manual** TL/Deepak Narayan/BR Suri/Dipak Rao |
| MD,OBCC CE, World Bank Projects | **Road Toll Collection & Management** TL/A Basu/BR Suri/Dipak Rao | | | | |
| CE, World Bank Projects | | **Road Safety Engg. & Planning** TL/PK Nanda/PK Sikdar/Dipak Rao **Vehicle Axle Load Regulation & Management** TL/PK Nanda/PK Sikdar/BR Suri | | | |
| CE, World Bank Projects & CE,e-procurement | | | | | **Future Road Management & Funding** TL/A Basu/C Ganguly/B Muthuthevar/ Dipak Rao |
| CE,RDQP | | | | **OWD Staff Training & HRD** TL/CP Bohra/S Jagota/SN Swaroop/Dipak Rao | |
| Total Tasks | 3 | 3 | 1 | 1 | 2 |

**Table 2-2: Engagement of Key Personnel**

| Sl. No. | Position | Name |
|---|---|---|
| 1 | Road Agency Management Specialist-cum-Team Leader | Mr. Norgildo Banal Cacal (Till 15th April 2013)<br>Dr. C. P. Bohra (In-charge, till date after Mr. Cacal)<br>Mr. Arun P. Mokashi (from 27th September 2013) |
| 2 | Organisational Development Specialist-cum-Deputy Team Leader | Dr. C. P. Bohra |
| 3 | Financial Analyst & Business Planning Specialist | Mr. Amitava Basu |
| 4 | Transport Planning (Roads) Specialist | Mr. Chandi Ganguly |
| 5 | Transport Economics Specialist | Mr. Boominathan Muthuthevar |
| 6 | Senior Highways Engineer (Pavements Management and Planning) | Dr. P. K. Nanda |
| 7 | GIS Applications (Master Planning) Specialist | Mr. D. Vasudevan |
| 8 | Road Safety (Infrastructure Design and Management) Specialist | Dr. P. K. Sikdar |
| 9 | PWD Sector Domain Specialist | Mr. Deepak Narayan |
| 10 | Procurement Specialist | Mr. B. R. Suri |
| 11 | Training and Human Resources Development (HRD) Specialist | Mr. Sandeep Jagota |
| 12 | Human Resources Management (HRM) Specialist | Mr. S. N. Swaroop |
| 13 | Legal Specialist | Mr. Dipak Rao |
| 14 | Adhoc Technical Specialist (Institutional Strengthening, Restructuring & Training) | Col. S. P. Tomar |
| 15 | Adhoc Technical Specialist (Road Network Planning & Road Safety) | Mr. Tony Mathew |

For undertaking individual tasks, respective Key Experts of consulting team maintains liaison with concerned GOO departments for discussions, feedback and data/information collection and analysis, specific to their specific areas of expertise. Operationally the key experts work in close coordination with respective task forces, which interacts on a regular basis and provides required feedback.

**Project Organisation**



# SECTION 3

# PROGRESS STATUS

# 3 Progress Status

## 3.1 Mobilisation

Having signed the contract agreement with OWD on 16 March 2012, the Consultant's consortium comprising of ICTPL in joint venture with GTAPL and in association with ARKITechno Consultants (India) Pvt. Ltd., have mobilisedw.e.f.9 April 2012 and commenced their services.

The project office has been established at the address given below:

**Project Office**

Plot No: N-3/91, IRC village,
Nayapalli, Bhubaneswar-751 015, Odisha, India
Tel.: 0674-2557204
Fax: 0674-2557204
E-mail: Odisha@ictonline.com
Web: www.ictonline.com

## 3.2 Engagement of Key Personnel

All the Key experts, enlisted under **Table 2-2** have been engaged on the project. Most of them had provided considerable inputs on the project site, both at headquarters and field offices of OWD as well as various stakeholders, as per requirements. As a part of project progress and to make the task consultative, they had useful interactions with OWD and GOO officials, stakeholders etc. for inputs, data/information and feedback on various aspects related to the task.

## 3.3 Project Meetings and Workshops

### 3.3.1 Meetings

Besides having regular meetings with CE, WB (also Head, PMU) and members of PMU and task force members, Team Leader of the RSID consultancy project had several meetings and consultations with GOO officials. An indicative list of such meetings/interactions is presented in **Table 3-1.**

**Table 3-1: Indicative List of meetings by Team Leader**

| Sl. No. | Meeting with | Date |
|---|---|---|
| 1 | Had interaction with IT/ICT Consultant and participation in the workshop chaired by EIC-cum-Secretary (Works) | 17.04.2012 |
| 2 | The World Bank Officials | 26.04.2012 |
| 3 | Steering committee, headed by Development Commissioner, GOO | 22.05.2012 |
| 4 | ISAP Working Group | 26.06.2012 |
| 5 | Meeting with EIC cum Secretary (Works), GOO | 21.07.2012 |
| 6 | CE, WB and WB Officials | 22.07.2012 |
| 7 | CE, WB and Nodal Group Officials | 06.08.2012 |
| 8 | ISAP Facilitator (Project Review) | 25-27.10.2012 |

| | | |
|---|---|---|
| 9 | ISAP Review Committee | 19.11.2012 |
| 10 | ISAP Working Group | 19.12.2012 |
| 11 | ISAP Facilitator regarding project progress | 23-24.01.2013 |
| 12 | DC cum Addl. Chief Secretary to GOO regarding support from ORSAC | 31.01.2013 |
| 13 | ISAP Facilitator regarding project progress | 24.03.2013 |
| 14 | The World Bank Mission | 09& 12.04.2013 |
| 15 | ISAP Review Committee | 31.05.2013 |

### 3.3.2 Workshop

In accordance with Sl. No. 3 of main deliverables and milestones given vide Appendix-B, Reporting requirements of Contract Agreement, the Stakeholders Workshop was conducted on 09th November 2012.

**Objectives**

- To create awareness about the project to all stakeholders;
- To enlist specific needs, major issues (e.g. planning, institutional, integration, resource issues) and expectations of stakeholders (including road users) from road sector (both under present and as envisaged in near future), road policy etc.;
- To have preliminary feedback on adoption/applicability of specific policy interventions and management strategies (adopted by some other states, countries) under socio-political situation of Odisha; and
- To seek support in facilitating data/information.

**Salient Feature of Conduct**

Attended: A total of 89 Nos. attendees including professionals of various Road Sector Departments and Secretariat of GOO.

Presided by: Mr. S. K. Ray, EIC-cum-Secretary, Works Department GOO

Chaired by: Mr. N. K. Pradhan, CE, WB
Mr. Rajesh Rohatgi, Task Team Leader, The World Bank
Mr. Ernest Huning, Consultant, The World Bank

**i. Speakers and Main Issues Covered**

- Shri A. D. Narain - President and Project Advisor – Moderator
- Mr. N. B. Cacal - Team Leader, Objective and Scope of Project
- Dr. C. P. Bohra - Dy. Team Leader, Facilitator and Institutional Options
- Col. S. P. Tomar - Road Sector Policy and Strategy
- Dr. P. K. Sikdar - Road Safety and Master Planning
- Mr. A. Basu - Future Road Sector Funding
- Mr. Deepak Narayan- Vote of Thanks

### ii. Some Important Photographs from Workshop







The major outcome of the stakeholders workshop is enclosed as per **Annexure-I.**

## 3.4 Presentation by Team Leader

A list of various focus areas and forums, where Team leader had made presentations is provided in **Table 3-2**.

**Table 3-2: Important Presentations by Team Leader**

| Sl. No. | Presented at | Date |
|---|---|---|
| 1 | Presentation to OWD on Inception Report | 17.09.2012 |
| 2 | Presentation on Brief of Progress during Stakeholder Workshop | 09.11.2012 |
| 3 | Presentation of Inception Report to ISAP Review Committee | 19.11.2012 |
| 4 | Presentation during ISAP Working Group | 19.12.2012 |
| 5 | Presentation during The World Bank Mission | 09&12.04.2013 |
| 6 | Presentation of QPR 3 & 4 to ISAP Review Committee | 31.05.2013 |

## 3.5 Submission of Deliverables

The deliverables and draft reports related to various tasks have been submitted since the inception of the project and are detailed in **Table 3-3**.

**Table 3-3: Details of Reports Submitted/Deliverables**

| Sl. No. | Description | Submission Date |
|---|---|---|
| 1 | Inception Report | 20.09.2012 |
| 2 | QPR 1 | 21.09.2012 |
| 3 | Stakeholder Workshop | 09.11.2012 |
| 4 | QPR 2 | 12.11.2012 |
| 5 | QPR 3 | 04.02.2013 |
| 6 | Report on Road Infrastructure Safety Management Review | 06.04.2013 |
| 7 | QPR 4 | 17.04.2013 |
| 8 | Working Paper on Short-to-Medium Term OWD Re-structuring and Re-organisation | 07.05.2013 |
| **Other Submissions** | | |
| | Chapters on Revised OPWD Code | Continuing |
| | Draft Standard Bidding Documents | Continuing |
| | OWD HRD Policy | 08.06.2013 |

# SECTION 4

# PROGRESS ON EACH TASK

# 4 Progress on Each Task

## 4.1 Revision of Works Code and Manual

### 4.1.1 Scope of Work

As per ToR the task involves following activities:

- Review existing OPWD code and manual for updating of procedures, responsibilities and accountabilities in all works stages from project inception/planning to completion, in conformity/consistency with GOI and GOO accounting and audit requirements;
- Revision of provisions on dispute redressal mechanism(s) to acknowledge relevant 'complaints handling' and RTI Act aspects;
- Inclusion of new sections on PPP policy and guidelines, on environment and social (safeguards) management, on e-procurement requirements and processes, on construction zone Safety guidelines and on road safety engineering/design requirements; and
- Assistance to OWD for completion of the (already underway) review/updating of contractual documents for all GOO procurement of goods, works and services, with their integration/cross-referencing in the contents of the revised Code and Manual where appropriate.

### 4.1.2 Objectives

The main objective of the task on Revision of OPWD Code and Manual is to develop a Code for OWD and other concerned GOO agencies engaged in public works to carry out infrastructure development. This should support efficiency, effectiveness and economy of operations in infrastructure development as well as to improve the engineering, safety and quality aspects in public infrastructure management in the state.

This requires development of documentation of a legal and/or statutory nature, in respect of Revised OPWD Code & Manual in addition to Standard Bidding Documents & Procurement Manual.

### 4.1.3 Process/Approach

The basic approach for revision has been diagnostic and consultative involving following:

- Desk study–review and analysis of existing OPWD code, existing situation & requirements of Odisha and identification of reasons for change
- Identification of key areas, systems and processes needing modifications as well as additional areas needing emphasis/inclusion.
- Updation using analysis (by consultants) and experiences (best management practices) from other states.
- Consultation, feedback, suggestions from stakeholders
- Integration and finalization.

**Figure 4-1** below showing the process and approach of revision of existing OPWD Code.

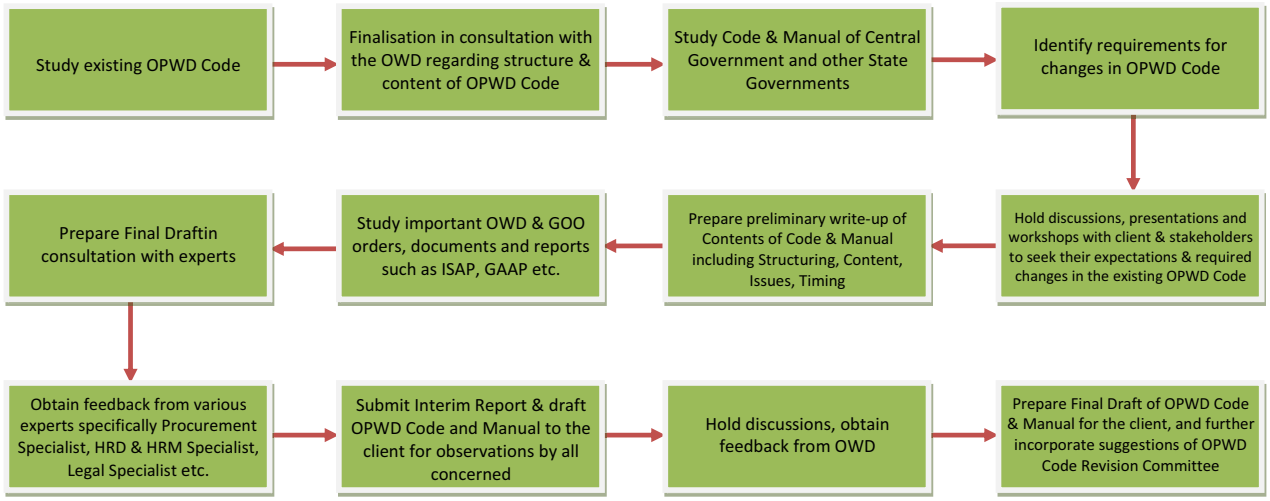



**Figure 4-1: Flow Chart for revision of OPWD Code and Manual**

This 'Works' includes both original works as well as maintenance and repair works and the processes of planning to completion involving master planning, survey and investigation, budgeting, administrative approval, technical sanction, expenditure sanction and allotment of funds, construction management, quality management etc.

### 4.1.4 Meetings/Consultation/Presentations

- Had interactions with all the CE including CE (Procurement) & MD, OBCC, Members of Code and Manual Revision Committee of OWD (not of OPWD) besides a substantial number of SEs, EEs, AEs and JEs. Interactions are still continuing.
- Methodology of revision of OPWD Code & Manual was presented as a part of the Inception Report to the ISAP Review Committee on 19-11-12. Suggestions have been made by the committee, which specifically stressed on the following:
    - Redesigning Quality Management Systems and Procedures
    - Formulating Techno-Legal Cell within the organization to deal with complicated contractual issues including Arbitration matters

  These have been duly considered while undertaking the revision exercise.
- A presentation on revision of OPWD Code & Manual was undertaken before the World Bank Mission on 10$^{th}$April 2013. The feedback has been taken into account for the task.

### 4.1.5 Progress

- Reviewed and analysed the existing OPWD Code and identified major reasons for improvements, which includes:
    - Integration of Management and Technological Changes [Construction Technology, Project Management, IT, GIS, Asset management systems and Road Maintenance Management System (RMMS) etc.]
    - Policy and Legal Changes (PPP policy, RTI Act etc.)
    - GOI, IRC requirements/guidelines on road and/or building, Infrastructure sector aspects
    - Market changes (inflation, free market economy, outsourcing possibilities, contract management, capital availability etc.)
    - Increased emphasis on issues like quality management, social and environmental considerations, safety in design and construction, role of contractors through PPP, EPC etc.
    - Improved clarity, transparency, efficiency and governance
    - Institutional changes and new role definitions (new organisations, redundancy of organisations, organisational restructuring etc.)
    - Elimination of redundancies and inconsistencies with Government orders, policy changes etc. undertaken after issue of OPWD Code (about 30 years back).
- Prepared and submitted a “Table of Contents” for the proposed OPWD Code.
- Studied important Codes and Manuals of Central and State Governments such as CPWD, APPWD, Gujarat PWD, Kerala PWD, Haryana PWD etc. for various provisions corresponding to revision of OPWD Code and Manual.

- Sent questionnaires to OPWD, to seek their views on various issues such as responsibility & powers of officers, areas/clauses needing improvements in the code for efficient planning and execution of works, powers of hiring of Accommodation etc.
- Based on the interaction with the client, original 5 chapters (1 to 5) and their broad contents have been retained. Overall seven new chapters have been proposed for inclusion, which at present includes the following chapters:
    1. Introduction
    2. Organisation and Establishment
    3. Works
    4. Public Buildings
    5. Miscellaneous
    6. Budget, Accounts and Audit
    7. Safety Management and Environmental Safeguards
    8. Asset Management
    9. Quality Management
    10. Dispute Redressal, Arbitration and RTI
    11. Public Private Partnership (PPP)
    12. IT & MIS
- For easy review and comments, all the chapters of the code have been redrafted in matrix form (As Is, Suggested Provisions & Justification/References).
- Chapters 1 to 4 have been submitted and are being reviewed by OWD.
- The Consultants have reviewed various bidding documents for procurement of works, goods and consultancy services, concessionaire agreement for PPP and EPC contracts and have submitted draft SBDs for works, goods and services. These are being reviewed by OWD.

### 4.1.6 Original Date of Deliverable

1. The original date of submission of Interim Report on Revision of OPWD Code & Manual (Structuring, Content, Issues and Timing) was due on October 08, 2012 (end of 6 months).
2. Final report on OPWD Code & Manual was due on May 08, 2013 (end of month 13).

### 4.1.7 Expected Date of Deliverables

The expected date of deliverables indicated below are subject to expeditious approval by OWD of chapter-wise submissions. These are:

1. The Interim Report on Revision of OPWD Code & Manual (Structuring, Content, Issues and Timing) including SBDs and Procurement Manual are expected to be delivered by 31$^{st}$July 2013.
2. Draft OPWD Manual shall be submitted by August 31, 2013
3. Final report on OPWD Code & Manual is expected to be delivered by September 30, 2013.

### 4.1.8 Issues Needing Intervention of OWD

- Regular and expeditious meetings and early discussions on submissions (chapter wise) and feedback for improvements followed by chapter wise finalization
- Decision on deletion of Chapter 6 (Power of Officers) of existing OPWD Code and its inclusion in OPWD Manual due to frequent changes in powers of officers etc.

### 4.1.9 Way Forward

- The visit of OPWD Officers should be undertaken on priority to PWD headquarters of other states to study their operations, policies, structure etc. The early visit would assist in sharing their experiences using improved feedback/comments for finalization of OPWD code.
- Development of OPWD Manual (chapter-wise, as per Code) by consultant and its expeditious approval by OWD.

## 4.2 Road Sector Policy and Strategy

### 4.2.1 Scope of Work

As per ToR the task involves following activities:

- Review and assessment of current policies relating to roads development and management including legislation, regulation and other statutory mechanisms;
- Analysis of known and projected road sector demands, challenges and GOO aims/targets;
- Identification of limitations and gaps for authority/powers/policies of GOO for road sector management;
- Options and opportunities for strengthening the road sector framework for future requirements; and
- Draft Policy and Vision Documents – 5–10 years horizon (to be modified to 20 year vision).

Although the ToR specifies a 5–10 year Policy Document, but Steering Committee desired that it should be developed for 20 years horizon. Accordingly, the consultants shall undertake the development of policy document for a 20 years horizon.

### 4.2.2 Objectives

The objective of development of road policy is to provide an enabling environment for development of road sector to promote balanced, equitable (both geographically and socially) and rapid socio-economic development in the state of Odisha by safe, cost effective and comfortable transportation of goods and people with the right inter modal mix but basically providing connectivity and easy access to all other developmental activities with special emphasis to integrate the backward and far flung areas into the road network.

### 4.2.3 Process/Approach

The basic approach of the study shall involve:

- Desk research, review and analysis of road sector polices of other states vis-à-vis draft road sector policy of GOO besides existing road related acts of GOO (including Motor Vehicle Act)
- Vision development of road sector for GOO using consultative approaches
- Redefining aims, objectives and time based targets for road sector
- Development of draft road sector policy, strategic framework and implementation mechanism
- Feedback, integration and validation by GOO

These provisions shall be evolved such that there are minimum legal obstacles in execution of the road projects in future.

### 4.2.4 Meetings/Consultation/Presentations

- Interviews/discussions with senior and middle level OWD officials both headquarter and field level
- A presentation on Road Sector Policy &Strategy was undertaken during Stakeholder Workshop on 09th November 2012. The feedback (discussions, *ZOPP* Cards) has been duly considered, while developing the road policy.

### 4.2.5 Progress

- Analysis of the draft road policy of Odisha, 2004
- Review and analysis of road sector policies of other states in India
- Stakeholder workshop has been conducted to present analysis of comparative merits of road sector policies of other states and to seek feedback and integration possibilities besides expectations from road sector policy of Odisha.
- Draft framework of Road Sector Policy has been developed covering various features as detailed below:
    - Road sector demands for medium to long term as part of its vision
    - Existing legal and institutional framework along with organisational capacity of Road Sector departments
    - Proposed Authority, Powers and regulatory framework for:
        - Policy and Planning
        - Road Administration
    - Guide lines for work procedure of all road departments of GOO to jointly co-ordinate their road development activities under laid down institutional framework
    - Policies for environment clearance, rehabilitation and resettlement

- Ownership of Road Assets, covering all categories of roads i.e. SHs, MDRs, ODRs and VRs, etc.
- Public Private Participation
  - Extent of participation
  - Financing through concession agreements bases on BOT, BOOT, DBFOT, BOLT, EPC etc.
  - Performance based contracting
- User pay principle for tolling
- Maintenance of existing Road Assets
- ROW Management, wayside development and air rights for Revenue Generation
- Land Acquisition –
  - For Normal Works – 30 years compensatory and annual annuity to Land Owners
  - For BOT works -partnership with Concessionaire, land owners as Stakeholders
- Budgetary Reforms for Non Plan Expenditure and Emergency Works
- Phased development of Green Projects for Tourist Hubs
- Institutional Framework for Environment Management
- KBK Development Plans, their Review and improvements
- LWE Area Development proposals for integration of specific issues
- Procurement Policies for Good, Services and Works
- Road safety measures
- Development Plans for Road Network for next 10 and 20 years
- Vehicle axle load management and regulation and associated pavement management system
- Increase application of IT, GIS, Design software etc.
- Formulation of Policy on Renewal Cycles of pavement for various category of roads
- Consideration of new Institutional Structures – State Road Fund, RDC, Road Transport Council, Road Policy and Planning Unit, Road Safety Council etc.
- Quality Management Systems and TQM (Total Quality Management)
- Development of competencies of road sector officials as well as of the contractors
- Research collaboration for eco-friendly construction material development and construction technologies and its dissemination

- Review of comments of Stakeholders obtained through ***ZOPP*** Cards has been undertaken for inclusion in development of draft road sector policy

### 4.2.6 Original Date of Deliverable

1. Draft Report on Odisha Road Sector Policy and requirements for its implementation was due on February 08, 2013 (end of month 10).
2. Final Report on Odisha Road Sector Policy was due on April 08, 2013 (end of month 12).

### 4.2.7 Expected Date of Deliverables

1. Deft Report on Odisha Road Sector Policy and requirements for its implementation is planned to be submitted by June 30, 2013.
2. Final Report on Odisha Road Sector Policy will be submitted by September 30, 2013 subject to receipt of feedback/comments from OWD and other Stakeholders by August 31, 2013.

### 4.2.8 Issues Needing Intervention of OWD

State Visits to be organised on priority, so that required inputs can be obtained for providing feedback on draft Road Sector Policy and Strategy.

### 4.2.9 Way Forward

- Development of road sector vision;
- Consultation with Stakeholders
- Development of draft road sector policy;
- Integration of comments/suggestions; and
- Development and finalisation of road sector policy document.

## 4.3 Reorganization and Strengthening of OWD

### 4.3.1 Scope of Work

The Scope defined vide ToR in relation to reorganisation and strengthening of OWD is as follows:

- Review and confirmation of the short-to-medium term OWD organisation and its main determinants;
- Development of a medium-to-longer term organisational vision/model for the OWD and its key functional and operational features;
- 'Mapping' the scope and distribution of administrative, financial and technical powers and authorisations for the OWD's main functions with the revised OWD code/Manual;
- Facilitation of OWD and GOO action on measures required to complete the transition within OWD, into changed arrangements and structures;
- Ensure the new Staff Training program and HRD strategy are compatible with the organisational changes; and

- Medium to longer term strengthening of the Institutional framework and structures of Odisha's roads sector.

### 4.3.2 Objectives

- To develop VISION, MISSION and mandate of OWD;
- To identify factors for structural change; and
- To develop a short-term and a medium/long-term structure of OWD along with a human resource plan.

### 4.3.3 Process/Approach

The proposed approach to undertake reorganization and strengthening of OWD includes:

- Desk Research
- Interaction with Officials of the Department
- Interaction with Stakeholders, the Mechanism Includes:
    - Structured and semi-structured questionnaires;
    - Interviews;
    - Stakeholder Workshops;
    - Brain-storming sessions (especially with middle and senior management);
    - One to one meetings and discussions with select staff – senior and middle management of OWD, elected representatives, policy makers and other stakeholders, as necessary; and
    - Presentation and feedback from OWD officials and stakeholders.
- Interaction with Road Sector Experts, the Mechanism Includes:
    - Structured and semi-structured questionnaires;
    - Interviews; and
    - Stakeholder Workshops/brainstorming sessions.
- Observations on the Functioning of OWD

The approach has been schematically depicted in **Figure 4-2.**

### 4.3.4 Meetings/Consultation/Presentations

- Interviews/discussions with senior and middle level OWD officials both headquarter and field level
- Brainstorming sessions held
- A presentation on OWD Reorganisation & Restructuring was undertaken before the World Bank Mission on 09$^{th}$April 2013. The feedback has been taken into account for the task.

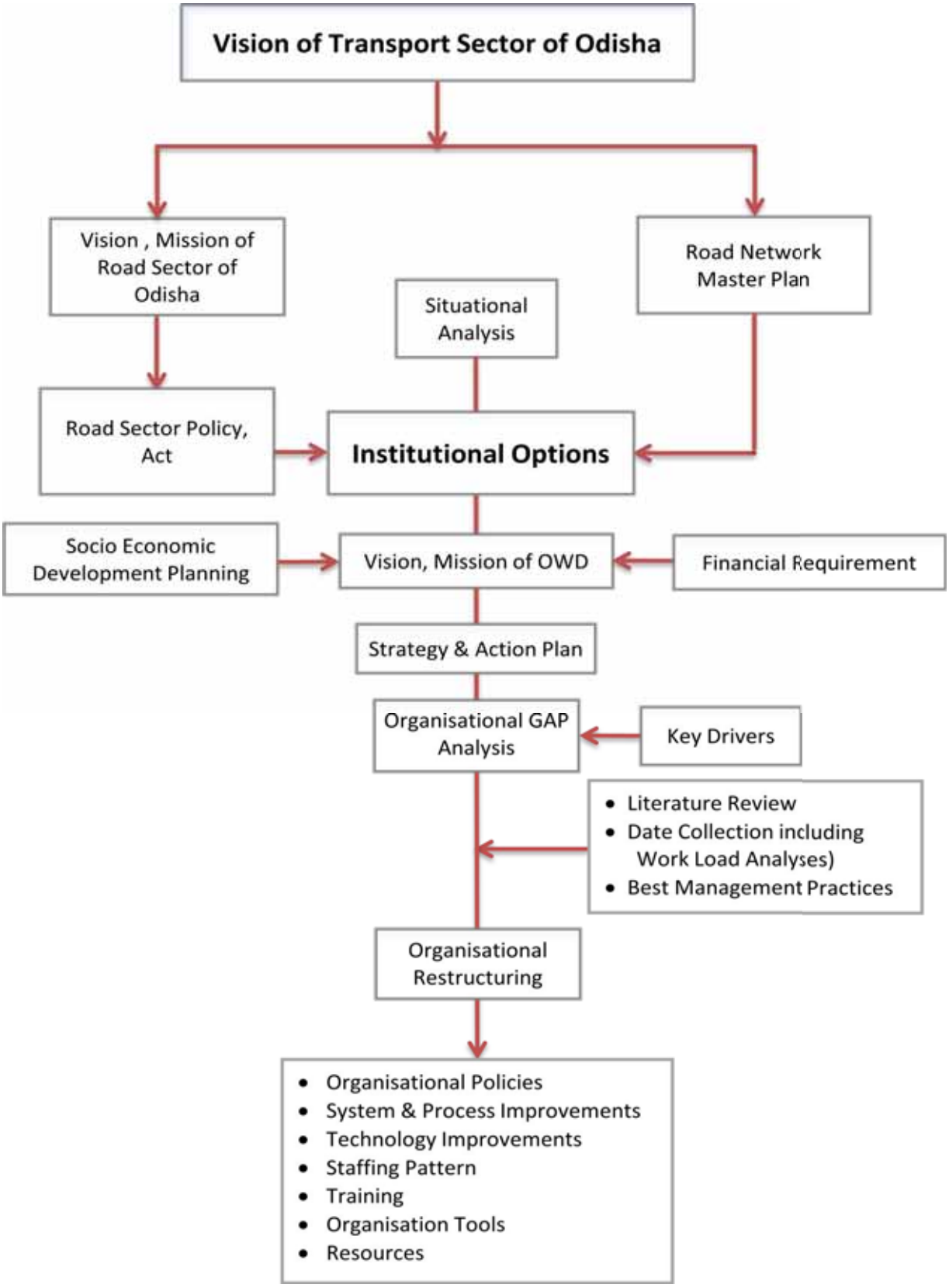



**Figure 4-2: Schematic of Process of Organisational Restructuring**

### 4.3.5 Progress

- Review and analysis of existing structure and restructuring exercise undertaken by OWD in December 2011. Based on this a detailed SWOT (Strengths, Weakness, Opportunities & Threats) analysis has been undertaken;
- Based on review and interactions with various OWD officials as well as brainstorming sessions, a number of organisational development (OD) issues have been identified and same has been categorised in – Policy, Structure, System & Processes, Human Resources (numbers & competencies), Resources and Work Environment (also reported in para **4.4.5** under the task of **OWD Staff Training & HRD**);
- Validation of SWOT analysis and identified OD issues has been undertaken through focused group discussions;
- Assessment of Internal and External Forces for Structural Change - Undertaken and validated change drivers;
- Assessment of Gaps (Envisioned – Present) – workload analysis is underway;
- Review and analysis of organisation structures of other states;
- Development of options; and
- Submitted the Working Paper on Organisational Restructuring in March 2013.

### 4.3.6 Original Date of Deliverables

Working Paper on Short-to-Medium Term OWD Re-structuring & Reorganization was due on October 08, 2012 (End of month 6). This has been submitted on May 07, 2013.

### 4.3.7 Expected Date of Deliverables

The next deliverable is Draft Report on Medium-to-Longer Term Strengthening of the Institutional Framework/Structures of Odisha's Roads Sector, which is due at the End of month 24 (April 08, 2014).

### 4.3.8 Issues Needing Intervention of OWD

- Liaison for data collection on work load (formats)
- Finalisation of the date for the Vision Workshop
- Organise State visit as early as possible

### 4.3.9 The Way Forward

- Development of Vision, Mission of OWD
- Assessment of Structural and HR (type, number & competency) gaps within OWD to meet mandated responsibilities derived from vision/mission (envisioned OWD).
- Development and validation of organisational structure of OWD and Medium-to-Long Term Strengthening of the Institutional Framework/Structures of Odisha's Road Sector
- Planning for HRM (training, motivational, **incentivise** etc.)

- Implementation and monitoring guidelines including those for Change management

## 4.4 OWD Staff Training and HRD

### 4.4.1 Scope of Work

The scope of work defined vides ToR includes:

- Preparing and facilitating HRD policy for OWD;
- Conducting a comprehensive Training Needs Assessment(TNA) exercise for all OWD staff;
- Identifying/defining an integrated set of 'core technical and management skills and knowledge' for OWD technical staff;
- Developing multi-year 'rolling' Staff Training program;
- Evolving an evaluation system to manage training quality; and
- Facilitating establishment of Training/HRD functions capacity within OWD to sustain the delivery and management of all new staff training and HRD activities.

### 4.4.2 Objectives

- Sustainable and effective OWD capability and performance
- Institutionalise HRD function as per OWD HRD Policy
- Improve training delivery and quality.

### 4.4.3 Process/Approach

For effective and efficient plan formulation and project implementation, it is required that the activities of all functionaries working in OWD are competent to realise the organizational goal. During the course of this consultancy, utilising the 'process approach', focus was and will be on the following seven key activity areas:

i. OD review
ii. Develop OWD – HRD Policy
iii. Conduct Training Needs Analyses
iv. Curriculum Development based on TNA
v. Prepare a comprehensive Training plan
vi. Evolve an 'evaluation system' to monitor Training Delivery
vii. Training Information Management System (TIMS)

As part of this consultancy it is required to carry out the above activities so that the results help in initiating a sustainable HRD plan. Results of each of the above activities culminate from intensive consultations with OWD staff, both at Head Office and from the Field Offices. A three-way methodology has been followed which includes:

- One-to-one interviews,

- Focused Group Discussions (FGD) and
- Development, pilot testing, administration of Questionnaires and analyses.

### 4.4.4 Meetings/Consultation/Presentations

During the reporting period, a variety of one-to-one meetings were held with OWD officers. These interviews were conducted with the objective of finding out:

- OWD Organisational needs
- Operational/functional restructuring requirements
- Current training practices and aspirations

These meetings were organised through persistent efforts of Nodal Officer (Project), Nodal Officer (Training) and PMU staff. The officers with whom these interactions took place and the emerging discussion points are presented in **Annexure -II.**

The various groups from OWD with whom various FGD's took place and the emerging discussion points are presented in **Annexure - III.**

### 4.4.5 Progress

- **Organizational development review to evolve OWD HRD Policy:** HRD activities have to be a 'continuous' essential function to be introduced in OWD. During the one-to-one interviews with the top-level management, training sustainability was a core concern for all. Each agreed on the immediate and essential need to evolve an OWD-HRD policy to sustain the training function.
- **Consultants developed a Draft OWD-HRD policy document** to support HRD functions within the department. To evolve and refine the draft further through a consultative process, copies of the document have been distributed to a select core group within OWD to solicit their observations. The document was introduced to a select group through two sessions of FGD and their comments were noted. The views of the World Bank team were also sought and feedback accepted. Based on the feedback received the revision has been undertaken and sent to the members of the core group for their concurrence.
- A number of organisational issues have been identified based on review of documents, interviews, discussions etc. as indicated in **Annexures II & III**. These have been grouped into following categories:

  **i. Strategies & Policy Issues**

  - Policy, planning, monitoring, regulatory functions missing
  - Multiple authorities (District Administration asking work from OWD officials) and multiple responsibilities (especially MP and MLA fund - works etc.) of the field staff reducing productivity.
  - Policy to redefine roles and responsibilities missing
  - Accountability towards stakeholders presently (near) absent
  - Lack of clarity on mandate (e.g. Design wing)
  - Lack of competency development policy

- Lack of effective training policy
- Bureaucratic transfer policy; OWD urgently needs its own 'Recruitment', 'Transfer', and 'Promotion' policies.
- Reactive approach to managing legal cases of staff, contractor, land acquisition etc.
- Poor dissemination strategy on enforcement and monitoring of policies and regulations
- Quality deficiencies and loss of economic benefits due to lack of Quality policy
- Need to streamline promotional procedures
- Poor Cadre management is a major issue - Recruitment planning urgently needed; high level of disparity in recruitment verses retirement

**ii. Cultural/Organizational issues**

- Reactive organizational culture
- Lack of learning culture; Training is effective only if learning attitude exists
- Formal coordination mechanism with stakeholders especially in relation to project planning (e.g. land acquisition) needed
- Absence of "monitoring" and policy "enforcement" responsibilities
- Research is not promoted and personal initiatives only attract reprimand

**iii. Structural issues**

- Lack of functional specialization - Road, Buildings, Bridges
- Functional units like HRM, Planning and Cost control, Emerging Technologies, PPP, Training etc. missing;
- Need for improvement in use of conventional policies of personnel management (recruitment, confidential reporting, leave records)
- Specialized 'Project Management' Units for health sector and education sector respectively is needed
- Need for Financial Analysis, Contract Management and Legal functions in OWD; No law officer

**iv. Resource Issues**

- "Adequate" and "appropriate" human resources missing; WORKLOAD DISTRIBUTION - rethink needed; geographical spread too large, manpower resource too less, no vehicle
- Lack of adequate financial resources - proper planning of expenditure is missing
- Large establishment costs
- Poor revenue due to poor enforcement of available legal instruments
- Quality of work is suffering due to lack of resources

**v. Processes and System issues**

- Delegation/decentralization of authority to reduce delays in decision making
- work load analysis exercise not carried out
- Procedures, manuals are outdated and less relevant
- without 'in-house' knowledge outsourcing is failing
- Procedures followed historically appear tardy and inefficient
- Currently 'expenditure incurred' has become an indicator of work, quality of work is not an indicator
- Asset Management System missing

- Poor access to Data and Information
- Inadequate use of GIS, Remote sensing and computerized systems
- Improved documentation needed
- QUALITY ASSURANCE is lacking due to poor quality monitoring - Central and Zonal Labs unable to provide results within specified time, inadequate staff, ill-equipped, current system not working/desired results not produced
- No planning of operation and maintenance (O&M) of buildings, no preventive maintenance procedures
- Architecture wing producing outdated designs; Research wing is defunct, needs to be revitalized; Design and Research cadre should be different
- Training imparted and training received should become indicators in the ACR

**vi. People - HRM Issues**

- All units rightsizing, combined with multi-tasking needed
- Roles and responsibilities of various officials not clearly defined (duplication of effort)
- Performance indicators/benchmarks and their measurement missing
- Critical management skills badly needed
- Incorporating new work dimensions relevant to new technologies and practices not done (e.g. GIS, NDT..)
- Employee competencies to manage emerging factors like social (including community mobilization, IEC, gender, R&R), environmental management, IT, PPP, issues needs to be develop
- Human Resource Management principles (motivation, performance management, manpower planning, career path development, need based training, implementable incentive mechanisms etc.) missing
- No formal mechanism to Integrate best management practices and innovation
- No incentive to attract quality staff in the design cell.
- Induction training is missing
- No updation of skills; Lack of training and exposure visits is resulting in skills and knowledge deficiency among staff
- Big gap between design knowledge and field implementation need for rotational policy
- Construction management and overall project management are areas of concern among field staff
- Staff posting imbalance correction done at the secretariat where field realities are not considered.
- Competency matching not done – staff with knowledge and experience in roads works is assigned building works and vice versa
- Circle/Divisional Head do not know how to carry out training assessment since no regular awareness programmes conducted for them
- Before implementation of each posting, two weeks introductory coaching for the transferee is missing before s/he starts in the new work place

- **Training Needs Analysis**: As part of the project, OWD Staff Training and HRD is a key component. Accordingly, the 'Organisational analysis', began with examining the short and

long term goals of the organisation, as well as trends that are likely to affect these goals. This analysis was carried out by way of one-to-one interviews with top-level management to examine their respective expectations; results of these interviews are available in **Annexure - II**.

A competency survey was planned by the consultant, which was to contribute towards assessing the needs of the organization. The objective of this exercise was to map the present and required competency of staff at various levels through a 'questionnaire based self-assessment survey'. The results were to help in assessing the training needs of OWD staff. The matrix (ref: **Annexure-IV**), evolved through a consultative process within PMU and select Officials, was then distributed to all staff.

In spite of repeated reminders from the consultants and painstaking continuous follow up by PMU staff, the received responses are as tabulated below in **Table 4-1**:

**Table 4-1: List of Responses**

| Sl. No. | Position | Number of responses received |
|---|---|---|
| 1 | Chief Engineer (CE) | 3 |
| 2 | Superintending Engineer (SE) | 2 |
| 3 | Executive Engineer (EE) | 18 |
| 4 | Assistant Engineer (AE) | 28 |
| 5 | Junior Engineer (JE) | 54 |

Tasks analysis, was the second part of the needs assessment and included a careful analysis of the jobs to be performed by the OWD staff and translating these tasks into training needs. The gap analysis between the expected and current functions/tasks using two version of the RACI matrix [Responsible, Accountable, Consult, Inform] were utilised (ref: **Annexure V & VI**).

The analysis was carried out through FGD among the JE's & AE's as indicated earlier and the results are available in **Annexure-III**. One-to-one interviews with the executive and top management to examine their respective expectations are on-going and the emerging results of these interviews will feed into the Draft TNA report.

### 4.4.6 Original Date of Deliverable

The report on Training Needs Assessments (TNA) Results, Proposed TNA-Based Program(s) and OWD 'Training' Role was due on January 08, 2013 (end of month 9).

### 4.4.7 Expected Date of Deliverable

The report on Training Needs Assessments (TNA) Results, Proposed TNA-Based Program(s) and OWD 'Training' Role is planned to be submitted by July 08, 2013 (end of month 15).

### 4.4.8 Issue Needing Intervention of OWD

- Timely response/feedback on questionnaire and draft submissions

### 4.4.9 Way forward

- Development of training plan with details of target participants, title and brief of the contents, training delivery strategies, duration and expected dates and possible training delivery organisations for each specified training. Consultant shall develop a short term (say 2-3 years) Training Plan to include target numbers, possible organizations, tentative schedule, and tentative costs. The training plan will be a working document. It will be flexible enough to meet all the needs and will be modified, as and when needed, but reviewed every six months. The report on this shall also include implementation mechanism within OWD.
- Development of training 'evaluation system' to monitor Training Delivery: Evaluation is a means of monitoring the quality of capacity building efforts. The purpose of evaluating every event is to compare the accomplishments of the programme with the set objectives. Based on the results of the evaluation, revisions in the future programmes can then be made.

  An evaluation system will be evolved to encourage the participants who might otherwise hesitate to voice their opinion, criticism, suggestion, approvals etc. A formal evaluation, a questionnaire to assimilate corrective actions, will be introduced so as to monitor training context/objective, facilitators'/trainers' performance, workshop/training materials, logistics and participant selection, as appropriate. A report will be submitted in due course of time.
- Training Information Management System (TIMS): To generate and distribute the right type of information in an accessible way, a planning and reporting system based on standardized formats will be proposed. This will include a set of forms and checklists which shall help to plan various training activities, organise training data, prepare progress reports, and facilitate monitoring and feedback. Discussions will be held with the IT-ICT Consultants to link the TIMS to the overall OWD organizational system. A report on the same will be submitted in due course of time.

## 4.5 Road Safety Engineering and Planning

### 4.5.1 Scope of Work

The broad scope of work mentioned in the ToR is to assess and advice on the engineering elements of road safety management practices, legal and institutional framework for road safety and facilitate progressive planning for more strategic road safety management initiatives, and the commensurate organisational structure. The deliverables include:

- Detail report on Road Infrastructure Safety Management Review
- A report with analysis of crash data/accident root causes, identification of high risk/problem groups, identification of high risk/hazardous locations along with design for road safety countermeasures, safety campaign materials, new legislation, formulation of enforcement plans, road improvements etc. besides
- Proposed Odisha Road Safety Action Plan (RSAP).

### 4.5.2 Objectives

The major objectives to be achieved in road safety engineering and planning under this assignment can be summarised as follows:

- Enhanced technical capacity of OWD staff in accident data analysis, safety assessment of road network, identification of black-spots/hazardous locations and design of road network infrastructure for road safety improvements;
- Comprehensive understanding of road safety engineering, commensurate with roles and responsibilities of OWD staff;
- Review of road safety management of relevant engineering functions of OWD and road safety responsibility framework of GOO, and recommend improvements; and
- Preparation of a RSAP addressing the concerns, aims and priorities of the stakeholder departments of GOO in consultation with WB.

### 4.5.3 Process/Approach

Based on the objectives and scope of the services, an appropriate methodology has been developed by the Consultants so as to address the requirements of the ToR, in consultation and due interaction with OWD.

The work to be carried out as per the ToR has been broken down into different tasks as indicated in the following sections. The methodology developed by the consultants to comply with the requirements of the ToR and to deliver a RSAP for Odisha is shown in **Figure 4-3**.

### 4.5.4 Meetings/Consultation/Presentations

The consultants have carried out numerous meetings with different stakeholder agencies to complete various tasks. The details of meetings, consultations and presentations carried out for various purposes are shown in **Annexure - VII.**

### 4.5.5 Progress

The progress achieved so far in completing the deliverables as per ToR is shown in **Figure 4-4.** The activities completed till date (June 08, 2013) are highlighted in yellow.

*4.5.5.1. Crash Data Collection and Analysis*

The crash data of all 30 districts were collected from the State Crime Records Bureau (SCRB) during the months of May and June 2012 and the same have been analyzed to determine the districts to be selected for RSA and hazardous user groups. The following type of accident data were collected from SCRB.

- Based on Road Category (NH, SH and Other roads)
- Based on Nature of Accidents
- Based on Time (hours of the day) in urban and rural areas
- Based on Location Type (Open Area, Near Markets, Hospitals etc.)
- Based on Weather
- Based on Road User (Trucks, Passenger Cars, Two Wheelers etc.)

- Based on Driver's Age
- Based on Vehicle Type
- Based on Age of Vehicle

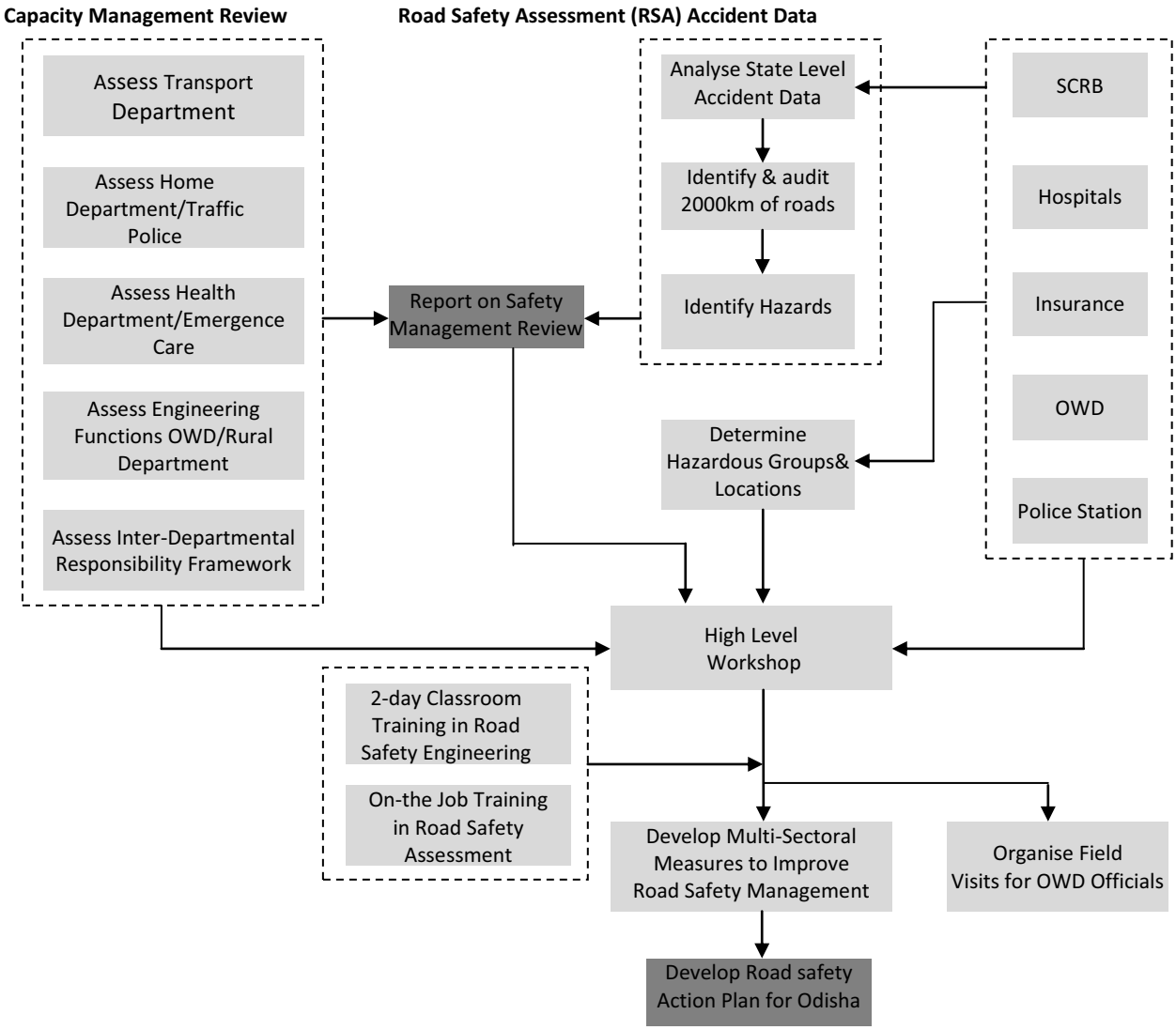



**Figure 4-3: Work Methodology – Road Safety Engineering and Planning**

The salient findings based onanalysis of the above crash data are as follows:

- Though NHs and SHs constitute only 12 percent of the whole road network in Odisha, 75 percent of accidents occur on these roads (50 percent in NHs and 25 percent in SHs)
- Major hazardous locations are 'Open areas' and populated areas such as inside a village, residential areas, markets/built up stretches, and industrial areas;
- Narrow bridges and culverts, without proper delineation, are also found to be a major contributory factor to road accidents;
- Vulnerable road users (pedestrians, cyclists & motorcyclists) and truck users constitute the high risk user groups on Odisha road network;
- Passenger cars (cars, jeeps & taxis) also constitute a significant hazardous user group;

- Predominant nature of accidents involving fatalities are overturning, head-on collisions, rear end collisions, right-turn collisions, and 'others'(possibly single vehicle out of control, or hitting road side objects) which may include accidents involving tractors also;
- Rear end collisions and right-turn crashes tend to occur more on junctions and median openings, hence junction locations and median openings can be deemed as significantly hazardous locations.

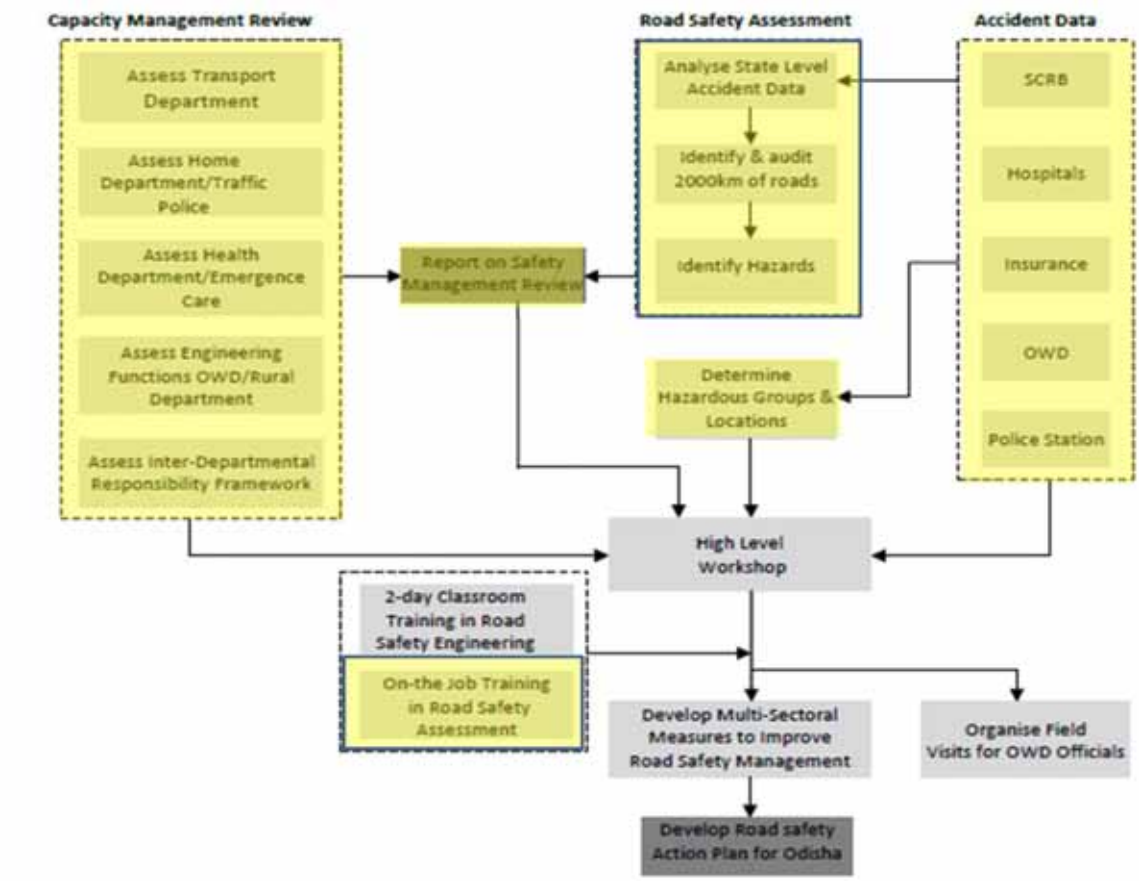



**Figure 4-4: Status of Progress – Road Safety Engineering & Planning**

It is assumed that major vehicle type involved in overturning accidents might be trucks and cars on sharp curves and on locations where vertical alignment is in poor geometry.

Cars and motorcyclists might be involved in large number of fatalities due to head-on collisions because of the limited overtaking opportunities on narrow roads (single/intermediate lane and congested 2-lane roads), and also at locations of inappropriate geometry for the road without adequate warning and operational controls.

*4.5.5.2. Road Safety Assessment*

The average number of fatalities on NHs, SHs and Other roads across the 30 districts in Odisha are shown in **Figure 4-5**.

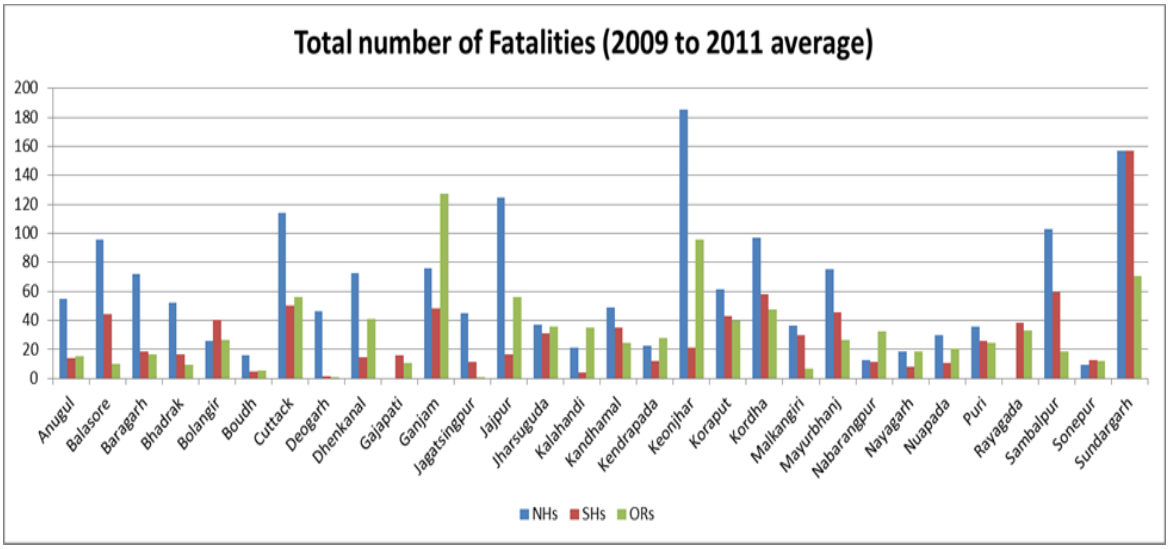



**Figure 4-5: Number of Fatalities (2009-11 average) in Odisha**

Based on the above, nine districts having more than 80 fatalities on NHs and 60 fatalities on SHs, during the period 2009 to 2011, were selected for RSA. In addition, after consultations with representatives from OWD, 3 more districts were chosen so that a representative sample of entire State is reflected in the process and outcomes. The districts selected for RSA are shown below:

| | | |
|---|---|---|
| • Balasore | • Jajpur | • Sambalpur |
| • Cuttack | • Mayurbhanj | • Sundargah |
| • Kurdha | • Koraput | • Rayagada |
| • Nayagarh | • Ganjam | • Keonjhar |

Further consultations were carried out with representatives of OWD in Project Management Unit (PMU) and EEs of corresponding divisions in the above 12 districts to select the road types for RSA. It has been agreed with the Client that the focus of assessment shall be more on roads managed by OWD and RD and roads managed by NHAI can largely be avoided since OWD has little control over the outcomes on these roads. The lengths of different categories of roads selected for assessment is shown below:

- National Highways : 396.50 Km
- State Highways : 984.50 Km
- Major District Roads : 391.7 Km
- Other District Roads : 205.50 Km
- Rural Roads : 31 Km

Four teams having trained experts in road safety audits conducted RSA in the above 12 districts during November and December 2012. The assessment was conducted on all types of roads (NH, SH, MDR, ODR and Rural Roads) having different roadway characteristics (Single lane, Intermediate lane, Two lane and Four lane) on all types of terrains (Plain, Rolling and *Ghat* Sections).

The major issues concerning road safety, identified during the field assessment are shown below:

**Road Safety Hazards**

**General**

- Lack of reflective road markings – Centre line markings on two lane and intermediate lane roads and edge markings on single lane roads;
- Lack of traffic warning, information and direction signs;
- Poorly maintained shoulders forcing pedestrians to use the road space;
- Lack of facilities for cyclists and pedestrians on highly trafficked road sections;
- Poor forward visibility on certain sections due to overgrown vegetation, encroachments and huge trees;
- Unprotected and poorly delineated high embankment and approach to bridges;
- Lack of designated bus stop/bus bay locations;
- Speeds are not assigned and no information provided on the operating speed of the road; and
- Unprotected high embankment on curves and straight sections having water bodies on the embankment toe.

**Curves**

- Sharp horizontal curves without delineation, warning signs and traffic calming measures;
- Poor visibility at curves due to overgrown vegetation and large trees on shoulders;
- Protection measures (crash barriers) are not provided on curves in high embankments;
- On certain sections, horizontal bend after vertical crest has been observed, which is significantly hazardous in the absence of delineation, warning signs and speed control measures;
- On *Ghat* sections, the valley side of curves are not delineated and provided with crash barriers; and
- On certain sharp curves, super elevation has not been provided.

**Junctions**

- Poor visibility at junction locations due to encroachments and other road side objects like trees;
- Poor junction layouts (major and minor);
- Lack of warning signs and speed reduction measures on side roads;
- Unsafe vertical profile of side roads at junction locations with the main carriageway;
- Lack of pedestrian and parking facilities at major junctions; and
- Lack of junction markings and traffic signs (direction and warning signs).

**Road side objects**

- Presence of large trees on road edge – a major hazard;
- Street lighting and electric poles on road edge without delineators;
- Parapet walls of narrow bridges are not delineated with hazard markers; and
- Broken or missing parapets of bridges.

**Road side villages/built up areas**

- Roadside villages lacking speed control measures on approaches, and lack of facilities of pedestrians and cyclists;
- Congested commercial areas along the road without pedestrian and parking facilities hampering visibility;
- High level of encroachments affecting visibility; and
- Schools inside road side villages – lack of warning signs and speed control measures.

*4.5.5.3. Road Safety Management Capacity Review*

During the period January to February 2013, the consultants have carried out a capacity review of the following departments in managing road safety in Odisha.

- Roads Authorities (Works Department, RDD& Municipal Bodies)
- Transport Department
- Police Department
- Health Department
- Education Department

The major issues which emerged during the road safety management capacity review are presented below:

- Though there is acknowledgement of increasing menace of road accidents in the State, no concrete action has been taken so far to contain the menace;
- There is no lead agency to direct and co-ordinate the whatever little efforts of various departments
- The crash data available is not integrated to enable a robust crash data analysis to determine the root causes of accidents in the State;
- No targets have been set at any level within the government to reduce road accidents, and for interventions required for the same;
- Transport and Police department are severely under resourced to enforce various provisions of Motor Vehicle Act concerning road safety;
- In 30 districts of Odisha, only 31 Regional Transport Offices are in place to issue licenses and the Motor Vehicle Inspectors (MVIs) are over-burdened with various other responsibilities;
- The technical staff strength (40 RTOs, 112 MVIs, 52 Inspectors)of Motor Vehicle Department (MVD) is not adequate to ensure safe vehicles and safe road users on the road network;
- The use of web-based technologies (like on-line applications) to streamline licensing procedures are still not adopted by the MVD, resulting in inefficient working practices;
- Traffic police is responsible to enforce provisions of motor vehicle act only in Commissionerate areas (Bhubaneswar and Cuttack), and no dedicated traffic police cell/unit has been created for safe traffic management in other cities and districts;

- Traffic Police are not trained in basics of traffic engineering, rendering less efficacy in traffic management;
- Laws exist to ensure safe road users on the network, but the enforcement of the laws is significantly poor due to limited resources, lack of co-ordination and lack of data to determine target areas and lack of understanding of the complexity involved in managing road safety;
- A team of engineers (36 divisions headed by EEs and approximate 220 sub-divisions headed by AEs) are available with the works department to manage the state road network (SH, MDR and ODR), but the awareness and knowledge of road safety engineering and the understanding of the role of road infrastructure in road accidents is lacking among the engineers. As a result, the entire road network is critically hazardous for all road users;
- Trauma care is significantly deficient, but plans and programmes are in place to roll out improved trauma care in the form of '108' ambulance services across the State during the current financial year (2013-14); and
- The school curriculum does not address road safety, making it difficult to induce awareness of road safety among the children during their early years.

*4.5.5.4. Submission of Report and Presentation to The World Bank Mission*

The consultants have submitted the report 'Road Infrastructure Safety Management Review' on April 2013, as per the original schedule given in the ToR. The contents of the report include:

- Crash Data Analysis for the whole State;
- Identification of hazardous locations and hazardous user groups;
- RSA of 2000 km on different categories of roads in 12 selected districts;
- Findings of RSA (Key hazards);
- Linkage of nature of accidents to the identified hazards;
- Detailed crash data analysis of 12 selected districts;
- Engineering countermeasures (illustrated with drawings) for all the major hazards on the road network; and
- Road Safety Capacity Management Review of major stakeholder departments – Works, Transport, Police, health, Education and Municipal bodies.

The report was presented to the World Bank mission on 10$^{th}$April 2013.

### 4.5.6 Original Date of Deliverables

1. Report on Road Infrastructure Safety Management Review was due on April 08, 2013 (end of month 12) and the same was submitted on April 07, 2013.
2. Draft Report on Proposed 'Odisha Road Safety Action Plan' is due on August 08, 2013 (end of month 16).
3. Final Report on Proposed 'Odisha Road Safety Action Plan' is due on November 08, 2013 (end of month 19).

### 4.5.7 Expected Date of Deliverables

1. Draft Report on Proposed 'Odisha Road Safety Action Plan' will be submitted on due date i.e. August 08, 2013 (end of month 16).
2. Final Report on Proposed 'Odisha Road Safety Action Plan' will be submitted on due date i.e. November 08, 2013 (end of month 19).

### 4.5.8 Issue Needing Intervention of OWD

During the World Bank Mission (9 to 12 April 2013), it has been agreed with the World Bank to conduct a high level Workshop on road safety involving Secretaries of all stakeholder departments. The consultants have been asked to prepare an 'approach paper', adding more proxy data to highlight the major institutional issues and deficiencies in managing road safety to the officials of higher levels in the GOO.

The OWD needs to co-ordinate with all the Stakeholder departments to organize this workshop (planned before mid-July 2013) and to ensure maximum participation to yield optimum results. The 'Approach Paper' has been finalised and the same has been forwarded to the Client for perusal and sharing with the World Bank.

### 4.5.9 Way Forward

From the deliberations of the Workshops and by referring to the findings of crash data, RSA and the major issues based on capacity management review, the consultants will prepare a multi-sectoral 'Draft Road Safety Action Plan' to circulate within different departments of GOO. The 'Daft Road Safety Action Plan' is scheduled to be submitted by August 2013.

Following the agreement among various departments, the **final multi-sectoral 'RSAP'** will be submitted as per schedule in November 2013.

## 4.6 Road Network Master Planning

### 4.6.1 Scope of Work

The scope of work has been defined in the ToR, which forms the Appendix A of the contract agreement. The broader scope of work includes the followings:

- Preparation of a draft Road Network Master Plan (consistent with the new road sector policy);
- Targeted capacity building measures within OWD; and
- Development of a proposed new road classification system and responsibility framework for GOO endorsement.

### 4.6.2 Objectives

The major tasks identified in the ToR are as follows:

a. Compilation of data and information from various secondary sources on the physical, social, economic, transport system, traffic characteristics, environmental and social characteristics of the State;

b. Conducting field surveys on selected stretches over road network length of approximately 3,000 km spread over all categories of roads in the State for obtaining data on road network inventory, pavement condition, sub-grade investigation, traffic volume and movement pattern surveys, axle load survey, bus and truck operator survey, limited environmental and social screening etc.;

c. Interaction with the Governmental and public sector agencies, chambers of commerce and industries, transport operators and other non-Governmental organisations;

d. Building up the socio-economic profile of the region, analysing present and future prospects;

e. Situation analysis and diagnosis of existing road network and identification of capacity constraints, network evaluation;

f. Development of strategic options using parameters such as: volume/capacity ratio, road/route serving inter-State traffic, backward area linkages, high commercial traffic, strategic/industrial linkages, road condition, traffic growth rate, road connectivity, alternative routes, environmental aspects, tribal areas; and

g. Improvement strategies and preliminary costing, prioritisation as per economic appraisal, ranking of roads and selected network and financing plan.

### 4.6.3 Process/Approach

The methodology developed to meet the objective of ToR is illustrated in **Figure 4-6**.

### 4.6.4 Meetings/Consultation/Presentations

The development of road network master plan requires various types of primary and secondary data from different departments, in addition to a GIS based map to meet the desired objectives. The consultants have carried out numerous meetings and consultations till date to collect secondary data and GIS maps covering the whole road network in Odisha. The details of meetings and consultations held for the progress of the task are presented in **Annexure-VIII.** Besides this a presentation was made during stakeholder workshop on November 09, 2012 and feedback received through ZOPP cards has been integrated in to the task.

### 4.6.5 Progress

The availability of maps to develop road network master planning was a major issue which affected the progress of this activity. In the absence of road network map, the consultants could not identify the sample road network of 3,000 km to initiate the field investigations required to collect primary data for further analysis.

Since April 2012, different agencies like Survey of India, ORSAC and RD Department were approached to obtain road network map, but none of these efforts could bring results until DC-cum-Addl. Chief Secretary intervened (31$^{st}$ January 2013) and instructed the CEO of ORSAC to provide all data for the development of master plan including GIS maps to the Consultant. On receipt of maps,

consultants immediately identified the sample network of 3,000 km and initiated field investigations to collect primary data for further network analysis.

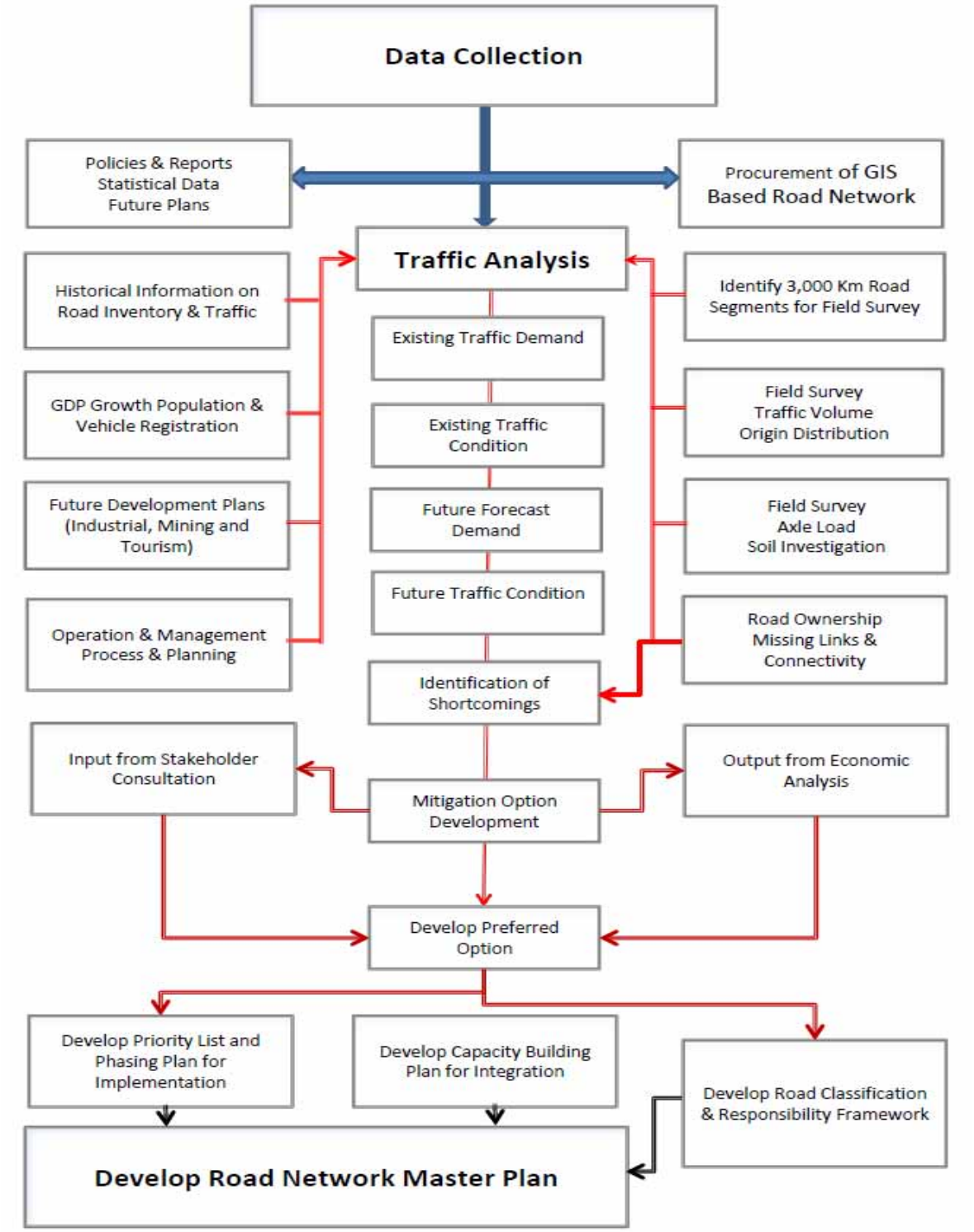



**Figure 4-6: Work Methodology – Road Network Master Plan**

Notwithstanding the delay in receipt of maps, progress has been made on activities not dependent on maps, as illustrated in **Figure 4-7**. The activities which have been completed are highlighted in yellow and the activities which are under progress or near completion are highlighted in orange.

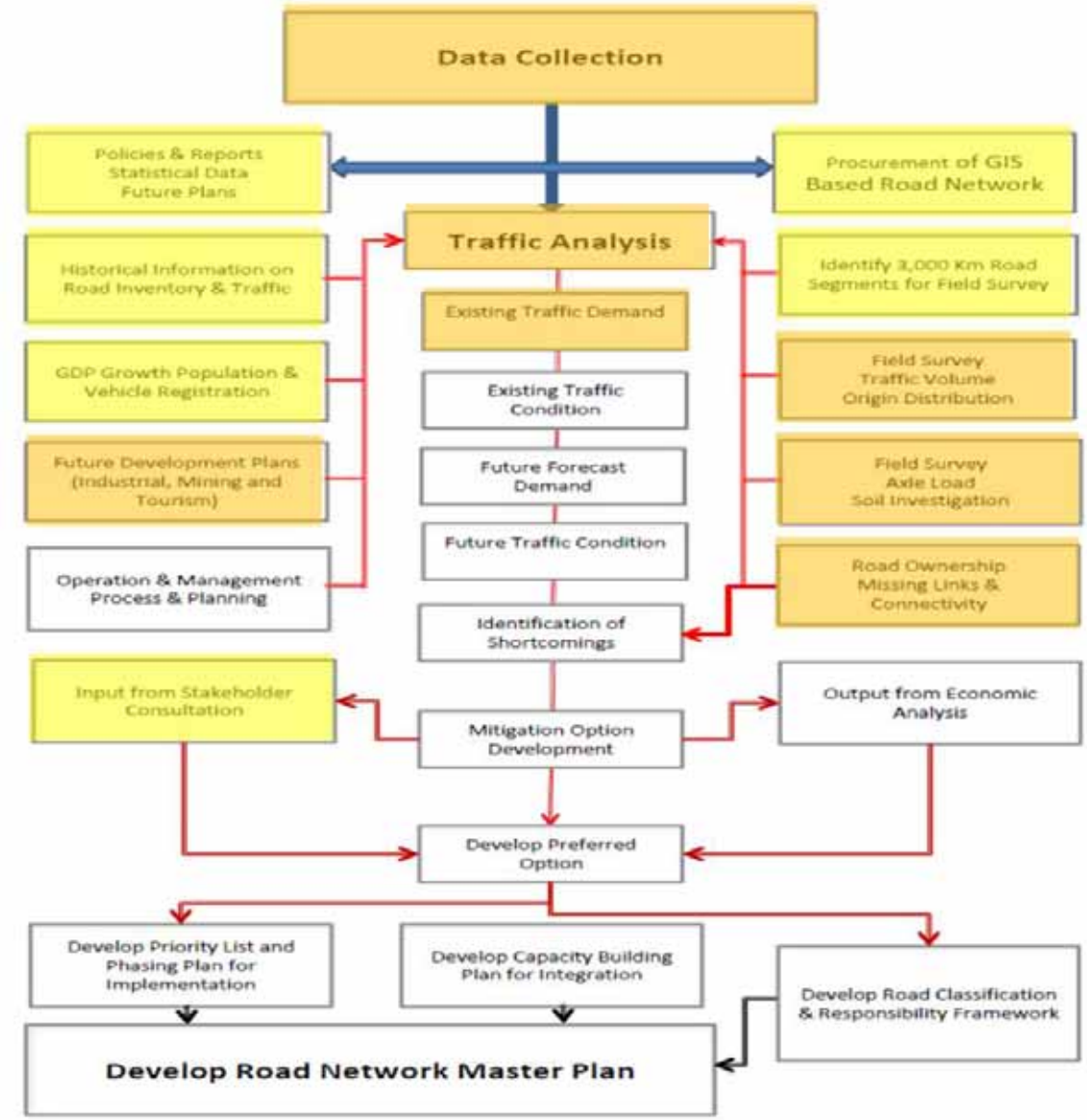



**Figure 4-7: Progress till Date – Road Network Master Plan**

The brief details of major tasks initiated during this reporting period are as follows:

*4.6.5.1. Collection of Secondary data and development plans*

The consultants have collected all the relevant socio-economic data and other historic data relevant to develop traffic forecast demand model. The collection of development plans are in process and is planned to complete by end of June 2013.

*4.6.5.2. Analysis of Socio-economic data and development of traffic growth factors*

The socio-economic parameters that are closely related to the traffic growth in terms of demographic and economic data have been assessed to correlate traffic growth factors to socio-economic indicators. The derivation of traffic growth is in advanced stage of completion and indicates a high correlation between the traffic volumes, as a dependent variable and State's GDP and density of population as independent variables.

*4.6.5.3. Identification of Sample network of 3,000 km for conducting field investigations*

After the receipt of GIS maps, the consultants have identified 3,000 km of road links for conducting field investigations. The following methodology has been adopted for the selection of 3,000 km of road network for primary surveys.

- SHs and MDRs has been avoided since the road inventory and road condition information has already been verified by Asset Management Consultants and is available for further analysis
- The links has been selected from ODRs and lower category of roads (rural roads). All the links which have traffic count stations have been considered for field investigations to prepare homogeneous sections based on traffic, condition, inventory and population density
- The links have been selected after careful analysis of demography and trip generating potential up to the block level and the links have an even spread across the State
- Combining with the information already available on SHs and MDRs (from Asset Management Consultants), the location of links provides an even spread of road links across the road network in the State.

Accordingly, 191 links, constituting 3,100 km of sample road network have been selected.

The following guidelines have been followed for identification of locations for traffic surveys:

- The locations have been considered after careful demographic (population density) and road network analysis up to the block level
- No locations on SH and MDR has been considered since Asset Management Consultants have covered most of them; only those locations on SHs and MDRs have been considered with some significant features and have been missed by Asset Management Consultants
- Traffic Count locations have been predominantly selected on ODRs and Through roads of rural roads, which are assumed to carry more traffic compared to link roads which connect villages to through roads
- Some rural link roads have also been selected to obtain a sample coverage of the network at this level
- Emphasis has been to obtain a sample size of traffic counts in village roads in blocks having varying range of population densities to prepare homogeneous sections to represent the entire road network at a later stage

The locations of Traffic Surveys and links selected for field investigations for inventory, BBD test and subgrade investigation are illustrated in **Annexure IX**. It has been planned to conduct traffic surveys on 194 locations and other investigations on 191 road links (MDR, ODR and RR) amounting to 3,100 km. In addition to the 194 locations planned for traffic surveys, traffic data on 212 other locations on SH and MDR network conducted by Asset Management Consultants has been made available, and this will enable the consultants to have traffic data on 406 locations across the whole road network of Odisha.

**Progress of Field Investigations**

**Traffic Count Surveys –** Five teams has been mobilized to carry out traffic count surveys and the surveys started on 2nd week of March 2013. Until 31st May 2013, surveys on 144 locations have been completed. It is planned to complete the survey for remaining locations by 2nd week of June 2013.

**Roughness Surveys –** A team of experienced professionals have been mobilized on 11th May 2013to carry out Roughness Survey. Until 31st May 2013, surveys on 58 links have been completed. It is planned to complete the survey for remaining locations by 1st week of July 2013.

**Road Inventory, Sub-grade Investigation and BBD Test –** Different teams have been mobilized to carry out these surveys on 1st week of June 2013. It is planned to complete these surveys by 15th July 2013.

*4.6.5.4. Preparation of base map*

After the receipt of GIS maps of the whole road network, the consultants have prepared the base map of the whole road network, populated with the relevant socio-economic parameters. The following parameters have been built into the GIS maps so far:

- Population density of all 314 blocks in Odisha
- Villages having only '*Kutcha*' roads
- Headquarters of all the 314 blocks
- Assignment of traffic volume on the road links completed by Asset Management Consultants

The following activities are in progress as on 08th June 2013:

- Identification of missing links
- Assignment of traffic to links where surveys has been completed

## 4.6.6 Original Date of Deliverables

1. Interim Report on Preparations for Inaugural Master Plan for Main Road Network in Odisha was due on February 08, 2013 (end of month 10).
2. Completion Report on Inaugural Master Plan for Main Road Network in Odisha is due on February 08, 2014 (end of month 22).

## 4.6.7 Expected Date of Deliverables

1. Interim Report on Preparations for Inaugural Master Plan for Main Road Network in Odisha is expected to be submitted on November 08, 2013 (end of month 19).
2. Completion Report on Inaugural Master Plan for Main Road Network in Odisha is expected to be submitted on April 08, 2014 (end of month 24).

## 4.6.8 Issue Needing Intervention of OWD

**Procurement of Maps**

At the meeting held in office of the Development Commissioner on 31st January 2013, the DC-cum-Addl. Chief Secretary instructed CEO of ORSAC to hand over all the data required for the

development of the road network master plan including the GIS maps of the whole road network of Odisha. Consequently, ORSAC has handed over the GIS maps of 30 districts to OWD from 8th February 2013. However, the following points need to be noted:

- The road network map supplied on **08th February 2013**, contains only CRN of rural roads in addition to the major road network (NH, SH, MDR and ODR). The total length of the road network (in 30 districts) was found to be only 80,116 km on this set of maps.
- On **26th February 2013**, updated road network maps of 6 districts (Nuapada, Nawarangpur, Boudh, Koraput, Gajapathi, Malkangiri) were provided, which included other road categories ('*Pucca* and *Kutcha*' roads) in addition to the classified roads. However, these maps had significant increase in road length and substantial discrepancies in length of classified roads compared to the length of these roads in original maps handed over on 7th February 2013.
- On **20th May 2013**, updated road network maps of another 9 districts (Bolangir, Deogarh, Ganjam, Jarsuguda, Kalahandi, Kandamal, Rayagada, Sambalpur and Sonepur) were provided and the analysis of these is in process as on 08th June 2013.
- No data on habitations has been provided yet, in the absence of which, identification of missing links to backward areas/villages can't be established.
- The land use data of only 15 districts has been provided on 8th February 2013, and for the remaining 15 districts these have not been provided yet.

The OWD needs to intervene urgently with a request to ORSAC to provide the updated road network details of remaining 15 districts, in addition to the habitation data for 30 districts and land use data for the remaining 15 districts.

**Mapping Ownership of *Panchayat* and Rural Roads**

The OWD desired to map ownership of *Panchayat* Roads and Rural Roads in GIS environment. In this regard, a meeting was held between Consultants, CE World Bank and Secretary, *Panchayat Raj* Department on 11th April 2013 and the following procedure has been agreed:

- The consultants will provide paper copies of road network maps of all blocks in a district to *Panchayat Raj* Department through OWD.
- *Panchayat Raj* Department will engage its staff to identify its roads, mark the ownership code of *Panchayat* and Rural Roads on the supplied maps and hand them back to consultant.
- The consultant will then digitize the ownership details on the GIS maps, for which the **OWD shall arrange for extra resources.**

During The World Bank mission from 09th April 2013 to 12th April 2013, the above subject was discussed. Subsequently, it has been agreed among the group of representatives of Bank, Consultants, Client and the ISAP Facilitator, that this process entails significant work in terms of time and resources and this has not been envisaged in the ToR for preparation of road network master plan. Hence, it was informally agreed to consider additional payment to the consultant over and above the agreed price in the contract. It is expected from the client to formalize the process at the earliest so that needful resources can be assigned at appropriate time to complete the task of mapping the ownership of *Panchayat* and rural road network.

### 4.6.9 Way Forward

The traffic analysis and subsequent works illustrated in **Figure 4-6** (Methodology) are in progress, and it is expected that the interim report on Master Plan shall be submitted by November 2013.

## 4.7 Future Roads Management Funding

### 4.7.1 Scope of Works

As per ToR the task involves following activities:

- Review of existing funding sources and 'road user charges' mechanisms available to GOO to meet the financial requirements of the state's main road network infrastructure;
- Assessing the adequacy of the resulting funds for objectively-determined 'road asset management' needs and priorities;
- Identification of realistic new measures available to GOO to improve resource mobilisation for roads financing in the state, projection of the funding volumes potentially mobilised via such measures (individually and cumulatively), and comparison of the efficiency of each such measure;
- Identification of viable institutional options to 'channel' road user charges and other new roads-dedicated revenues onto road infrastructure purposes, via (e.g.) possible creation of a state-level Road Fund;
- Identifying the structuring, powers and resources needed for (e.g.) an effective and sustainable Road Fund; and
- Facilitating the implementation of the GOO preferred mechanism(s).

### 4.7.2 Objectives

Based on the scope of the work outlined above, the objectives of this component of the study can be summarized as under:

- Assessment of the present funding scenario for the road sector in the state, and includes coverage of fund sources, availability, utilization and deficiency in use, as well as, deficit in funding
- Determination of effective mechanism for road user charges
- Identification of potential new sources of fund for the road sector in the state
- Examination of setting up a dedicated state 'road fund'
- Estimation of future fund requirements and fund availability with the purpose of providing suggestions for bridging the gap, if any.

### 4.7.3 Process/Approach

- Existing situational analysis
- Defining the challenges of road financing in the state

- Estimation of future financial requirements for the road sector in the state
- Estimation of financing gaps
- Identify feasible options for new sources of funds
- Drafting an implementation plan for preferred options

### 4.7.4 Meetings/Consultation/Presentations

Several rounds of discussions and meetings were held as part of existing situation analysis with the Finance Section of OWD, OBCC, CE, NH.

A presentation was made during the Stakeholders Workshop and feedbacks collected through ZOPP cards were duly considered.

### 4.7.5 Progress

- Review of various policy papers, budget estimates, annual activity reports, etc.
- Preliminary study of existing situation – analysis of budget data of state government over the years (both for plan and non-plan expenditure in the road sector) besides revenue data.
- Review and analysis of financial aspects of state road development programs specially for $11^{th}$ and $12^{th}$ FYP in progress and estimation of finances for development based on road sector vision. Overall, future fund requirements are being assessed both for development and maintenance (based on recommendations of asset management consultancy).
- Identification of additional sources of fund including models of PPP, SRF etc.
- Review and analysis of structuring of road funds with reference to other states and countries.
- Most of the suggestions/observations on future funding for road sector pertain to additional or new sources of funding. These are being examined along with other sources of finance, practices in other states and countries. Also few suggestions have been made on creation of state road fund etc., which are under study and consideration.

### 4.7.6 Original Date of Deliverables

1. Preliminary Report on Study of Main Roads Funding Options & Possible Road Fund is due on August 08, 2013 (end of month 16).
2. Final Report on Study of Main Roads Funding Options & Recommendations on Road Fund is due on February 08, 2014 (end of month 22).

### 4.7.7 Expected Date of Deliverables

1. Preliminary Report on Study of Main Roads Funding Options & Possible Road Fund expected to be submitted on due date i.e. August 08, 2013 (end of month 16).
2. Final Report on Study of Main Roads Funding Options & Recommendations on Road Fund will be submitted on due date i.e. February 08, 2014 (end of month 22).

### 4.7.8 Issue Needing Intervention of OWD

An in-depth analysis of the preliminary findings, new sources of funds and viability of a dedicated road fund is to be carried out with the officials concerned of OWD. Also, meetings/discussions with the Finance Department, Planning Department, Transport Department, RDD, Chambers of Commerce and Trade Associations and other stakeholders are to be arranged with support of OWD to obtain their views on new sources of funds in particular.

### 4.7.9 Way Forward

It is planned to have focused group discussions and one-to-one discussions with the different stakeholders (e.g. Chambers of Commerce, Truck Owners Associations, etc.) and officials concerned of various departments of GOO (e.g. Finance Department, Planning Department, Transport Department, RDD, Industries Department, Tourism Department, Mining Department, etc.) to discuss the preliminary findings and suggestions. The purpose of these meetings/discussions is to seek the views of relevant stakeholders and departments to finalise the findings and the suggestions in consultation with them.

However, as per the work plan of the study, estimation of future fund requirements and potential sources of funds, as well as, the gap, if any, will be continued.

## 4.8 Road Toll Collection & Management

### 4.8.1 Scope of Work

The scope of work as defined in the ToR is as follows:

- The major activity is to develop for GOO endorsement, a framework for effective Road Toll Collection and Management to be implemented by GOO and focused primarily on outsourcing of road toll collection under performance-based contracts. This shall involve following activities:
    - Develop framework for effective road toll collection process and systems;
    - Development of Guidelines on toll setting and tolling operations;
    - Preparation of Model tolling contract agreement;
    - Preparation of an action plan for progressive GOO implementation of the new 'Road Toll Collection and Maintenance Management' model; and
    - Assistance in initial stages of implementation.

### 4.8.2 Objectives

Based on the scope of work as outlined above, the objectives of this task are:

- Preparation of guidelines on toll setting
- Development of model tolling contract agreement
- Preparation of an action plan for implementation of proposed tolling system
- Providing assistance in initial stages of toll implementation

### 4.8.3 Process/Approach

- Review and analysis of present Tolling Act
- Develop Framework for Effective Road Collection Management
- Guidelines on Toll Setting and Tolling Operations
- Preparation of Model Tolling Contract Agreement
- Action Plan for New Road Toll Collection and Maintenance Management
- Assistance in Initial Stages of Implementation

### 4.8.4 Meetings/Consultation/Presentations

Discussions and meetings were held as part of existing situation analysis with the Finance Section of OWD, CE, NH and officials of Transport department. Discussions have been also held with officials of OBCC, which is mandated by GOO to implement tolling on selected approach roads and bridges in Odisha.

### 4.8.5 Progress

The following activities have been carried out till date:

- Review of Odisha Toll Act 2011 and Odisha State Road Tolls Policy
- Desk Study of practices adopted by GOI and other states
- Study of existing projects initiated in PPP mode and Tolling arrangements
- Review of existing tolling arrangements followed by OBCC operation including the infrastructure used
- Review of 'Model Concession Agreement' prepared by MoRT&H for execution of 'Construction and Maintenance Contracts' for State Highways
- Review of Tolling mechanisms adopted elsewhere in India
- Review of best practices in performance based maintenance management through private sector

### 4.8.6 Original Date of Deliverable

Report on Management of Out-sourced Road Toll Collection & Maintenance/Operations was due on June 08, 2013 (end of month 14).

### 4.8.7 Expected Date of Deliverable

As the exercise entails multi-disciplinary involvement (viz. finance, legal, mechanism of tolling techniques, etc., a preliminary draft is being prepared and shall be submitted by the first fortnight of July 2013.

### 4.8.8 Issue needing intervention of OWD

Arranging interactions with OBCC, Finance, Planning and Legal Departments to discuss the findings and suggestions.

### 4.8.9 Way Forward

- Meetings, interactions and discussions are planned for second half of June 2013 to support completion of the exercise.
- The exercise of dovetailing the inputs of multi-disciplinary expertise and consolidation of the report is focused upon to expedite the process.

## 4.9 Vehicle Axle Load Regulation and Management

### 4.9.1 Scope of Work

As per ToR the task involves following activities:

- Assess the prevalence and main features of excessive loading by truckers and other categories of vehicles in the State;
- Review of the range of methods, resources and institutional arrangements objectively available to the GOO for more effective regulation, monitoring and management of vehicle axle loading in the heavy road transport corridor of the main network;
- Assess the experiences elsewhere in axle load regulation and management;
- Prepare options for sustainable axle load management regime and responsibility framework; and
- Provide assistance to procurement of essential equipment/resources and establish performance monitoring processes.

### 4.9.2 Objectives

- Study existing road transport axle load control practices of Odisha
- Carry out axle load surveys over 50 selected locations spread over the state
- Review and assess existing methods, resources and institutional arrangements available with goo for effective regulatory monitoring and management
- Compare and assess the ongoing regulatory regime of other states and integrate it into draft regulatory framework for goo's considerations
- Advise/discussions with goo on the regulatory framework for legislative and legal nod to form part of government legislation for its efficacy and control.

### 4.9.3 Process/Approach

- The task of axle load regulation and management was planned to commence with recording of axle loads at typical locations to have a broad spectrum of vehicle/axle loads prevalent on roads in the State. Considerable time was spent in planning and organizing data collection

and training to personnel. The field work for data collection commenced in the first week of February, 2013.

- It was planned to collect information on axle load regulation and management procedures being followed in Odisha; in the adjoining states of Jharkhand, Andhra Pradesh, Chhattisgarh, Madhya Pradesh, West Bengal and Bihar, which are responsible for trans-border traffic and in the more progressive states of Tamil Nadu, Maharashtra, Karnataka, Gujarat and Rajasthan.

### 4.9.4 Meetings/Consultation/Presentations

- Prior to the commencement of data collection, a detailed meeting was held with the Inspector of Motor Vehicles, Er. D. R. Patra at RTO Bhubaneswar for assessing the ground situation. Discussions were used in identifying routes and locations with common occurrence of overloading of vehicles.
- A meeting was undertaken with Er. P. K. Sutar, EE, Puri District and Er P. K. Patra, EE, Khurdha District, also looking after Nayagarh District level to assess their views on axle loads as these affect the condition of the roads and the maintenance requirements and how the control and regulation of axle loads would affect their day-to-day working.

### 4.9.5 Progress

**Study Existing Road Transport Axle Load Control Practices as Prevalent in Odisha (and elsewhere)**

**a. Control Practices as Prevalent in Odisha**

Before commencing on axle load surveys detailed discussions were held with Inspector of Motor Vehicles at RTO Bhubaneswar with regard to axle load weighing and control measures prevalent in Odisha. Besides other vehicle weight, axle load monitoring devices available with the staff entrusted with controlling loads, and the weight recording devices – Dharamkantas – available with private franchises, at Luhrachati border check post a state of the art slow weigh-in-motion device has been installed, which, when the vehicle passes through the gates at crawling speed, records the following:

- Dimension measurements
- Material scanning
- Noise level recording
- Pollution level recording
- Load recording on individual axles

The device needs to be calibrated for all the recording variables. For any contravention, fine is to be imposed on the vehicle. The device remains to be visited to appreciate its salient features and to assess its suitability or otherwise for its broader utilisation in controlling vehicle/axle loads at various places in Odisha.

**b. Practices Elsewhere**

What has been learnt of the facility at Luhrachati in Odisha and what has been seen at the weighbridges on the roads coming from the ports at Dar-es-salaam in Tanzania and Mombasa in Kenya, the choice appears to be weighing in favour of the individual Weight/load control devices.

The extent of time taken in weighing a vehicle and clearing it depends upon a number of factors. In Tanzania, at the Nala weighbridge, which is located in rural area, 15-20 km away from Dodoma town, with a special parallel pavement facility and all operations fully computerized, no vehicle was seen to wait longer than 15 minutes for weighing and getting a print out of the axle loads and vehicle weight with details of fine if any. There is no fine for loads up to 5% more than the specified limits. The weighing platform is a single unit on which the single, tandem and tridem axle units are beckoned one by one and their loads as a unit are recorded. The computer works out the vehicle weight. Though the system requires a little extra effort and therefore more time, it has the advantage that all types of vehicles with varying axle configuration and wheel base could be accommodated.

At Athi River weighbridge, in Kenya, where the facility is located near a small township, on the side opposite to where the loaded vehicles are coming from, with the result that a vehicle coming for weighing makes a trumpet kind of movement and the vehicles queuing on the road itself, causing hindrance to other vehicular movement; it normally takes 45 to 60 minutes waiting for a truck to get weighed and move forward. This facility is fully computerized and consists of a long platform in three segments to accommodate the front single axle, the rear single or tandem/tridem axle and the third set of axles for articulated vehicles. The vehicle does not need to be guided repeatedly and all the axle units get weighed simultaneously in one go. But some vehicles, with different wheel base, can't be accommodated properly and needs to be guided to a single axle weighing system. Fines for overloading are substantial and no allowances are given beyond the specified limits.

There is also the question of choice between the more sophisticated weigh-in-motion device and the simple but more robust platform type devices, which are more cost competitive also. The biggest advantage of the weigh-in-motion device is that it allows vehicles to be weighed at normal highway speed or reduced speed, enabling the vehicle to be cleared quickly. In the present Odisha/India scenario this requirement was considered a luxury and a much simple method were used.

During recent past members of the ICTPL team working on this project had the opportunity of visiting axle load weighbridge stations in Tanzania and Kenya in Africa. The half-day long stay at both the facilities, recording axle loads of vehicles moving from the ports of Dar-es-salaam and Mombasa respectively to other parts of the country and beyond to other land-locked countries beyond their borders showed less than 5% vehicles carrying loads beyond the specified limits. Besides paying fine for overloading, which was substantial, the vehicles which were carrying extra load were asked to offload the extra load. Vehicles which were carrying loads within specified payload limits, but were heavier in terms of some axle load limits, besides paying fines for exceeding axle load limits were asked to readjust the loads.

For seeking vehicle axle load regulation and management practices in the neighbouring states, a Questionnaire has been sent to the Transport Commissioners of various states through the good office of Er N. K. Pradhan, CE (World Bank Project) and Engineer-in-Chief (Civil), Odisha.

**Carry Out Axle Load Surveys over 50 Selected Locations Spread Over the State**

**a. Finalising Axle Load Survey Locations**

Towards identification of proposed axle load survey locations, detailed discussions were held with OWD officials, so that the prevailing loading pattern on roads catering to ports, industrial areas, agricultural produce areas, markets and other areas catering to heavier loads could be recognized. It was also informed that M/s LASA (other consulting firm) has undertaken axle load surveys at 30 locations, and that there should be no duplication or overlapping of the locations.

M/s LASA had taken 30 locations on SHs and MDRs as per requirement of their indicated objectives. Therefore in order to be able to capture a comprehensive pattern of loading on roads in the State, the axle load survey points were considered to be located primarily on NHs and ODRs. However, to cover the roads not undertaken by the LASA, some additional locations were identified on SHs and MDRs also. Four locations on important Rural Department Roads in the mining zones carrying heavy payload traffic have also been agreed with OWD. Overall, 50 locations were identified and agreed with Client to undertake axle load surveys to assess the prevailing situation of overloading. The same are presented in **Annexure- X**.

**b. Axle Load Surveys**

The axle load locations were bunched together into three well marked out strings so that the team responsible for taking up survey for a string of locations, after moving out from the base at Bhubaneswar moves from one location to the next location with least dead mileage and without losing much time. On all roads except NH, axle load survey has been undertaken for 24 hours. However, for NH the duration was 48 hours (24 hours each side). Depending upon the travel time to reach a site and setting up the equipment, the starting/ending time at the various locations varied, but the survey duration was maintained as above. The survey commenced on 8$^{th}$ February, 2013 at Sukinda-Hatibari Road (IAL 36). Till date axle load survey has been completed for46 locations. The field work for the remaining 5 locations is expected to be completed by 20$^{th}$ June 2013.

At every location weighing was confined to both light and heavy commercial vehicles plying in both directions, making adequate arrangements for traffic control. Due to large volumes of vehicles plying on good number of roads, vehicles were randomly selected for weighing, so as not to cause queue of vehicles waiting to be weighed. The selection was done based on IRC guidelines: 37 – 2012 (refer **Table 4-2**).

**Table 4-2: Sample Size for Axle Load Survey**

| Total number of Commercial Vehicles plying on the road per day | Minimum percentage of Commercial Traffic to be surveyed |
|---|---|
| <3000 | 20 per cent |
| 3000 to 6000 | 15 Per cent |
| >6000 | 10 per cent |

The following information was recorded for each sampled vehicle; Registration Number, Vehicle Type, Axle Configuration and Registered Laden Weight (RLW). In addition data of axle load have been collected by using portable wheel weighing platforms on specially formulated proformas for different categories of commercial vehicles. The broad categories includes LCV Goods, LCV Passenger, 2 axle Truck, Bus, Semi Truck Trailer (single rear axle), Truck Trailer (single rear axle), 3 axle Truck, Semi Truck Trailer and Truck Trailer (tandem rear axle).All the axle loads were recorded individually by recording the outer wheel loads.

**Analysis of Axle Load Data – Extent of Overloading**

Salient aspects of the analysis of the data from the axle load survey location on Balasore–Bhadrak Road (IAL 15), where survey was undertaken on 22nd February, 2013, is presented below to show case the emerging trends. A total of 197 vehicles were weighed, of which only 2 vehicles were empty and the rest 195 vehicles were fully loaded.

A comparison of the loaded vehicle weight with its RLW indicated that 187 vehicles out of the total 197 vehicles were overloaded i.e. 95% of the vehicles that were weighed were overloaded. The degree of overloading, based on the gross vehicle weight, in terms of number of vehicles in percentage, varied from marginal to exceptional as detailed in Table **4-3**.

**Table 4-3: Details of Prevalent Overloading**

| Sl. No. | Degree of Overloading | Percent Overloading | Number of Vehicles |
|---|---|---|---|
| 1 | No Overloading | Nil | 5.08 % |
| 2 | Marginal Overloading | Up to 10 % | 7.61 % |
| 3 | Significant Overloading | 10 – 25 % | 17.26 % |
| 4 | Heavy Overloading | 25 – 50 % | 43.15 % |
| 5 | Extreme Overloading | 50 – 100 % | 16.25 % |
| 6 | Exceptional Overloading | More than 100 % | 10.66 % |

About 13% of the vehicles were either not overloaded or marginally overloaded. The marginal overloading perhaps is unintentional as it might be happening because the transporters/cargo handlers are not particularly careful about the extent of loading. 17% of the vehicles had resorted to significant overloading i.e. up to 25% overloading. This is clearly intentional overloading. 43% of the vehicles were heavily loaded with overloading 25 – 50%. This is the modal value of overloading. Another 27% vehicles were extremely or exceptionally overloaded. In all about 70% of the vehicles were overloaded to an extent which is definitely intentional and resorted to for pecuniary benefits. It clearly indicates that, whatever be the official status, the transport sector in the State believes that there is no overload control mechanism in place. Analysis of data on Balasore–Bhadrak (IAL 15), NH 16 indicates that there is virtually no control on vehicle weights and axle loads. Highly overloaded vehicles are plying on the National Highway (NH) with impunity.

**c. Damaging Effects of Overloading on Highway Pavement**

The total-load data, in comparison to the RLW, indicates significant extent of overloading, which is responsible for the raised Vehicle Damage Factors (VDFs). Axle load data has been analysed for number of equivalent standard axles loads (ESALs) for every individual vehicle.

To assess, in quantitative terms the damaging effects of overloading on the pavements, the recorded axle loads were converted into EASL numbers using the relevant equivalency factors, assessed as per the following relationship

ESAL = (Actual Axle Load/Standard Axle Load) 4

The following Standard Axle loads for different wheel/axle combinations have been used for the conversion factors:

- Single axle with single wheel on either side – 6,600 kg
- Single axle with dual wheels on either side – 8,160 kg
- Tandem axle with dual wheels on either side – 15,000 kg
- Tridem axle with dual wheels on either side – 22,800 kg

The 197 vehicles, with varied type of axle configuration, assessed for ESALs, aggregated a total of 2,769.84 ESALs, averaging the value of 14.50 per vehicle. We can take this as the average VDF for the commercial vehicles plying on Balasore–Bhadrak Road. As per IRC: 37 – 2012 the indicative VDF value for a new road in similar situation i.e. Rolling/Plain terrain with initial traffic volume of 150 – 1500 commercial vehicles per day, is 3.5. The maximum default value is indicated to be 4.5 for similar situation, for initial traffic of more than 1500 commercial vehicles per day. This gives an indication of how the road will perform and deteriorate at an accelerated pace for the prevalent traffic load conditions.

Based on the converted ESALs, the axle load data collected has been analysed for assessing the prevalent VDFs for the different categories of vehicles plying on the road.

The conventional 2 axle truck with front single wheel single axle and rear dual wheel single axle was assessed to have VDF of 16.18 against the standard value of 1.45 for the corresponding specified loadings. Rigid body three axle truck with dual wheel tandem axle was assessed to have VDF of 10.15against the standard value of 3.37 for the corresponding specified loadings. The four axle trucks with axle configuration of 1-1-22, 1-2-11 and 1-2-22 clubbed together had assessed value of 28.09 against the standard value of 4.78 average, clubbed for the corresponding specified loadings; and more than 4 axle trucks with configuration 1-2-222 and 1-2-2-222, clubbed together, based on the loads being carried, was assessed to have a VDF of 44.00 against the standard value of 4.78 average, clubbed for the corresponding specified loadings.

Based on these values of VDFs and for an assumed Base Year Traffic and other parameters of Lane Distribution Factor (0.75), Traffic Growth Rate (5%) and Design Period (15 Years) the design value of 117.03 Million Standard Axles (MSA) has been calculated, as enumerated in **Table 4-4** below:

**Table 4-4: MSA for the Prevalent Loading Conditions**

| Vehicle Type | Axle Configuration | VDF | Assumed Base Year Traffic (2013) | MSA for the Prevalent Loading |
|---|---|---|---|---|
| 2A Truck | 1-2 | 16.18 | 140 | 25.75 |
| 3A Truck | 1-22 | 10.15 | 397 | 45.78 |
| 4A Truck | 1-1-22,1-2-11, 1-2-22 | 28.09 | 103 | 32.99 |
| > 4 A Truck | 1-2-222, 1-2-2-222 | 44.00 | 25 | 12.50 |
| **Total Million Standard Axles (MSA)** | | | | **117.03** |

In order to demonstrate the advantage of controlling overloading, the data has been analysed further to theoretically assess the extent of loading on the road in terms of equivalent standard axles by off-loading the extra pay load beyond permissible load and adjusting that cargo on additional similar vehicles. The extra load being carried by the various categories, suggested to be off-loaded, is proposed to be adjusted on additional similar category of vehicles, as enumerated in **Table 4-5** below:

**Table 4-5: Additional Vehicles Required Accommodating Offloaded Cargo**

| Vehicle Type | Axle Configuration | RLW | Total Over load (kg) | RLW Considered | No. of Vehicles |
|---|---|---|---|---|---|
| Mini Truck | 1-2 | Up to 12990 | 293780 | 13000 | 23 |
| 2Axle Truck | 1-2 | 13000 to 16200 | 39420 | 16200 | 2 |
| 3&4Axle Truck | 1-22, 1-1-22, 1-2-11, 1-2-22 | 19000 to 25200 | 1344700 | 25200 | 53 |
| > 4 Axle Truck | 1-2-222 & 1-2-2-222 | 35200 to 49000 | 248740 | 40000 | 6 |

A total of additional 84 vehicles would be needed beyond the assumed base year traffic to accommodate the off loaded cargo. All the vehicles have been assumed to be loaded only up to their RLW. Based on the default VDFs of the related vehicle types, which would now be 3.37, 3.44, 4.78 and 7.33 respectively, the new design axle load value for the same amount of cargo to be carried on the increased Base Year Traffic and other parameters of Lane Distribution Factor, Traffic Growth Rate and Design Period have been calculated and it comes to 32.92 MSA, as per **Table 4-6.**

**Table 4-6: MSA with Adjusted Number of Vehicles**

| Vehicle Type | Axle Configuration | VDF | Base Year Traffic with additional no. of Vehicles to account for overloading | MSA for adjusted no. of Vehicles for No overloading conditions |
|---|---|---|---|---|
| 2A Truck | 1-2 | 3.37 | 163 | 6.23 |
| 3A Truck | 1-22 | 3.44 | 399 | 15.62 |
| 4A Truck | 1-1-22,1-2-11, 1-2-22 | 4.78 | 156 | 8.48 |
| > 4 A Truck | 1-2-222, 1-2-2-222 | 7.33 | 31 | 2.60 |
| **Total Million Standard Axles (MSA)** | | | | **32.92** |

Against a design axle load of 117.03 MSA as per the prevailing loading conditions, the road would need to be designed for only 32.92 MSA if the vehicles are loaded to their permissible RLW. This changed scenario will allow the pavement composition to be less than what would be required to design the pavement for the overloading situation.

Similarly an existing pavement, under reduced MSA traffic will wear more gradually and will require much less maintenance.

### 4.9.6 Original Date of Deliverable

Report on Vehicle Axle Load Regulation & Management is due on August 08, 2013 (end of month 16)

### 4.9.7 Expected Date of Deliverable

Report on Vehicle Axle Load Regulation & Management is expected to be submitted on due date.

### 4.9.8 Issue Needing Intervention of OWD

Efforts made to get information on axle load control and management measures from the various States have remained un-responded. OWD's intervention is needed to seek responses so that some meaningful comparisons can be made to draw useful inferences.

### 4.9.9 Way Forward

In the weeks ahead the following will be undertaken to complete the Task:

- Axle load surveys on the remaining locations will be continued and completed soon. All the data would be analysed for the extent of overloading region wise and for other related aspects.
- Axle weighing facilities, namely the weigh-in-motion device at Luhrachati and a few Dharamkantas will be visited and their working analysed. Action shall be proposed for facilities that deliberately provide wrong information on vehicle weights.

- After completion of the data collection and analysis thereof another round of discussion is proposed with the RTO personnel for more in-depth interactions. Inputs from RTO and OWD personnel will help in identifying locations for establishing weighbridge locations.
- Recommendations will be prepared on the type of weighbridges needed to be installed. The choice will be primarily between weigh-in-motion and the static platform type weigh bridges besides a limited number of portable wheel weighing platforms.
- Based on the emerging trends of overloading on different roads and the logistics, number of weighbridges required to be procured and locations, outside city limits, for installing the weighbridges will be decided.
- The aspect of fines and penalty for overloading and mode of payment, need for offloading the cargo from overloaded vehicles, impounding vehicles for repeated offences, suspension of driving license of multiple offenders etc. would be decided in discussion and consultation with Works and Transport Department, which could be through a Workshop before submission of the Report.

## 4.10 Future Road Sector Institutional Options

### 4.10.1 Scope of Works

As per ToR the task involves following activities:

- Mapping of established range of entities, functions and resources involved in road sector outputs and operations;
- Clarifying the distribution and adequacy of powers, authority and accountability relative to current and newly emerging priorities for GOO;
- Addressing important weaknesses and/or gaps in the existing institutional arrangements in the road sector;
- Identifying, ranking/prioritising the realistic options for medium-to-long term strategic improvements in institutional framework support for GOO objectives and overall governance; and
- Recommendations on the merits and 'domain' of funding requirements and implementation timeframe for new Road Development Corporation (RDC).

### 4.10.2 Objectives

- To review the functioning of already established entities engaged in road sector, with regard to their roles and responsibilities, distribution and adequacy of powers and accountability;
- To identify overlaps in responsibility as well as unaddressed roles/responsibilities;
- To address important weaknesses and/or gaps in the existing institutional arrangements in the road sector;
- To develop options and undertake an Options analysis for each group of roles and responsibilities;

- To identify, rank/prioritise the realistic options for medium-to-long term strategic improvements in institutional framework, which will support GOO objectives and overall governance;
- To conduct a Workshop to finalise the institutional options.

### 4.10.3 Process/Approach

- Identification of stakeholders
- Mapping of established range of entities, functions and resources involved in road sector outputs and operations
- Redefining Institutional Roles and Responsibilities
- Analysing Some Preliminary Options
    - Construction Academy
    - Road Development Corporation
    - Sate road fund
    - State Road Safety Councils

### 4.10.4 Progress

*4.10.4.1 Identification of Institutional Stakeholders in Road Sector and their Responsibilities*

**A. National Government Organisations and Linkages**

- **Ministry of Road Transport and Highways (MoRT&H):** The MoRT&H is responsible for development, formation and implementation of policies and programs relating to transport with the exception of railways and civil aviation. The Roads Wing of MoRTH deals with all matters concerning NHs, including externally aided projects. At GOI level, it works in close coordination with Planning Commission, Ministry of Finance and Ministry of Environment and Forests. In addition to undertaking works on NHs by agreement with MoRT&H the OWD interacts with MoRT&H by providing advice on road design, construction and routine maintenance practices on NHs in Odisha.
- **National Highways Authority of India (NHAI):**The NHAI was constituted in 1994 and became operational in 1995. The objectives of the NHAI are to plan, develop, maintain and manage and regulate NHs in the country besides providing required advice and consultancy to state governments. It is also authorized to collect fees on behalf of the Central Government for services rendered under Section 7 of the NHs Act.

**B. State Government Road Sector Organisations and Linkages**

The planning, maintenance, improvement and development of the Odisha road network is managed by a number of state government and district level organisations, which include:

- **Odisha Works Department**: The major responsibility of OWD under Works Department is to plan, construct, repair and maintenance of buildings, roads, bridges and other related structures financed from the State and capital budget allocations in Odisha;

- **Rural Development Department (RDD):** The function of the RDD in relation to roads is to provide connectivity to Odisha's 51,057 rural communities. The total length of road under its administrative control is 29,220 km. This road network length does not include roads within the village block or boundary or the access roads between the village and *Panchayat* administrative offices. The RDD receives its main funding from the GOO and under NABARD-RIDF. The department has constituted Odisha State Rural Road Agency (**OSRRA**) by a resolution in May 2003 for implementing PMGSY in the state.
- ***Panchayat Raj* Department:** The *Panchayat Raj* Department (PRD) is responsible for construction and maintenance of *Panchayat Raj* roads, catering to 6,234 *Panchayats* (covering about 51,394 villages as per 2001 census). These roads are mostly earthen with a *moorum* sub-base at few sections. These roads are of a lower standard than the VRs of RDD. Although the standard of road maintained under the administration of the PRD is considered to be poor in terms of geometry and drainage, the roads are trafficable for low volumes of motorised and non-motorised vehicles.
- **Odisha Bridge and Construction Corporation (OBCC) Ltd**.: The OBCC is a wholly owned construction agency of OWD under GOO and is engaged in construction of roads, buildings and power plants with facilities for steel fabrication and electrical works, subsoil investigation and testing of soils and construction materials. It also collects toll fees on behalf of GOO throughout the state.
- **State Transport Authority (STA):** The agency is responsible for regulating transport within the road sector in Odisha and has both statutory and administrative functions including vehicle registration, driver licensing and enforcement. Its revenue function includes vehicle taxes, registration fees, licensing charges, permit fees, and fines. It is responsible for all policy matters relating to the regulation of traffic such as loadings, licensing and registration as well as the control of road based public transport. STA generally attends accident scenes if vehicle faults are considered to be a contributing cause by the Police. STA collects some other information on type of vehicle involved, type of accident in broad categories and accident severity by road classification.STA also undertakes road safety program supported by GOI in early January of each year. It also regulates overloaded or over-dimensional commercial vehicles.
- **Department of Finance**: The key functions of the Finance Department (FD) mainly include preparation of the State budget, mobilisation of funds from revenue and other sources and disbursement of funds to various departments.
- **Department of Planning and Coordination**: It is primarily responsible for preparing the Annual State Plan in consultation with each individual department.
- **Housing and Urban Development Department (HUDD)**: It supports 103 municipal authorities (2 Corporations, 34 Municipalities and 67 Notified Area Councils) in Odisha for the supply and upkeep of a large number of public services and access and upkeep necessary to provide 'adequate' public road access to residential, recreational and commercial areas.
- **Police:** Department of Home (through Police) is responsible for enforcing traffic management, traffic regulations, conducting investigations into traffic accidents and prosecuting offenders.

- **Special Purpose Road Networks**: The special purpose networks include Irrigation roads (Water Resource Department) and Forest roads (Forestry and Environment Department).
- **Odisha State Road Transport Corporation (OSRTC):** This government enterprise provides bus services for long haul journeys generally in excess of 200 km and involving both intra and interstate travel.

**C. Private Sector:**

- **Road Construction Industry**: With growth in demand, there has been a growth in numbers and quality of the domestic contractors for undertaking road and bridge construction.
- **Road Transport Operators and Users:** Odisha has 37,66,450 motorised vehicles (as on 31st March 2012) in the state including about 2,40,000 goods vehicles and 24,350 buses. In addition to motorised vehicles, there are a high number of road users, who travel on rickshaws or who are cyclists or pedestrians. The differential in travel speed and vehicle mass within the typical traffic stream is high and a very significant factor which must be properly managed to improve the safety and efficiency of road travel.

The Institutional Development (ID) priorities and strategies of OWD have direct linkages and bearings with different Stakeholders in the State. While developing institutional options for GOO/OWD, the opinions of Stakeholders, on plans, policies and strategies need to be incorporated. For these, a number of stakeholders have been identified and are presented in **Table 4-7**:

**Table 4-7: Major Stakeholders in Road Sector**

| Stakeholders | Focus Areas |
|---|---|
| Law Department | Formulation of bills, acts |
| Finance Department | Funding, Revenue generation accounting, Plan allocations |
| Planning and Co-ordination | Plan Approvals, Fund Allocation |
| Forest and Environment | Clearances |
| General Administration | HR, Policies |
| Commerce and Transport | Licensing, Design standards |
| Works | Planning, construction, management an d regulation of roads |
| Industries | Roads- Industrial |
| Urban Development | Municipal roads |
| Rural Development | Rural roads |
| *Panchayat Raj* | *Panchayat Raj* Roads |
| Mining (mining Corridor) | Master planning, Vehicle load |
| Tourism(Development Plans, Buddhist Corridor) | Master planning |
| Revenue, land records | Land acquisition |
| Education | Road safety |

| Stakeholders | Focus Areas |
|---|---|
| Transporters/Trucker's and Passenger Buses Representatives | Road safety, Vehicle load |
| Road Users, Public | Road safety |
| Water Resources | Irrigation Roads |
| Railways | Future Development Plans |
| Ports and Shipping | Future Development Plans |
| Home/Traffic Police | Data on Road Accidents |

#### *4.10.4.2 Institutional Issues*

A review and analysis of responsibility distribution amongst various stakeholders brings out certain responsibility issues in road sector operation in Odisha. These include:

- There is little formal planning interaction between the OWD, RDD and PRD. This suggests that transport and access bottlenecks could occur where each organisation places a different emphasis on access priorities on sections of the same road on linking roads.
- The road sector policy which could focus on coordinated development is non-existent. This permits each entity to manage and implement their plans. No integrated and coordinated road development planning, investment coordination and prioritisation is undertaken, with each entity preferring to make and take its own decisions in isolation to the investment priorities. This has fostered and reinforced extensive duplication of road provision activities resulting in limited opportunities for the GOO to take full advantage of economies of scale and the benefits of private sector competitive environments. In many cases NHs, SHs, MDRs and ODRs cross into municipal areas and pass through town and village centres. Interaction between urban authorities and the OWD, in the past has been limited to the development of urban bypass projects. This coordination needs to be further extended to development of a seamless multi-modal transport system within the state, supporting efficiency.
- The fund availability for road development in the state is limited. With increasing in number of vehicles and traffic, higher length of roads and their maintenance requirements, the funding gap is likely to increase. A mechanism to address this is needed.
- In spite of the present growth in the number and quality of contractors, the contracting industry in Odisha is nowhere near the required capability and capacity to handle the ambitious road sector targets.
- Most of irrigation and forest roads are in an unsatisfactory condition. Since the upkeep of these roads is the sole responsibility of the respective departments, there is a general lack of coordination in planning and development activities amongst road sector organisations. This could be a problem at points where 'private' roads join or cross roads under the administration of other organisations as follows:
    - No responsibility is taken for the damage caused to roads at points where trucks enter or cross an existing road from a private road
    - Joining and crossing points are not planned in relation to traffic safety

  - Roads under the administration of other organisations cannot be planned and maintained to lack of accounting of seasonal traffic generation (Ex. forestry output)

- Consultations indicate that the growth of local contractors has been at much lower pace as compared to India. The number of contractors is much less as compared to the requirements for its roads and bridge works. Further, most local contractors don't possess reliable plant and equipment fleets. While mechanisation is on the increase, the majority of local contractors are only capable of undertaking small to medium road and bridge works.
- Interaction between OSRTC and the OWD is isolated to certification of routes for fitness for bus travel. There is no interaction on matters such as route condition, road programmes and bus facilities.
- The fragmented nature of the truck owners has not supported development and articulation of an industry point of view to the GOO. The issues could be about: Taxes and charges levied on the industry, Tolls, Road safety, Wayside facilities, Conditions of R&B, overloading and enforcement. Development of this industry could seek higher allocation of funds to roads and regulate use of these funds by road authorities in providing road construction and maintenance services.

### 4.10.5 Original Date of Deliverables

1. Draft Report on Medium-to-Longer Term Strengthening of the Institutional Framework/Structures of Odisha's Roads Sector is due on April 08, 2014 (end of month 24).
2. Final Report on Strengthening of the Institutional Framework/Structures is due on June 08, 2014 (end of month 26).

### 4.10.6 Expected Date of Deliverable

1. Draft Report on Medium-to-Longer Term Strengthening of the Institutional Framework/Structures of Odisha's Roads Sector will be submitted on due date i.e. April 08, 2014 (end of month 24).
2. Final Report on Strengthening of the Institutional Framework/Structures will be submitted on due date i.e. June 08, 2014 (end of month 26).

### 4.10.7 Issue needing intervention of OWD

- Feedback and comments from OWD officials
- Participation in the workshop (Planned during July 2013)
- OWD to undertake state visits, study various options practiced in these states and support finalization of preferred option for Odisha

### 4.10.8 Way Forward

Having undertaken the responsibility analysis of various road sector stakeholders, analysis shall be undertaken to develop **few institutional options along with their strengths and weaknesses**. This shall be based on possible integration of best management practices from elsewhere, situation and need of Odisha, willingness of GOO to retain/delegate functions (e.g. Policy, Planning and

Coordination; Construction; Maintenance; Monitoring; Regulation; Funding and Other Support measures), ease of implementation and upcoming policy considerations. These options shall then be discussed with stakeholders at higher level before adoption and finalization.

Based on outcome of visits to other States, the GOO officials are likely to form up their opinions with regards to type of new Institutional Framework and establishment of new organisational structure. This will be discussed for their strength and weaknesses by the Consultants to work out new strategy for future Road Institutions. A consensus decision by GOO and Consultants will be arrived, that what all new Road Institutions are to be proposed along with their major functions. Subsequently their detailed organisational structures shall be evolved from HRM considerations.

The time frame will depend on various linked activities which commence from visit to other States and followed by conduct of Stakeholders Workshop to get their views on this critical issue.

# SECTION 5

# DISCUSSION

# 5 Discussion

## 5.1 RSID Outcomes

Odisha lags behind other States in terms of having a well-connected road network. This was partly due to inadequate investments until the middle of last decade. However, the investment has increased, but lack of institutional capacity to deliver adequate infrastructure still poses a threat to the achievement of social and economic development objectives for the State. Moreover, the budgetary investment in road sector is observed to be inadequate to meet the growing demands in the road sector. The road agencies in the State lack capacity in policy development and planning, and are mostly focused in execution of road projects. There is no single organization at the State level responsible for strategic planning of the overall road network and for ensuring that development of the road network is coordinated to achieve the social and economic development needs of the State.

Following the policies of the Central Government, the State realizes that it needs to leverage PPP in order to meet the growing sect oral demands. However, the PPP can only succeed if there is an enabling environment and this can only be achieved through adequate institutional arrangements and supporting policies and procedures. The State has developed and approved the ISAP with a view to usher in appropriate reforms in key areas to enable sector to support the social and economic development objectives of the State.

The implementation of outcomes of RSID project, IT/ ICT strategy and establishment and operation of an Asset Management System will go a long way to bring in the necessary reforms in the road sector. The RSID outputs will be significant in achieving the intended reforms drawn in the ISAP.

## 5.2 Effectiveness of ISAP Strategy

On the ISAP matrix, the consultants would like to point out the following, for further deliberations:

***Requirement of a Core Road Network*** – The 'to be' developed road reclassification system will classify the roads based on its intended function and to comply with IRC standards and Vision 2001-21 developed by the Ministry. This is expected to take care of the highly trafficked network in the State. Though the other States have developed a core road network, the Consultants would suggest not introducing a new 'nomenclature' to the existing ones. The new institutional options can then be assigned the development and maintenance of the strategic road network which would involve substantial investments.

***Organisational Reforms -*** The ISAP Strategy, in general, focus on strengthening works department at headquarters and field levels. Though this is required to a certain extent, in terms of HRD, the Consultants are of the view that the OWD has to emerge as a facilitator for provision of improved services. This requires emergence of OWD as a leaner organisation in the long term and development of a vibrant private sector in the State who can deliver services in an efficient and sustainable manner. This is a key reform process and the Consultants reckon that this has to be deliberated further along with the strategy envisioned in the ISAP for required organizational reforms.

## 5.3 Project Critical Milestones

The project critical milestones to achieve the desired ISAP outcomes, over the remaining RSID services period are illustrated in detail in **Table 6-3**.

## 5.4 Required Corrective Measures/Interventions

There are no major interventions required at this stage, except some arrangement for speedy review and feedback of the submissions. The OWD has ensured that ISAP Review Committee meetings will be held every month to speed up the implementation process.

## 5.5 Sustainability of Institutional Development Actions

The sustainability of Institutional Development (ID) actions largely depends on the willingness of OWD staff at large to retain the ownership of the outcomes. It is observed that the new arrangement of responsibility framework within OWD for monitoring of ISAP projects have largely followed the idea of giving 'ownership' where it best can be managed. For example, CE (Roads) in OWD has been made responsible for monitoring the ISAP process. This has resulted in quick responses and speedy review of the submitted reports and queries.

In addition to the RSID Project, the other two assignments (Asset Management & IT/ ICT Strategy) will go a long away in enhancing sustainability of RSID. In addition there are also other initiatives like State Level Road Fund, Road Performance Benchmarking and Establishment of State Roads Authority. Although not all of these initiatives are part of the RSID, a review of such components was carried out to validate relevance. The results of the review are included in the **Table 5-1** below. It attempts to give some indication of impact each of the above elements on RSID components. For deciding scale of impact as 'High, Medium & Low', the RSID Team Members corroborated jointly and examined each element of the RSID component. The conclusion of this exercise was that OWD will have to ensure speedy completion of the initiatives considered to attain full sustainability for the reform process.

**Table 5-1: Ensuring Sustainability of RSID Components**

| RSID Component | State Level Road Fund | Road Performance Benchmarking | State Roads Authority | Road Management System | IT-ICT-MIS Strategy |
|---|---|---|---|---|---|
| **1. Road Sector Policy & Strategy** | High[1] | High | High | High | Medium[2] |
| 1.1 Review of Current Policies | √ | √ | √ | √ | — |
| 1.2 Identification of Gaps in view of future Challenges | √ | √ | √ | √ | √ |
| **2. Reorganization & Strengthening of OWD** | Low[3] | Medium | High | High | Medium |
| 2.1 Development of Medium-to Long-Term Organizational Model for the OWD | — | — | √ | √ | √ |
| 2.2 Facilitated OWD and GOO to complete the transition within OWD | — | √ | √ | √ | — |
| **3. OWD Staff Training & HRD** | Low | High | Medium | High | High |
| 3.1 Execution of Training Needs Assessment and Developing Staff Training Programme | √ | √ | √ | √ | √ |
| 3.2 Preparation of HRD Policies | — | √ | √ | √ | √ |
| 3.3 Developing Training Evaluation System | — | √ | — | √ | √ |
| **4. Revision of OPWD Code & Manual** | High | High | Low | High | Low |
| 4.1 Updating Modifications by adding and deleting OPWD Code | √ | √ | — | √ | — |

[1] High – **All elements** of RSID are significant for Sustainability
[2] Medium – **Some elements** of RSID are significant for Sustainability
[3] Low – **None of the elements** of RSID are significant for Sustainability

| RSID Component | State Level Road Fund | Road Performance Benchmarking | State Roads Authority | Road Management System | IT-ICT-MIS Strategy |
|---|---|---|---|---|---|
| 4.2 Preparation of Manual for procedure Guidelines and Yardsticks | √ | √ | — | √ | — |
| 4.3 Preparation of Standard Bidding Document and Procurement Manuals | √ | √ | — | √ | √ |
| **5. Road Safety Engineering and Planning** | High | High | Low | High | Medium |
| 5.1 Develop multi sectoral 'Road Safety Action Plan' | √ | √ | — | √ | √ |
| 5.2 Technical Capacity Building Road Safety design in OWD | √ | √ | — | √ | √ |
| 5.3 Arrange Institutional visits for GOO officers | √ | √ | √ | √ | — |
| **6. Road Network Master Planning** | Medium | High | Low | High | High |
| 6.1 Preparation of Draft Inaugural Master Plan | √ | √ | √ | √ | √ |
| 6.2 Targeted capacity building within OWD | — | √ | — | √ | √ |
| 6.3 Preparation of new road classification and responsibility matrix | √ | √ | — | √ | √ |
| 6.4 Undertake Economic analysis of Network Proposed in the Master Plan | √ | √ | — | √ | √ |
| **7. Road Toll Collection and Management** | High | Medium | Low | High | High |
| 7.1 Prepare model tolling contract agreements | √ | √ | — | √ | √ |
| 7.2 Prepare action plan for implementation of toll collection and maintenance | √ | — | — | √ | √ |
| **8. Future Roads Management Funding** | High | Low | Medium | High | Low |

| RSID Component | State Level Road Fund | Road Performance Benchmarking | State Roads Authority | Road Management System | IT-ICT-MIS Strategy |
|---|---|---|---|---|---|
| 8.1 Review existing funding sources for road user charges and their adequacy | √ | — | √ | √ | — |
| 8.2 Develop realistic measures to improve resource mobilization | √ | — | — | √ | — |
| 8.3 Develop viable Institutional options to channels Road user charges | √ | — | √ | √ | — |
| **9. Axle Load Regulation & Management** | Low | High | High | High | Medium |
| 9.1 Assessment of features of excessive loading by vehicles on the state road network | — | √ | √ | √ | √ |
| 9.2 Preparation of options for effective and sustainable regime for GOO | √ | √ | √ | √ | — |
| 9.3 Facilitation of implementation plan for transport Department | — | √ | √ | √ | √ |
| **10. Future Road Sector Institutional Options** | High | High | High | High | Low |
| 10.1 Outlining functions and resources for road sector output and operations | √ | √ | — | √ | — |
| 10.2 Addressing weakness and gaps in the existing institutional arrangements in road sector | √ | √ | √ | √ | — |
| 10.3 Developing responsibility matrix for road sector entities/Stakeholders | √ | √ | √ | √ | — |

# SECTION 6

# CONCLUSION

# 6 Conclusion

The delivery of various tasks listed in the RSID study needs a holistic approach and it is important to undertake significant number of consultations with various stakeholders at different levels to understand the existing situation, integrate the process and deliver the results in a process driven manner. The project has input from various key experts to deliver corresponding outputs, and it is important to integrate the process to achieve the desirable result. Moreover, due to the nature of the project, which includes significant thought process at policy and strategic level, it is important to carry out high level deliberations to obtain the desired output.

Since the mobilization, the Consultants held a number of consultations/discussions at various levels of Government, for all the major tasks, as presented in relevant sections of this report. The Stakeholders Workshop conducted on 9th November 2012, has significantly contributed to the consultations process. Following the deliberations and further studies, the following deliverables/ documents were submitted and/or nearer to completion.

| Submitted Deliverables/Documents | Deliverables nearing completion |
|---|---|
| • Inception Report<br>• Report on Road Infrastructure Safety Management Review<br>• Working Paper on Short to Medium Term OWD Re-structuring & Re-organization<br>• Quarterly progress reports (6 No)<br>• OPWD Code and Manual<br>• HRD Policy, Training Needs Assessment &Training Plan<br>• Interim report on Revision of OPWD Code & Manual<br>• Draft Road Safety Action Plan<br>• Interim Report on Preparation for Road Network Master Plan<br>• Report on Vehicle Axle Load Regulation and Management System | • Draft paper on Road Sector Policy<br>• Revised Working Paper on Short to Medium Term OWD Re-structuring & Re-organization<br>• Preliminary Report on Road Funding and Future Funding Options<br>• Report on Toll Collection & Management |

## 6.1 Compliance to WB Mission Observations

On receiving the observations from WB Mission who visited OWD during Oct 25 to 30, 2013, efforts were made to respond to the observations promptly. The efforts for responding to MTSR observations included meeting the OWD Officials and seeking clarifications on the issues as well as explaining the Consultants' further actions in response. The compliance to observations is shown in **Table 6-1**.

**Table 6-1: Compliance of WB Observations**

| WB Observation | Reference for Compliance |
|---|---|
| The material presented is essentially an aggregation of information accounting for activities and outputs related to operational issues | RSID Team made efforts to build on present status (indicated in chapter 4) and reported outcomes in chapter 5 & 6. |
| There is a lack of information about the expected information-sharing and collaboration between the RSID consultants and other major ID consultancies (e.g., on the AMS and on IT-ICT-MIS enhancements), which is disappointing given its importance to overall ISAP outcomes | A comprehensive review of consultancies foe AMS, IT-ICT-MIS Strategy and RUSS was undertaken<br>*See **Table 5-1*** |
| The given Executive Summary is mostly focused on 'methodology' and process-level aspects of the RSID services, and lacking in focus on overall strategy and whether the current Project-supported ID strategy being expressed through the ISAP is still appropriate for the intended ISAP outcomes, at least in the main RSID-linked fields; | Executive Summary has now been revised explaining RSID approach for ISAP outcomes.<br>For comments on current project ID strategy, refer to **Table 6-1**.<br>Key results are indicated. Phased implementation process was described in short Term, Medium Term and Long Term durations. |
| To remedy such shortcomings in the existing MTSR version, the consultants should at least provide direct comments in the Report on (a) the effectiveness of current ISAP strategy(-ies) and the likelihood of achieving required outcomes with planned outputs as per the current output targets and scheduling, (b) on what are the 'project-critical' milestones over the remaining RSID services period where the success or otherwise of the ISAP program will be largely determined, and (c) whether any corrective measures or interventions are needed (and when and by whom) at the strategic level of the ISAP program to improve the prospect of sustainable ID successes as planned. | The short comings in MTSR have been removed by incorporating necessary action described in **Table 6-3**.<br>a. The likelihood of achieving required outcomes within the schedule is positive. See the status of deliverables and proposed schedules for approval in **Table 6-3**<br>b. Targets are expected to be met with the combined efforts of OWD and RSID consultants. The project critical milestones are shown in **Table 6-3.**<br>C.OWD and stakeholders need to comment/ approve various recommendations. Besides this, there are no major interventions needed at this stage to improve the prospect of sustainable ID success.<br>**Table 6-3** also provides a comprehensive Bird's Eye view of entire RSID processes and Outcomes. This table refers to actions required for completion of various outputs and its impact on Key Result Areas. |

The ISAP 2008-18 has set out objectives and key result areas to measure the achievement of these objectives. Though this has been prepared and accepted during 2008-18, this still hold valid for

required road sector reforms. A detailed assessment of ISAP 2008-18 has been carried out against the intended outcomes of RSID project and the same has been explained in the **Table 6-2**.

The long term sustainability of ISAP actions can only be ensured through larger participation and involvement of OWD staff. Referring to **Table 6-3**, it shall be noted that a tight programme has been drawn up to meet the RSID outcomes within the original schedule. The Consultants are of the opinion that ISAP Cell needs further strengthening, in terms of dedicated staff to coordinate, review and provide feedback to the reports submitted by the RSID Consultants. In addition, awareness of ID processes has to be generated among the field staff to prepare them for the intended outcomes of ID processes.

**Table 6-2: ISAP Matrix**

| Sl. No. | Objective | Key Result Area | Present Status | Key action required Short term 0–2 years | Key action required Medium term 2–5 years | Key action Required Long term 5–10 years |
|---|---|---|---|---|---|---|
| **i. Road Sector Strategy** | | | | | | |
| 1. | Effective Institutional Framework | Implementation of Govt. endorsed Roads Policy and Management framework | • Currently, there is no Road Sector Policy<br>• RSID Consultants have developed a road sector policy which is expected to be put forward to the Government for approval in February 2014 | Finalize and approve Road policy covering legal frame work, financing arrangements to introduce sustainable funding for road maintenance | Enact necessary acts | |
| | | Determine the Core Road Network (CRN) and implement new dedicated entity and capacity for CRN management | • Prioritization of road network is in progress in master plan<br>• New entity is being assessed, preliminary report on institutional options will be ready by April 2014 | After defining Core road Network and Provide separate budget head for the same | Explore new sources for generation of revenue | |
| | | Well-defined legal 'Right of Way' (ROW) and asset Management powers through Govt. legislation to avoid encroachments and misuse of Road Boundaries | • Not undertaken through any of the consultancy engagements<br>• OWD needs to formulate Highways Act | Initiate identification of ROW for all road network under works department and fix ROW boundary stones | Enact highways encroachment and prevention bill empowering PWD engineers with magisterial powers similar to that of NH administrator | |
| 2. | Adequate and sustainable funding for Road Sector | Dedicated Road Fund for road maintenance needs and upkeep of the core road network | • Maintenance funds are provided only to the tune of about 33% of the projected amount and are being distributed depending on the length of road network in each division, which is inadequate<br>• Asset Management Consultants are in the process of developing systems which will identify the budgetary requirements for road maintenance | 1. Identify the important roads carrying high level of traffic and classify them as primary core network of roads<br>2. Maintenance funds requirement to be assessed based on road condition and accordingly to be kept in budget<br>3. Distribute funds on the need- based basis to each division | Establish Autonomous Road Fund Board though additional CESS on fuel and other means approved by GOO | Set up performance Benchmarking system for monitoring of network and identify weaknesses |
| 3. | Satisfactory Sector information, consultation, Governance and accountability mechanisms | Governance and Accountability Action Plan (GAAP) for Works Department and other road bodies with annual and multi-year plans and public reporting in place | The RTI based GAAP is presently taking shape so as to enable public to access reports concerning development activities | Set up effective Complaints Handling System and mechanism to respond to the complaints | Implementation of Govt. endorsed GAAP for Works Department and other roads bodies | Make results available duration for users ton appreciate initiatives taken by OWD |
| 4. | Comprehensive Master planning for roads | Annual and multiyear plans for road infrastructure development based on road master plan | • RSID Consultants are currently developing master plan which will enable road agencies to prepare annual and multi-year plans<br>• Master plan expected to be placed before the Government soon | 1. Master Plan for Odisha road network development in place<br>2. Multi-year plans and Annual Plans for roads development and management in place, in line with master plan(s) | Set up a mechanism including institutional set up (e.g. Master Plan Preparation Cell) for periodic updating of Master Plan | Make results available to road users on the OWD Web site |
| 5. | Effective Road safety Policy, Resources and action | 1. Safe travel<br>2. Accident rate reduced<br>3. Road safety council at headquarters | • A multi departmental Road Safety Action Plan in in the process, which will address the identified key actions required in the short term | 1. Establish Road safety council state headquarters and also at district level | With Technical assistance in developing pilot Strategy for road safety actions | Make information on accident reduction resulting economic |

| Sl. No. | Objective | Key Result Area | Present Status | Key action required Short term 0–2 years | Key action required Medium term 2–5 years | Key action Required Long term 5–10 years |
|---|---|---|---|---|---|---|
| | | and at district Level established | • RSAP expected to put forward to the Government for approval soon | 2. Establish Highway Patrolling unit on core road network along with clear duties and responsibilities<br>3. Establish traffic engineering unit at headquarters<br>4. Develop accident recording system with duly training staff in consultation with police and transport departments<br>5. Initiate Road safety database<br>6. Identify accident- prone areas on all roads<br>7. Evolve road safety guide lines specifying roles and responsibilities of the organisation involved<br>8. GOO to provide necessary funds to improve the accident prone areas | | savings to public |
| 6. | Private sector participation in road sector infrastructure | State-level PPP/BOT policy, guidelines and model concession with agreements (MCA) in place and projects being facilitated | • State PPP policy with institutional mechanism in place<br>• OWD started awarding projects in PPP mode | 1. PPP transaction for identified PPP viable roads and preparation of Project specific MCA Project implementation through PPP unit<br>2. Make PPP process transparent and share details with road used | Encourage private sectoral enterprises to participate in PPP initiatives | Document success stories and attempts made in overcoming weaknesses |
| 7. | Enhance capacity of local construction industry in construction management of Road and Bridge works | • Qualified and capable local contractors are available in sufficient numbers for taking up Road development and maintenance works<br>• Marked improvements in quality and size of road network | • This requirement has not been initiated yet<br>• The likelihood of achieving this objective is uncertain at this stage | 1. Position an expert/consultant advisor to review the existing status of local construction industry and recommend steps to enhance their capacities and encourage new entrepreneurs to enter in the industry<br>2. Assess the needs of construction industry and evolve strategy and action plan to formulate training programmes taking help of National Academy of Construction | Improve Govt. decision making on review findings and Recommendations | • Keep on raising level of accountability with contractors and quality of work<br>• Encourage building of confidence of contractors |
| **ii. Core Processes** | | | | | | |
| 8. | Transparent, effective and accountable procurement policy through E- | E-procurement in place | • Conventional manual procurement is being done for all the road contracts<br>• IT department at Government level is taking action to introduce E-procurement<br>• Two Pilot projects have been lunched | 1. Govt. to expedite e-procurement processes<br>2. Works Department to take action to train their staff on e-procurement<br>3. Switch over to E-procurement at | | |

| Sl. No. | Objective | Key Result Area | Present Status | Key action required Short term 0–2 years | Key action required Medium term 2–5 years | Key action Required Long term 5–10 years |
|---|---|---|---|---|---|---|
| | procurement in roads contracting | | | least for major works costing more than Rs. 10 million | | |
| 9. | Effective performance monitoring by OWD | Performance monitoring and evaluation (M&E) system | • Performance Monitoring is absent<br>• The system of monitoring & evaluation is mainly on the basis of amount spent with respect to funds released<br>• IT/ ICT Consultants are engaged in development and implementation of an Information System which is expected to improve the performance monitoring | Implement comprehensive MIS linked monitoring and evaluation system | Report on those performing well and not so well performing set ups. | |
| 10. | Rationally prioritized Road Maintenance funds planning and commitment | Closure of Adhoc decision for planning and maintenance funding | Establishment of a Road Asset Management System is nearing completion | Asset management system (RAMS) in place for network asset database, and for prioritization of road maintenance (RM) funds annually on the basis of road condition data, traffic level, axle load parameters, soil parameter etc. Use of techno-economic planning tool such as HDM-IV with GIS platform for web based application and reporting in place | Extensive training and skill development for field engineers on RAMS | |
| 11. | Improve quality in Construction and maintenance | Better roads at optimum price with minimal maintenance needs in future | • RSID Consultants has submitted Standard Bidding Documents for Procurement of Works, Goods & Services<br>• This is expected to result in improved quality control of works | Introduce a condition in all the contracts for establishment of laboratory and engage trained technicians for testing the materials, job mix etc. | Promote and encourage quality control mission by announcing awards for best performers | |
| 12. | Environment and Social aspects of roads are properly resolved | Capacity to manage Environment and Social impacts for road projects in place. Rehabilitation and Resettlement issues are well taken | • Environmental and social issues are now being considered in the project design<br>• State Govt. has Rehabilitation and Resettlement policy in place | Implement the policy to assure that the project affected people are rehabilitated with improvement in their social status | Undertake periodic surveying for monitoring sustainability of environmental and rehabilitation measures. Plan appropriate corrective initiatives | |
| **iii. Organisational Structure and Management** | | | | | | |
| 13. | Efficient management of Core Road Network | Determine the Core Road Network (CRN) and implement its management within Works Dept. and subsequently through establishment of ORDC (Odisha Road Development Corporation) | • The links/corridors having high volume of traffic will be identified in the Master Plan, which is currently under preparation<br>• The institutional mechanism for managing the above in the short and long term is under assessment | 1. Identify Core Road Network and entrust its management to a separate Chief Engineer pending establishment of ORDC for effective management<br>2. Provide separate budget head for core roads | Arrange internally and externally aided projects for continuous upgrading | |
| 14. | Effective Organisation for performing the new | Strengthened Works Department organisation in place to perform efficiently the functions of policy, | Options for strengthening the existing organisations is under preparation | Strengthen/Re-organize Works Department to perform effectively in delivering the new roles especially in the | 1. Plan to consolidate these functions efficiently, as per Govt. sector restructuring | Arrange training abroad and in India for further institutional training and |

| Sl. No. | Objective | Key Result Area | Present Status | Key action required Short term 0–2 years | Key action required Medium term 2–5 years | Key action Required Long term 5–10 years |
|---|---|---|---|---|---|---|
| | roles and responsibilities in managing the road network | planning and programming | | core business area, i.e. policy planning and programming | decisions<br>2. Ensure sustainability in these functions, capacities and resources. | acquisition of skills. |
| | | Enhance the PWD organisation at headquarters and field to match key roles and functions | Same as above | 1. Establish various units for PPP, Asset Management, Social, Environmental etc. with trained and capable persons at headquarters to perform the key roles<br>2. The field units are to be reorganized duly assigning the workload and keeping the new role in view | | Review functions of various units and take corrective action based on the implementation feedback in the short term |
| **iv. Financial Management, Audit and Administration** | | | | | | |
| 15. | Effective Financial management, Audit and Administration | Efficient Financial management system in place | Financial Management Software (FMS) for the Department was developed during FY-2000 by a consulting firm. This needs modification and installation at various levels to suit present procurement and implementation procedures as well as computing environment | Comprehensive IT-based Financial Management System in place Works Dept. to take action to introduce FMS in place for use across the department and to initiate action to train staff in FMS | | Make FMS fully operative across all field units and HQ. Produce various finance output reports |
| | | Strengthen Department financial Compliance auditing functions and resources including internal audit | There is no financial audit except AG audit, which is mostly verifying vouchers and procedures | Introduce financial compliance audit functions and resources among all field units. Benchmark expenditure for Routine maintenance per km based on this audit | Introduce measures to avoid misuse of financial resources. | |
| **v. Information and Communication Technology (ICT), MIS and GIS Application** | | | | | | |
| 16. | Comprehensive and efficient IT and ICT support for OWD road sector planning and management | Effective IT-ICT-MIS Strategy and implementing capacity in place up porting Dept. decision-making | IT/ ICT Consultants are developing the desired systems to achieve this objective | 1. Install computers along with the necessary custom built software's across Dept. starting form Junior Engineer's office to E-in-C's offices<br>2. Train the persons to manage, develop and implement sustain-able M&E operational and reporting framework and resources | Initiate full comprehensive annual M&E reports on roads program by 2010. Review and refine M&E processes outputs and their impacts bi annually | Develop appropriate decision support systems (DSS) |
| | | Effective IT supported Asset register and Management information system in place | Asset Management System is under preparation | 1. Develop IT based asset register linked with GIS. All the inventory data of roads/bridges to be linked in GIS format<br>2. Development of comprehensive long term IT/ICT strategic plan for Govt. roads sector requirements | | 1. Periodic valuation of IT/ICT services and results<br>2. Refinement of ICT, GIS and MIS strategy and funding for business priorities |

| Sl. No. | Objective | Key Result Area | Present Status | Key action required Short term 0–2 years | Key action required Medium term 2–5 years | Key action Required Long term 5–10 years |
|---|---|---|---|---|---|---|
| **vi. Human Resources (HR) Development and Capacity Building** | | | | | | |
| 17. | Effective and sustainable capabilities for core road functions | Capacity building plans for Dept. for Strengthening road sector management | • Capacity building in key areas such as Master Planning & Road Safety will be initiated by RSID Team<br>• For sustainable capacity building, TNA has been developed and is expected to be implemented by OWD | 1. Assess the training needs in each of the core business<br>2. Establish training institute<br>3. Identify suitable faculty to impart meaningful training. Consultant assistance may be taken if necessary | Link training system with performance management system for the staff | Get the capacity of the engineers assessed by an outside expert and take appropriate action. This should be continuous Processes |

**Table 6-3: RSID Processes & Outcomes**

| Sl. No. | Major Reform/Initiatives | Planned Government Promulgation | Current Status | Required Actions to Complete the Tasks within Schedule | Action By | Time Frame (Latest by) | Impact on ISAP Outcomes & Risks involved in non-compliance of time fame |
|---|---|---|---|---|---|---|---|
| 1. | **Road Sector Policy and Strategy** | April 2014 | Draft Road Policy is under process incorporating WB & OWD comments | • Submit draft Road Policy incorporating suggestions of WB & OWD | ICT | Mid Dec 2013 | **Impact on ISAP Outcomes**<br>1. Strategic directions for road sector development and management;<br>2. Augmented capacity and better riding quality of road network. |
| | | | | • Discussion of draft Road Policy by stakeholders | ICT/ OWD | Mid Jan 2014 | |
| | | | | • Present the draft road policy to ISAP Review Committee | OWD | Feb 2014 | |
| | | | | • Incorporate the feedback received from the workshop/ ISAP Review Committee and submit the final road sector policy by end of January 2014 | ICT | End of Feb 2014 | |
| | | | | • Present the final road policy before ISAP Review Committee | ICT/ OWD | Mar 2014 | |
| | | | | • Sharing the final policy to the Govt. for placing the same before ISAP Steering Committee | OWD | End of Mar 2014 | |
| | | | | • Onward submission of final Road Sector Policy for cabinet approval | OWD | Apr 2014 | |
| 2A. | **Revision of OPWD Code and Manual** | End of May 2014 | • Final OPWD Code & Manual has been submitted to OWD<br>• Manual yet to be reviewed by OWD | • Submit final OPWD Code | ICT | Mid Dec 2013 | **Impact on ISAP Outcomes**<br>Well defined processes and systems in tune with state of the art practices supporting proper procedures for speedy implementation of projects. |
| | | | | • Submit revised OPWD Code to the Code Committee at Government level | OWD | End of Dec 2013 | |
| | | | | • Incorporate suggestions of Code committee corrections and resubmit the Final Code | ICT | End of Jan 2014 | |
| | | | | • Complete review of the OPWD Manual | OWD | End of Jan 2014 | |
| | | | | • Resubmit OPWD Manual incorporating review comments | ICT | Mid Feb 2014 | |
| | | | | • Present OPWD Code & Manual before ISAP Review Committee | OWD | Mar 2014 | |
| | | | | • Onward submission of OPWD Code & Manual to the Government | OWD | Apr 2014 | |
| 2B. | **Standard Bidding Documents** | | • SBDs for Procurement of Works, Goods & Services submitted to OWD for review<br>• Manual for Procurement of Works, Goods & Services submitted to OWD for review | • Complete review of SBDs | OWD | End of Jan 2014 | **Impact on ISAP Outcomes**<br>Standard bidding procedures will attract capable and qualified contractors, consultants and supply chain |
| | | | | • Resubmit final SBDs | ICT | Mid Feb 2014 | |
| | | | | • Complete review of Manuals | OWD | End of Feb 2014 | |
| | | | | • Resubmit Manual | ICT | Mid Mar 2014 | |
| 3. | **OWD Staff Training and HRD** | Apr 2014 | Comments (WB & OWD) received on submitted HRD Policy, TNA results and detailed Training Plan | • Submit Training Evaluation process document and revised reports incorporating comments from WB | ICT | End of Dec 2013 | **Impact on ISAP Outcomes**<br>HRD policy shall support Transparency and shall put HRD in focus. Improved staff competences shall support improved decision making and efficiency |
| | | | | • Present Training Plan before ISAP Review Committee | OWD | Jan 2014 | |
| | | | | • Forward the Training Plan for Government approval | OWD | Feb 2014 | |
| 4. | **Reorganisation and Strengthening of** | N/A | Working Paper on Short-medium term | • Submit the revised working paper on short to medium term restructuring of OWD | ICT | End of Dec 2013 | **Impact on ISAP Outcomes**<br>1. Strengthen OWD Structure |

| Sl. No. | Major Reform/Initiatives | Planned Government Promulgation | Current Status | Required Actions to Complete the Tasks within Schedule | Action By | Time Frame (Latest by) | Impact on ISAP Outcomes & Risks involved in non-compliance of time fame |
|---|---|---|---|---|---|---|---|
| | **OWD** | | restructuring has been Submitted and discussed. It is being refined further as per suggestions by OWD and the World Bank. | • Discuss the working paper (various models) in the Workshop; Workshop to be conducted in January 2014 | OWD/ ICT | End of Jan 2014 | 2. Explore establishment of ORDC (Odisha Road Development Corporation); Assessment still at early stages; |
| | | | | • Present the working paper before ISAP Review Committee | ICT/ OWD | Feb 2014 | |
| | | Dec 2014 | Report on long term re-structuring | • Incorporate comments from Workshop & submit draft medium to long term restructuring of OWD report | ICT | June 2014 | |
| | | | | • Complete review of the above report | OWD | End of June 2014 | |
| | | | | • Resubmit the above report, incorporating comments & Present before ISAP Review Committee | OWD/ WB | Mid Jul 2014 | |
| | | | | • Submit final report on medium to long term restructuring of OWD | ICT | End of Aug 2014 | |
| | | | | • Present the final report before ISAP Review Committee | ICT | Sep 2014 | |
| 5. | **Road Safety Engineering and Planning** | Jun 2014 | Draft Road Safety Action Plan discussed with Home, Transport & Works Secretaries; Draft Road Safety Action Plan reviewed by ISAP Review Committee | • Visits to other States to learn best practices | ICT/OWD | Mid Jan 201 | **Impact on ISAP Outcomes**<br>1. Reduction in accidents, mortality and trauma etc.<br>2. Improved database on road accidents<br>3. Better supporting mechanism |
| | | | | • Organize Road Safety Workshop | OWD | End of Jan 2014 | |
| | | | | • Incorporate feedback and final RSAP | ICT | End of Feb 2014 | |
| | | | | • Present the RSAP to ISAP Review Committee | ICT/OWD | Mar 2014 | |
| | | | | • Forward final RSAP to Government in March 2014 | OWD | Mar 2014 | |
| 6. | **Road Network Master Planning** | Dec 2014 | Interim Report on preparations for Road Network Master plan Submitted and discussed; Completion Report is in process; | • Obtain background development information | OWD | End of Dec 2013 | **Impact on ISAP Outcomes**<br>1. Responsibility, Account-ability and sustainability in Road Planning;<br>2. Annual and multi-year plans for road infrastructure development based on Master Plan; |
| | | | | • Conduct Stakeholder Workshop | ICT/OWD | End of Apr 2014 | |
| | | | | • Submit draft Completion Report on Master Plan | ICT | End of Jun 2014 | |
| | | | | • Complete review of Master Plan | OWD | End of Jul 2014 | |
| | | | | • Submit Final Master Plan | ICT | Mid Aug 2014 | |
| | | | | • Present Master Plan before ISAP Review Committee | ICT/OWD | Sep 2014 | |
| | | | | • Forward the Master Plan for Government approval | OWD | Oct 2014 | |
| 7. | **Vehicle Axle Load Regulation and Management** | Apr 2014 | Recommendations presented before ISAP Review Committee and agreed to take further to the Government level | • Discuss the recommendations with GOO | OWD | End of Jan 201 | **Impact on ISAP Outcomes**<br>Improved pavement management by reduced road damage and low maintenance requirements; |
| | | | | • Forward the recommendations to the Government for approval | OWD | Feb 2014 | |
| | | | | • Continue with implementation | OWD/ ICT | Apr 2014 onwards | |
| 8. | **Future Road Funding Options** | Sep 2014 | Preliminary report under preparation. Quantification of likely fund generation through various options | • Submit Preliminary Report | ICT | Mid Dec 2013 | **Impact on ISAP Outcomes**<br>Dedicated Road Fund for road maintenance needs/ development of the road network |
| | | | | • Present the draft report before ISAP Review Committee | ICT/ OWD | Jan 2014 | |
| | | | | • Conduct Workshop on funding options | ICT/ OWD | Early Mar 2014 | |
| | | | | • Incorporate feedback, submit final report on Road Funds | ICT | Early Apr 2014 | |
| | | | | • Place final report before ISAP Review Committee | ICT/ OWD | May 2014 | |

| Sl. No. | Major Reform/Initiatives | Planned Government Promulgation | Current Status | Required Actions to Complete the Tasks within Schedule | Action By | Time Frame (Latest by) | Impact on ISAP Outcomes & Risks involved in non-compliance of time fame |
|---|---|---|---|---|---|---|---|
| | | | | • Forward recommendations to Government | OWD | Jun 2014 | |
| 9. | **Road Toll Collection and Management** | Jun 2014 | Draft report on management of outsourced road toll collection | • Submit the draft report | ICT | End of Jan 2014 | **Impact on ISAP Outcomes**<br>State level PPP/ BOT Policy, guidelines and Model Concession Agreements (MCAs) in place and projects being facilitated |
| | | | | • Complete review of the draft report and provide comments | OWD | End of Feb 2014 | |
| | | | | • Present the revised report before ISAP Review Committee | OWD/ ICT | Mar 2014 | |
| | | | | • Forward the recommendation for GOO approval | OWD | Mar 2014 | |
| 10. | **Future Institutional Options** | Jan 2015 | Preliminary works/ consultation in progress to develop various models for medium to long term restructuring options | • Conduct Workshop to discuss institutional options | ICT/ OWD | Jan 2014 | **Impact on ISAP Outcomes**<br>Well defined roles and responsibilities (no overlaps) leading to efficiency and effectiveness |
| | | | | • Submit draft report on Institutional Options | ICT | Mid May 2014 | |
| | | | | • Present draft report on institutional options before ISAP Review Committee | ICT/ OWD | Jun 2014 | |
| | | | | • Discussion with Stakeholders | ICT/ OWD | Jun 2014 | |
| | | | | • Submit final report on institutional options | ICT | Mid Aug 2014 | |

# ANNEXURES

## Annexure I: Major Outcome of the Stakeholders Workshop

| Task | Response of Consultant/Sector Expert |
|---|---|
| **1. Road Sector Policy and Strategy - Road Development** | |
| • Road Development Authority/Agency to be created to co-ordinate all concerned departments | Recommended to be considered |
| • Road Policy to include all categories of roads connectivity to all village | Noted for consideration |
| • Task Force Squads for quality check | Will be projected for consideration |
| • GDP Percentage on road development to be specified | It is part of State budget proposals |
| • Make Road Act | Proposed to be drafted |
| • For Quality Control, an autonomous body to be created | Will be considered for projections |
| • Consider funding policy | Will be proposed |
| • Consider redressal policy | Will be proposed as part of HR Policy and part of Codes and Manual |
| • Consider material policy | Noted |
| • Consider maintenance policy | Noted, already included as part of salient features of Road Policy |
| • Establish Tourism Road Development Authority | Not considered as feasible |
| • Regulation for bypass roads | Provisions already exist as part of MoRT&H guidelines |
| • Policy formulation to be enacted as a Law and its enforcement on ground | Preparation of draft legislative documents, part of assignment for GOO to take action |
| • Policy to ensure good governance | Noted |
| • Quality Control Cell of OPWD to be strengthened | Recommendations will be made |
| • Land Acquisition Policy with incentive to land owners | Recommendations will be made |
| • No political interference for Land Acquisition | State matter |
| • Incorporate RoW encroachment free policy | Clause will be proposed in Draft Road Act |
| • Environment and social issues to be part of policy | Noted for inclusion |
| • Special attention to LWE areas | Provision already exist |
| • RoW as asset to be commercially utilised | State matter |
| • For State Development, clauses on forest land to be simplified | State subject |
| • Connectivity, vision, strategy to be part of road policy | Noted |
| **2. Procurement** | |
| • Flexibility to be given to contractor to procure the material from their preferred quarries | Part of contractual framework, Client's prerogative |
| • Include proper material policy | Noted |
| • Specific Standard Bidding Documents to be prepared | Ready for submission |
| • Estimates to be prepared at market rates and not on | To be incorporated in OWD Code |

| Task | Response of Consultant/Sector Expert |
|---|---|
| CSR | |
| • Escalation clauses in the Contracts | Noted and will include in Code & SBDs |
| • Flexibility in procurement of tools/plants for contractors | Provision already exists |
| **3. Road Safety Engineering and Planning** | |
| • Accident data to be connected to geometrics of road | Being considered as part of RSA |
| • Hazardous locations on important roads to be identified | Being covered as part of RSA |
| • Some funds to be allotted for accident cases | Road safety fund will be addressed in RSAP |
| • Road safety provisions to include installation of road traffic signs for critical institutions e.g. schools etc. | Will incorporate in counter measures |
| **4. Road Network Master Plan** | |
| • Different level of development for different category of roads | This point will be discussed in next workshop, provisions already exist for different specifications of various category of roads |
| • Master Plan for road connectivity | Noted and will include in the plan |
| • Integrate complete road network i.e. Forest, Irrigation, NH, PWD, UD and RD | Road Network Master Plan will address this point |
| • Policy for development programmes | Development plans of State invariably cover 5, 10 or 20 years development programmes |
| • Priority in terms of the traffic carrying capacity for road network plans | Part of design features of all proposed roads |
| • Stress on road connectivity | Noted |
| • Upgrade rural roads | Will be considered as part of Network Master Plan |
| • Better connectivity | Noted |
| • Master Plan to include all category of roads | Noted |
| • Inter district connectivity | Being planned |
| • Zilla network | Being planned |
| • Which State has developed the master plans of roads through consultant? | This action has been taken by Gujarat, AP, Karnataka, Maharashtra and Kerala |
| • Mining Zones to have different specification for roads and design | Design shall be based on traffic and as per IRC guidelines |
| **5. Future Road Funding** | |
| • Proper funding policy required | Will be proposed |
| • Short term, medium term, long term financing and funding options for road sector to be worked out and | Will be considered as part of assignment |

| Task | Response of Consultant/Sector Expert |
|---|---|
| recommended | |
| • Road Fund Authority to be established | Will be considered for projections |
| • Separate sources for road funds to be identified | In process |
| • Explore Shadow tolling and extra tax etc. | Noted and will be considered |
| • Enactment of delegated road fund | Will be considered |
| • Unused PWD land to be rented out | Will be considered in policy |
| • Separate maintenance allotment | Will be considered |
| • Major funding for rural roads | RRDA already working for it |
| **6. Restructuring and Reorganisation of OWD/Road Sector** | |
| • All road departments to be overhauled | Restructuring and Reforms are part of present study/assignment |
| • Proper Redressal Policy | Will be proposed as part of HR Policy |
| • Proper HRD Policy | Part of the project, task no.3 |
| • Upgrading of HR resources for future requirement of development plans | Provision exist at part of assignment |
| • Before implementing any institutional reforms, models of States like AP, Gujarat to be studies by visiting and holding discussion with them | Noted |
| • Odisha RDC to be formed | Noted and will be considered in options of restructuring |
| • More number of bridges and road works shall be allotted to OBCC | Recommendation will specify the responsibilities of different organisations |
| • Gujarat model to work better for Odisha | Noted |
| • Create separate wing for high value road projects | Could be part of restructuring reforms |
| • OBCC to be given powers of MRDC and not be used as contractor | To be part of reforms proposal |
| • HR management in PWD should be more effective | Noted |

## Annexure II: Meeting with OWD Officials & Emerging Discussion Points for the Task of OWD Staff Training & HRD

| OWD Official/s | Dates of meeting |
|---|---|
| CE (RD & QP) EE (Training) | 31.01.2013 |
| CE (WB) | 01.02.2013 |
| SE (Central Circle Bhubaneswar) | 08.02.2013 |
| SE (Cuttack Circle) | 11.02.2013 |
| SE (P & D) | 12.02.2013 |
| CE (Buildings) | 13.02.2013 |
| SE (Brahmapur Circle) | 16.02.2013 |
| EE (Bhanjnagar) | 16.02.2013 |
| CE (Engg.) 'OSHB' | 16.02.2013 |
| SE (D & P) | 16.02.2013 |
| CE (NH); EE (NH) | 16.02.2013 |
| CE (RD & QP) EE (Training) | 18.02.2013 |
| CE (Design) | 06.03.2013 |
| EE & Tech Asstt. To CE (Roads) | 11.03.2013 |
| CE (IDCO) | 14.03.2013 |
| CE (RD & QP) EE (Training) | 15.02.2013 |
| Deputy Director Research | 23.03.2013 |
| SE (Sambalpur Circle), EE (Sambalpur), EE (Bargarh) | 23.04.2013 |
| EE (Malkangiri), EE (Ganjam) | 27.04.2013 |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| 1. | CE – Buildings | • Organizational Development needs<br>– HRM/HRD Cells essential for OWD<br>– Should be positioned in E-i-C office<br>– Full time function, headed by SE, assisted by team of EE and AE's<br>– HRD/Training Policy very essential<br>– Current quality deficiencies and economic benefits should be highlighted in the policy document<br>– Specialized 'Project Management' Units to be created for Health and education sectors for construction of Hospital and school buildings respectively under CE Buildings<br>– Core functions of PMU would be planning, design and procurement/contracting<br>– 200 crores for health sector buildings may go unutilised if timely action not taken<br>– This new arrangement will eliminate delays and reduce time between planning and execution<br>– Execution to be done by field staff<br>– To attract quality staff in the design cell, incentive in the form of housing at Bhubaneswar should be awarded; they should be given special allowance like book/journal allowance | ○ Staff Development needs<br>– Induction training is missing but is a must for all new entrants<br>– Should be in two parts<br>▪ on entry, three months training/coaching by senior staff on procedures and techniques covering all functions of OWD<br>▪ followed by another term of three months training with first 2 years of service covering specialised areas of work<br>– Architecture wing producing outdated designs<br>– Unable to develop 3D models<br>– No updation of skills<br>– Very strong building design team but not updated<br>– Big gap between design knowledge and field implementation, need for rotational policy to be in place<br>– Specialised training needed for Architects, Designers and Construction Staff to build hospitals and schools<br>– Construction management and overall project management are areas of concern among field staff<br>– Field staff at one particular site were unaware of 'Bored compaction piling' technique<br>– No planning of operation and maintenance (O&M) of buildings, no preventive maintenance procedures followed<br>– Training cell should organize<br>▪ Short MDPs/courses for Senior management at IIM/ NICMAR/IIT<br>▪ Short overseas visits/study tours for CE's<br>– 5 acres land available for OWD's in-house construction academy |
| 2. | CE – Design; EE – Design | 1. Organizational Development needs<br>– OWD urgently needs its own 'Recruitment', 'Transfer', and 'Promotion' policies.<br>– Two page synopsis of the HRD Policy should be included in the OWD CODE<br>– Design wing' lacks a clear mandate<br>– OWD Code should differentiate between the CE (Design)/CE (RD&QP) and implementation CE's (i.e. Roads, Buildings), defining the functions and responsibilities clearly | ○ Staff Development needs<br>– There should be regular technical training for JE's & AE's and management training for EE's to CE's.<br>– There has been no recruitment in the past 7-8 years hence no one has thought about 'induction process' or induction training, even though its most essential<br>– Induction programme are very much needed within OWD and should include Technical skills development, Design fundamentals, Quality control and management, Management |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| | | – CE Design's role and work responsibilities are not clearly defined by the government.<br>– Design Wing should be the final authority for all design works in OWD, but that is not the case. Govt. should give the authority to the Design Wing or close down the wing.<br>– Design wing prepares designs of buildings and bridges but not roads even though there is a position of SE Roads under the CE<br>– Proposed to Govt. that Design wing will take up design of Roads from next year.<br>– Staffing of the Design Wing should be done based on the workload. A mismatch exists<br>– No one in OWD wishes to be posted in the Design wing. Have proposed to the Govt. to provide a monitory incentive ranging between Rs 5000/- to Rs. 10,000/- PM to attract/motivate the engineers.<br>– System needed to link Field EE's with Design Cell. EE Field Offices to be equipped to down load drawings, uploaded by the Design cell.<br>– Planning and Design functions should be together and under CE Design.<br>– CE Design should be part of the selection process in the Training Cell.<br>– Project conceptualisation process needs to be altered – current practice of preparing Project Estimates first and designing done to fit the estimate has to be discontinued.<br>– Field Engineers prepare Road Project Estimates based on MoRTH norms without actually considering the ground conditions, which affects the quality of roads.<br>– Traffic/Transport Planning and Management are key functions which should be housed within OWD but because the mandate is with different departments there is very little coordination.<br>– 'Transport Economic Study' should be outsourced.<br>– Four zonal labs to be made fully functional in next financial year but staffing will be an issue<br>– Field staffing needs immediate attention. Most JE's are overloaded with work, they have to be provided support of | skills, communication skills, Personal Development (Image Building), Administration procedures etc. among other topics.<br>– Though not as an induction programme, many training courses are organised for JE's in RD Department.<br>– Staff in Asset management Cell within OWD's - IT Cell has been training by Asset Management consultant on how to use GPS, GIS & ROMDAS.<br>– 3 Draughtsman in Design Wing are well trained in AUTOCAD<br>– Design Engineers using STADD PRO for the design works but their skills need to be upgraded and updated<br>– Design Engineers need to be sent out on Study tours within India and Abroad to learn about new structures and design practices<br>– Engineers need to be taught principles of Project Management – competence is lacking in OWD<br>– Executive engineers should be trained in financial/investment management principles.<br>– BBMD Test have been carried out by RD&QP intermittently in the past or most times testing is outsourced<br>– Current QC staff is on the verge of retirement and those placed as an interim arrangement lack qualification, direction or interest.<br>– Field trips should be planned to Tamil Nadu and Kerala to study the state organizational functioning |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| | | technicians qualified from ITI's. | |
| 3. | CE – Engg 'OSHB' | • Organizational Development needs<br>– OWD needs a construction academy<br>– Funded by OWD and sustained by contractors paying 0.5% of their bill amount as running cost<br>– HRD Cell is very essential in OWD to carry out training assessment and training planning<br>– 'Analysis of Rates' and 'Schedule of Rates' have not been updated to cater to new techniques e.g.<br>▪ concrete mix design not followed<br>▪ placement of concrete using 'concrete placers' is not an item, so not used in the estimate; currently placement of concrete at ground level is @ Rs. 7500/- per CuM and placement at 5th floor is @ Rs. 21000/- per CuM<br>▪ No use of foam concrete as not an item in the SoR since the technique is not known<br>– 1% staffing cost should be allocated for training<br>– Proper 'asset management' is an important need.<br>– Training imparted and training received should become indicators in the ACR<br>– Currently 'expenditure incurred' has become an indicator of work, quality of work is not an indicator<br>– Research is not promoted and personal initiatives only attract reprimand<br>– Design work should carry an incentive, with the incentive amount being revised periodically, to overcome the current perception of it being a punishment posting | ○ Staff Development needs<br>– Training on latest techniques to OWD as well as contractors engineers<br>– Intensive training for engineers during lean work periods like the rainy season<br>– The Indian Administrative Services have a strict training schedule which they adhere to where as training of engineers is not a priority.<br>– It should be mandatory for each staff to be sent for 15 days training per year.<br>– Lack of training and exposure visits is resulting in skills and knowledge deficiency among staff<br>– Focus towards saving the environment is missing; lack of exposure is the main reason<br>– Linkage between research institutes like IITs, NBC and implementing agencies like OWD has to be established through the training cell<br>– Staff, specially CE's, should be sent abroad to gain exposure and to implement what they learn<br>– Lack of knowledge and skills in asset management leading to heavy long term losses on account of poor Operation and maintenance<br>– Since the importance of preventive O&M is not understood by engineers as they have not been trained so they do not communicate the repercussions to the decision makers hence leading to higher costs in the long run.<br>– Engineers are not trained in Bridge maintenance management, so it is not practiced<br>– Practice of three-day-training for new staff used to prevail 10 years back but was stopped by senior management due to lack of interest<br>– System need to be revived by generating interest among the decision makers |
| 4. | CE – NH; EE | • Organizational Development needs | ○ Staff Development needs |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| | – NH | – Workload distribution needs to be rationalized<br>– Works amounting to 1crore per Division has jumped to 50 crores per Division but the manpower continues to remain the same<br>– Quality of work is suffering due to lack of resources<br>– No proper inspection as vehicles are not available to all staff<br>– The fuel limit is not realistic as per the project requirements<br>– Hiring of vehicles is not possible due to taxi fare limits imposed | – In-house training programmes should be evolved to cover all levels of staff<br>– Training should be imparted on all aspect of construction and management<br>– Special training should be imparted on pre-construction activities like Utility shifting<br>– Training on Quality, not just technical aspects, but every activity including reporting is a must<br>– Exposure to latest techniques and equipment is missing at the grass root level<br>– Induction training very necessary as the new entrants are not familiar with ground realities<br>– There should be a separate training budget, training head covering 1% of staffing cost of OWD<br>– Training Policy and Training Cell, headed by a CE, have to be in place for proper staff development |
| 5. | CE – IDCO | • Organizational Development needs<br>– No manpower at the lower end of pyramid – NO JE's & AE's<br>– Need for Financial Analysis, Contract Management and Legal functions in OWD<br>– Recruitment planning urgently needed; high level of disparity in recruitment verses retirement<br>– Poor Cadre management is a major issue.<br>– Expectations are very high but appropriate resources are not provided<br>– Finances are not an issue, proper planning of expenditure is missing<br>– Downsizing of 80's, done blindly, is impacting the present; if corrective actions not considered now, there will be no engineers by 2018<br>– Knowledge is being lost due to poor human resource management<br>– Need for reduction in TOP Management – work of 10 EE's to be managed by 1 SE<br>– Workload distribution exercise needed urgently and should be | ○ Staff Development needs<br>– Every staff member should undergo 1 orientation/reorientation training every 4 years<br>– Both management training + technical innovation awareness programmes for EE/SE/CE's is essential<br>– Technical up gradation training for JE's & AE's is essential<br>– Participation in IRC is a waste of time and money; instead State Roads Congress/Building congress should be organised.<br>– Only focused and selective best practices of STATE should be shared at IRC |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| | | done periodically<br>– 90% JE's & AE's are overworked<br>– Outsourcing is not always the answer, without 'in-house' knowledge outsourcing fails.<br>– In OWD Leadership needed but systems should work; building systems is a major organizational need<br>– CE Training and Human Resource Management (Placement) is most urgently needed | |
| 6. | CE – RD & QP | • Organizational Development needs<br>– No support staff available to CE<br>– No action for last one year on the Staffing plan given to Government<br>– Research wing is defunct, needs to be revitalised by bringing in Research scientists and proper infrastructure<br>– There should be a separate cadre for staff in RD&QP<br>– Persons with research oriented mindset should be posted in the RD&QP Wing<br>– No need for a Knowledge Bank Fund; Training Cost should be part of the works estimate.<br>– Separate budget head for training and full powers with CE should be instituted<br>– Library, its fund, and staff should be part of RD&QP<br>– Provision should be made for 'Journal allowance' for every engineer of OWD to enhance their awareness. | ○ Staff Development needs<br>– Training is effective only is learning attitude is there.<br>– CE's should be sent abroad<br>– SE's, EE's should be sent all over the country and Abroad on study tours.<br>– In-house training should only be for JE's & AE's |
| 7. | SE – Behrampur; EE – Bhanjnagar | • Organizational Development needs<br>– Manpower shortage at field level<br>– Workload review not carried out, should be done every 2 to 3 years cycle<br>– Staff posting imbalance correction done at the secretariat where the field reality is not considered in totality<br>– SE should have the flexibility to move staff within the circle depending on the workload<br>– Deficiency in quality of work can only be removed by increased supervision – not though JE's but through skilled supervisors with ITI qualifications. Work-sarkars not suited as do not have | ○ Staff Development needs<br>– HRM/HRD Cell very essential to assess the field staffing requirements based on workload distribution<br>– Headed by CE and assisted by EE's<br>– OWD has to have its own Training Policy<br>– No up-gradation of skills of staff<br>– Only limited number of staff are performers and if they are sent for skill up-gradation then who will work and sending the non performers will not benefit OWD<br>– Training participation decided by E-i-C Office through a top-down approach, training needs assessment not done at the field |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| | | any qualifications<br>– Quality audit should be outsourced – independent State Level Monitors should carry out checks<br>– Mandatory mechanism to be put in place for monitoring meetings to be held at CE, SE & EE Levels on monthly basis between 1) all office staff and 2) OWD Officials and contractors<br>– Competency matching not done – staff with knowledge and experience in roads works is assigned building works and vice versa. | level<br>– Circle/Divisional Head do not know how to carry out training assessment since no regular awareness programmes conducted for them<br>– Computer training held for 50 persons at a time and that too for 1 hour only – how can the participants be expected to apply the learning when they return from training<br>– Induction training should be mandatory – for a duration of six months<br>– Before implementation of each posting, two weeks introductory coaching needed for the transferee before starting in the new work place |
| 8. | SE – Cuttack & EE – Dhenkanal | • Data entry by JE not possible – untrained, has all types of jobs so no time, dependent on data<br>• QUALITY ASSURANCE lacking due to poor quality monitoring by field staff– untrained, have all types of jobs and no time, no vehicle, no data entry operator<br>– Quality Monitoring system needs to be revised on the lines of Rural Department National Quality Monitors -> State Quality Monitors -> for 3rd party Q-Control<br>– Objective - To advise correction and not for punishing individuals<br>• Central and Zonal Labs unable to provide results within specified time, inadequate staff, ill-equipped, current system not working/ desired results not produced - delays of 15-20 days<br>• WORKLOAD DISTRIBUTION - Rethink needed; geographical spread too large, manpower resource too less, no vehicle<br>• HRM/HRD unit essential<br>• Support to JEs very essential – work sarkars concept needs to be revived – ITI pass outs should be recruited urgently<br>• No VEHICLES available - expected to monitor all field activities **but**<br>– None of the field vehicles in working condition<br>– 140 litres/month for SE's car to cover all Divisions<br>– Hiring of vehicle discouraged by way of too many questions asked as justification – too cumbersome a process so staff avoids | ○ Training on Basic Computer skills is a MUST<br>○ Technical training needed IN-House, on regular basis<br>○ Regular periodic (quarterly) lectures on construction advancements/ trends needed for JE/AE/EE/SE by visiting faculty<br>○ Knowledge on design of roads essential for JE/AE/EE<br>○ Estimation skills using latest techniques not know to field staff. Old method of pen- paper calculations typed estimates pursing due to lack of computer skills/software knowledge<br>○ Training on provisions in OWD Code, a/c process strongly needed for all field staff<br>○ Training to staff needed on all aspects of Tendering - Only 1 person trained on e-procurement, system come to a halt when he's absent<br>○ Field visit of staff to important projects is also training |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| | | – Bills of hired vehicles mostly go unpaid or are endlessly delayed<br>– Staff using personal vehicles are not paid maintenance cost<br>• UTILITY SHIFTING<br>– Lack of support from other departments when it comes to Utility shifting<br>– Field level interdepartmental coordination is zero<br>o Trees – Forest Department<br>o Telephone cables – BSNL<br>o Water lines – PHED<br>o Land issues – Revenue department<br>– None of the above field level agencies care for OWD project outputs, not in direct control of District Collector so he too only requests; success rate at coordination meetings at DC level only 10%<br>– Result - delays in project, means cost escalation – loss to the exchequer<br>– It is suggested to hold planning 1 year in advance at 'all concerned Secretaries' level so that orders can flow down to each department | |
| 9. | SE – Central Circle BBSR | • Replace small buildings with multi-storeyed ones<br>• Design capability missing in OWD<br>• Quality of construction not a issue<br>• Rigid pavements design to be promoted ('water effected' areas - coasts)<br>• Job distribution (workload) is unequal<br>• Unable to control results<br>• Training planning at Secretary's office results in restricted budget<br>• HRM/HRD unit essential | o Need for new technology<br>o Send staff to China for training - learn about techniques and new construction equipment<br>o No induction programme causes waste<br>o Secretary OWD looks into training needs, as an engineer can decide on type of training<br>o But training planning is incomplete from field point of view |
| 10. | SE –P & D | • Legal<br>– No law officer in OWD<br>– 200-250 establishment cases pending; Tender/contractual cases are separately handled by CE (R ) & CE (B) offices<br>– Need a legal cell – headed by OS/OJS with a law degree<br>• Design Department | o Training Management<br>– No training budget for OWD so staff sent to NITHE who provide free training<br>– Courses where fee is involved, participation is discouraged E-i-C establishment defines participation level for NITHE courses.<br>– Nomination process takes 15-20 days generally |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| | | – Under CE Design<br>– Existing setup includes 5 EE + 15 AE<br>– New entrants include 5 SE + ??? EE<br>– All are post graduate<br>– Well versed with MX Roads<br>– GIS knowledge and skills missing in OWD | – CE's nominate participants only when asked<br>– No structured training needs assessed<br>– Many times nominations come after the course is over<br>– Participants reached NITHE but communication regarding their nomination had not reached, so they were not allowed participation.<br>– Money for training available only with CE (WB) so his staff can go for training<br>– Q. C. Training done for JE's & AE's by Dy Director Research<br>– Mostly same person sent again and again<br>– One person attends 2 to 3 training per year<br>– No record of training maintained<br>– EE/SE/CE to participate in Executive Management Programmes of 3 to 5 days<br>– FULL TIME TRAINING CELL IS A MUST – headed by SE assisted by 2to3 EE's<br>o Career Development<br>– Two exams for technical staff to be cleared once in life time (conducted in June and Dec each year)<br>– Professional exam<br>– Departmental exam<br>– Clearing both exams necessary to facilitate promotion and to get increment benefits<br>– Professional exam conducted by Committee comprising SE & 2 EE's constituted within OWD<br>– Exam on technical aspects through written exam and viva – one design problem has to be solved<br>– Departmental exam conducted by Revenue Board at Cuttack through Gopabandhu Acadamy of Administration<br>– Exam on 'Laws' through written exam over two days.<br>– The course and context is outdated.<br>– Accounts training for non-gazetted staff at Madhusudhan Institute of Accounts |
| 11. | SE – D & P | • Organizational Development needs<br>– Grass root level needs strengthening; weak link is at the Junior | o Staff Development needs<br>– Due to lack of 'OWD Training policy' training is neither |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| | | Engineer Level.<br>- Unequal workload distribution causing time and money loss<br>- Two categories among JE's to be created –<br>  ▪ Posting based on geographical jurisdiction to cater to O & M works<br>  ▪ Specifically posted to cater to projects' needs<br>- All JE's to be provided support by contracted staff with ITI qualifications<br>- EE in consultation with SE should have the man-management powers to be able to transfer JE's based on workload<br>- JE's headquarters can be the Division, with flexibility to be relocated to project location (with a choice to move with or without the family)<br>- Policy level decisions needed to make the above effective<br>- Design and Research cadre should be different<br>- Only those staff with aptitude should be given incentive and be inducted into design cadre<br>- All staff should have minimum 5 years field exposure before they are posted into design wing<br>- Field staff should be regularly updated on understanding of design elements through appropriate training.<br>- Most of the engineering staff time is utilised in administrative tasks<br>- RD & QP should be strengthened by granting it autonomy within OWD<br>- It should be converted into an institute with the mandate to train OWD Staff<br>- Staff and infrastructure should be added to RD & QP<br>- It should have a parallel independent QC organizational structure/wing at the division level to handle quality control – separate team of EE's, AE's and JE's depending on the quantum of project work<br>- 3rd party independent QC through 'state level quality control monitor' was experimented but failed.<br>- In-house 3rd party independent QC through RD & QP will work better | encouraged nor carried out in a planned manner<br>- A proper 'Job Description' document has never been created<br>- There is a need for a workload distribution exercise and a 'Transfer policy' to be evolved<br>- JE's induction is dependent on the reporting officer under whom he works.<br>- Lack of induction training has led to non-uniform knowledge/ skill levels<br>- Proper grooming is a must.<br>- Separate levels of training must be defined for all engineers, from JE's to CE's |

| Sl. No. | OWD Official | Discussion Points | |
|---|---|---|---|
| | | **Management issues** | **Training Issues** |
| | | – Technical personal handling establishment or court matters is not working<br>– There should be a separate team of specialised OSD's to handle establishment or court matters at Division, Circle and at CE's office.<br>– The numbers can vary depending on the workload | |

## Annexure III: List of Group Discussions& Emerging Points for the Task of OWD Staff Training & HRD

| Group Discussions | Objective | Dates of meeting |
|---|---|---|
| PMU Team + OWD Officer | Testing of Training Needs Survey questionnaire | 04.02.2013 |
| Design Engineers Team (EE's + AE's) O/o E-I-C | Work place issues<br>Training Needs | 12.03.2013 |
| PMU Team + OWD Officer | Review of OWD HRD Policy | 21.03.2013 |
| PMU Team + OWD Officer | Review of OWD HRD Policy | 25.03.2013 |
| JE's Puri Division | Tasks analysis<br>Training Needs<br>Work place issues | 18.04.2013 |
| JE's AE's Sambalpur Circle | Tasks analysis<br>Training Needs<br>Work place issues | 23.04.2013 |
| JE's AE's Bramhapur Circle | Tasks analysis<br>Training Needs<br>Work place issues | 27.04.2013 |
| JE's AE's Head Office | Tasks analysis<br>Training Needs<br>Work place issues | 02.05.2013 |

**1. All EE's & AE's Design Wing (12.03.2013)**

- Work Place Issues
  - Execution of work not in time due to insufficient Infrastructure; Insufficient Manpower
  - Don't have sufficient printers or plotters
  - Lack of incentives – for design people (promotion)
  - Proper software is not available for bridge design
  - Updating the available technology and incorporating new one is not done
  - New technologies need to be introduced
  - Insufficient (Draftsmen) staff for preparation of the building drawings after completion of the design
  - Even if the drawings are completed, the printer facility (plotter) is not available.
  - No guidance for design of bridges; Need expert Training
  - Insufficient staff - there should be at least -2 EEs for preparation of building design and drawings; each EE supported by 5 AE's.
  - There should be at least 6 diploma engineers with AutoCAD knowledge for preparation of drawings
  - No coordination between Architecture, Design and implementation units; The Architects and designers should meet at least once in a week for discussions.
  - Incentive for Design Engineers which has not been released should be released.
  - No good library
  - No guidance/training about the design; non availability of hardware and software training

- All members of the Wing need proper motivation - Incentives & liberty to work
- Flexibilities in working should be provided
- Non availability of data from field.
- Lack of accuracy in field data like soil exploration - Design Team should be an autonomous body collecting data (investigation) feedback from field using own personals under OWD.
- Soil exploration should be done accurately under direct control of the autonomous body of OWD i.e. reintroduce "investigation circle"
- Design wing should be equipped with software as well as hardware so that timely production of drawing can be done
- Proper training should be imparted to the design team to have sufficient exposure.
- CADD Engineers with a focused knowledge should be recruited so that structural drawing can be produced in time.
- Lack of awareness on Establishment aspect, updating with new Innovations.
- Current practice to be changed

- Training Needs
  - No orientation programme for the new comer - need to have a training programme before joining the design wing.
  - Exposure to new type of bridge design by experts from different organization is needed
  - Training required for different type of new bridges every year
  - Sufficient study materials (Books, codes, hard books etc) should be provided to us
  - We should get a chance to visit the bridge we have designed, so that we can know what are the lacunas in our design process.
  - Provision for higher studies should be there in design wings for the design engineers (M. Tech, P.H.D in structural design)
  - Training needs to be imparted on a regular basis
  - A regular training session for the engineers
  - Training regarding the technical part and knowledge of updated software for design purpose should be provided
  - Doubt clearing classes to be held twice in a year
  - Training needed on design of bridges and buildings by using proper software.
  - Frequent training programmes to upgrade knowledge
  - Design Engineers should be permitted to visit the field
  - Training inside the country and abroad should be imported to officers
  - Training to Structural Engineers is very essential to upgrade the knowledge imparts confidence for creativity & innovation
  - Technical Training in buildings design may be provided at I.I.Ts
  - Training particularly in highways, buildings should be provided abroad to have sufficient exposure.
  - Training to be given on
    - Soil exploration
    - Laboratory testing
    - Field test like plate load test , pile load test etc
    - Investigation and planning of Surveys
    - Designing structure like in China.
    - solid/liquid and gas waste management
  - Selection of site to execute work based on the technology
  - Acceptance of mathematical modeling
  - Interaction with the engineers who have earlier designed/executed such projects
  - Visit to sites
  - Opportunity to execute at least one project, he/she designs
  - Allowing to visit other state design cells

- Vision for Design Wing
  - Design Wing will be taken more seriously and become an important part of the Works Department
  - A high-tech design wing with all the latest State of the Art technologies made available
  - If all the requirements as discussed will be fulfilled then the capability shall be doubled (but it depends on the individual).
  - The design capacity can be increased to three times if all facilities extended
  - If all the above issues will be fulfilled, then the productivity of a Engineer will be increased many fold
  - If infrastructure is improved, 300 nos. buildings can be designed per year.
  - Currently 70 Buildings, 20 Bridges designed per year but with the availability of all resources, we can increase the output by 100%

**2. JE's - Puri Sub Division (18.04.2013)**

- Tasks performed
  - Survey for planned works
  - Preparing estimates of works
  - Quantity monitoring
  - Quality monitoring
  - Personally monitoring maintenance of old buildings
  - Paperwork related to billing
  - Calculate and Certify 'Fair Rent rate' for hire of Govt. Assets
  - Participation in protocol and meetings
  - Participation in removal of unauthorised construction on OPWD land
  - Marking of right of way on acquired land
  - Authenticating/Supervising soil investigation
  - Chasing utility shifting
  - Design of petty and minor works (less than 10 lacks)
- JE's not able to monitor quality of work
- Work verses time not in sync
- Workload distribution – 30 % time in estimate preparation, paperwork related to billing, 35% monitoring of new works, maintenance works, taking measurements, 35% in protocol and meetings.
- Per year 1 JE monitors –
  - 4 new building projects and maintenance work worth 1 crore;
    or
  - 50 km road construction and maintenance work worth 1 to 4 crore
- Lack of time for proper monitoring causing quality loss
- Lack of proper monitory compensation is a disincentive
  - Have to use own vehicle for movement
  - Compensated with Rs. 350/- PM
  - No provision for hiring of vehicles
- Suggested remedies
  - Make quality a responsibility of contractor
  - Make separate quality monitoring unit at Division level
  - Equip them with field testing equipment (NDT)
  - Provide lab at Circle level
  - Build in cost of quality monitoring (vehicle cost) in the project cost
  - OPWD Rotational Transfer policy (3 years for all staff) should be implemented without any exceptions

- Multiple petty works/projects purposely broken to worth of less than Rs. 50, 000/- under MLA funds consuming majority of JE's time and is a major cause for corruption; JE's feel trapped in between 'To do or Not to do'
- Tendering must be made compulsory for such works
- Works of emergent nature should be decided by EE
- No training received at the time of entry in OPWD (no induction training)
- No selection mechanism of trainees - Nominations whimsical – names arbitrarily picked
- Training undertaken does not match with the job requirement e.g. CAD bridge design training received at NITHE of no use on return, further no hardware ware or software of the acquired knowledge
- Training on construction related topics (e.g. pile foundation, multi story building construction) not available.
- Need for computer training for all
- Need for training on commonly used design software
- Need for Computer (DTP) Operator with ability to use design software is needed at every circle/div/sub-div level.
- SE may be entrusted to liaise/follow up and made responsible for all land acquisition and utility shifting
- For improving land acquisition works, as well as removal of encroachments, services of 'AMIN' are required at circle level.
- PHE (Sanitary) works related to buildings should be under the division.
- Only one – to – one interaction with EE, no quarterly/annual coordination meeting held at the division level.
- Awareness sessions on AoR should be held at Division level – only field staff travels to HO, never the other way round.

**3. AE's, JE's – Sambhalpur (23.04.2013)**

- Work done by PPP project contractors is sub standard, using poor grade material; there are no quality checks
- Such examples of poor quality work/material usage by PPP contractors are quoted by regular contractors, questioning the AE's, JE's demand for quality.
- Political pressure w.r.t. early completion of projects is a major cause for poor quality.
- Political interferences in planning is understandable, but interference in work is demotivating
- Local contractors, mostly with political links, monopolize; have formed cartels and don't allow outsiders
- JE's overloaded with unending work, before the earlier projects have completed, new work is assigned, practically on a daily basis
- No support available for JE's – work sarkars are a dying cadre – assistance desperately needed in the form of more JE's or supporting ITI's
- No vehicle available for supervision of work.
- Forced to use own vehicle – Rs. 350/- pm reimbursed to R&B staff, but not for staff working on NH roads. No vehicle maintenance cost paid
- As per code/past practices, geographical jurisdiction is resulting in unequal distribution of work
- Transfer to neighbouring sub-division where the workload is more in quantum should be allowed and be implemented at the SE level
- A separate team is needed for quality monitoring at the division level/circle level
- Inspection vehicle with trained staff along with all field test equipment should be made available to the team
- Targets defined in 'iOTMS' have no meaning if resources are not provided – staff + equipment.
- Targets unrealistic since they don't consider contractors incompetence

- Contractor's equipment is certified at EE/SE/CE level – these are mostly defunct/outdated but such anomalies cannot be reported by AE's/JE's or else have to face reprimand
- Contractors never post Technical staff on site even though it is mandatory. Again, such a complaint labels AE's or JE's as trouble makers and face rebuke from political masters and seniors.
- Contractor's complaint against AE's or JE's carries more weight hence no one bothers to lodge any complaint
- Senior retired OPWD staff get hired by Contractors which makes it impossible to counter their actions.
- Technical awareness and understanding of specifications among OPWD - AE's or JE's is also not upto the mark. This has resulted due to lack of awareness programmes being conducted on a regular basis - no training sessions held.
- OPWD - AE's or JE's are fabricating field test results e.g. test results quoted go beyond the upper limit prescribed by standards/codes
- Need for change in tendering system ?????
- AoR last updated 2006 need to be revised to keep pace with current work practices
- Cases available where there is no clarity since in a same location NH road, State Highway and Nabard road with same specifications follow three different AoR's
- SoR specifies market rates to be collected from three (3) manufacturers from Odisha only. No manufacturer ready to share company cost since it is against their marketing policy and disturbs their market distribution system
- There are many ambiguities in the SoR, but these never get discussed.
- Posts of 'Estimators' at many Sub Divisions are lying vacant without staff being posted
- No clarity on transfer policy, its implementation is flawed
- No incentive for AE's or JE's to do a professional job, in reality it's the opposite. Too many masters and the blame is always on JE's
- Volume of paperwork work is too large to be able to spend time in the field
- Number of works per AE/JE has become unmanageable.
- No incentive for career growth – even if one gets higher qualifications there is no avenue for promotion.
- JE's enter the organization and retire as JE's
- No coordination/planning meetings held to discuss/resolve issues either at the Division level or Circle level.
- The time clause in project agreements/schedules is erroneous and has been inserted to reduce escalation without taking practical worksite reality into account. ????????
- There is a major mismatch in clauses like '%' work progress being equated to '%' financial expenditure.
- It is expected that surveys will be carried out by total stations, however the reality is that OPWD does not have these equipment and only old defunct unusable dumpy levels are available. No independent checking of work carried out by survey contract can be done
- There is an immediate need for new equipment and
- Following training are a 'must' for all -
  - All Surveys
  - Soil investigation
  - E-nirman
  - Web training with Net connectivity provided to all
  - RTI training at division level
- Training on computers with both software and hardware being made available. Each JE should be equipped with a laptop.
- Current work is 25% Engg. Skills and 75% management skills. Training needed in both

- AE's, JE's have no Legal awareness. Urgent need for programmes
- Create a separate 'Bridge inspection and Rehabilitation unit in OPWD
- Vigilance department should be housed within OPWD and should be a preventive vigilance not a post-mortem department. First investigation on the basis of any complaint should be done at the Division level
- At the age of fifty (50) JE's field work should be lessened and should be provided with an interest free loan to purchase a vehicle for carrying out the field work assigned to him.

**4. AE's, JE's – Brahmapur (27.04.2013)**

- Number of works and value of works handled by each JE and AE has to be rationalized urgently.
- Field staff numbers verses workload is absolutely disproportionate.
- Quality of work will not improve till a separate quality control unit is established at the Division Level.
- Third party quality checking is essential.
- Current contractor selection process is the cause for poor quality work. Those bidding (-) 20 to 25%, lesser that the estimate in the BoQ end up winning the contract and use sub standard material & methods to make profits.
- Selection of contractors and defining their responsibilities need to be re-assessed by higher management ; Delink works from political interference.
- **Suggestion:** apply pre tendering process; empanel shortlisted contractors; revise list every year.
- JE cadre urgently need to supported by
  - Rationalization of Geographical jurisdiction
  - Support in the form of trained ITI staff (work sarkars) under them for continuity in site quantity/quality monitoring
  - Vehicles for regularity in site inspection
  - Technical training on each aspect of their job
  - Upgraded equipment for site inspection
- Work quality will improve if SE & EE's make frequent site inspection visits; including surprise visits to site.
- There should be strict action against errant contractors; penalty should be linked to their payment to force them to improve work quality.
- Works valued at Rs. 50,000/- should either be totally stopped and the limit should be raised to works valued at a minimum of Rs. 5,00,000/-
- Power to split value of work should be withdrawn from the EE level.
- AE's delegated by EE's to be on 'Site Selection Committee' under Sub Collector have been questioned since this is not as per the Office order/OPWD Code.
- No contractor prepares 'Traffic Management Plan' and no one insists for it at the SE/EE level.
- Quarry selection and approval has to been done periodically and 'Quarry locations list' updated by Revenue Department. SE's office to take the initiative since this causes undue delay in sourcing of material.
- It is becoming increasingly difficult for JE's to manage day-to-day URGENT demands of Collectors/Bureaucrats – each work has to be treated as an emergency work or else have to face reprimand.
- Strong perception prevails that SE & EE do not protect the AE's & JE's, like is the case in Revenue Department/Home Department where seniors take care of their juniors. There is no team spirit at the field level.
- Work Target setting needs to be rationalized based on staff strength and available resources.
- Miscellaneous items under SoR have not been revised since 2006; SoR needs to be updated immediately
- AoR assumes labour input of 8 hours; this is far from reality. (Re 1/- rice ???????)

- Labour actually available at current market rates is much higher than the cost of labour as per 'minimum wage act', figures available in AoR/SoR.
- Main cause for project overrun is the lack of timely support to JE's from the Revenue Department staff. Takes minimum of 5-6 repetitive visits for one work to be accomplished; but the blame comes on JE.
- There should be one AMIN attached to EE's office at the Division level
- EE should be authorised to exercise eviction powers.
- SE is authorised for sanctioning extra items valued up to 1 lack, EE has no powers and this causes delays
- Non-scheduled items like door shutters, furniture should be approved by EE
- Works awarded, but not begun due to land acquisition problems, end up getting extension of time which leads to higher cost differential and ultimately problems for field staff
- Contractors never deploy engineering staff on site. Same engineering staff names feature in multiple contract document of different contractors.
- Communicating instructions to non-technical staff/contractors leads to lack of understanding and hence impacts quality of work.
- All JE's/AE's should be provided with computer training and be given a laptop; each revenue inspector has been provided with a laptop by their department.
- No meetings conducted by EE to monitor work progress or solve issues. Need for 2-3 meeting per month separately with AE/JE's and jointly with respective contractors.
- Currently, all JE's/AE's are totally de-motivated and there is no team spirit.
- Any good work done by JE's/AE's goes unrewarded; only reprimand received.
- Meeting like the one held should be an annual feature.

**5. AE's, JE's – Head Office (02.05.2013)**

- Getting data from field divisions on time is never possible – Reason: lack of sufficient staff
- Data received from field divisions is not reliable, mostly it is fabricated figures – Reason: lack of trained staff
- Only AE's and JE's are made responsible for delivering work quality; CE's, SE's, & EE's are never accountable
- Lack of clarity in job description at every level.
- Workload distribution is biased and uneven.
- Unrealistic targets are thrust on AE's and JE's without a consultative process
- Political interference and pressures leading to disinterest/demotivation among staff leading to poor quality of work
- Due to low staff numbers AE's at Head office do not get proper technical and administrative support.
- Each AE is reporting to 3-4 EE's leading to confusion in work output
- Poor output in the field or at Head office is a result of poor man-management
- AE's should be assigned some financial powers as EE's and 'decision making' by them should be encouraged.
- Field staff should be provided protection (professional indemnity) and their freedom to act should be assured.
- JE's are over loaded with work, some of the work should be undertaken by the AE's.
- Facts about ISAP not known to AE's/JE's in the field units (only AE's from PMU had heard of it but didn't know the details)
- Work being undertaken under ISAP, RSID, Asset Management Project, IT-ICT should be publicized in the media to make general public aware of the efforts towards change
- NO HOPE FOR CHANGE IN OWD
- There is no reward or incentive system prevalent to appreciate good work done by AE's or JE's

- Only AE's and JE's face punitive action
- Transfer policy is never implemented leading to stagnation/frustration
- No avenue of promotion among JE's.
- Those JE's completing degree should be promoted to AE level after serving a defined period.
- All staff should be trained in use of internet and use of email should be made compulsory
- All AE's and JE's should go through a refresher course on every aspect of the their job profile
- New staff should be recruited and be given induction training
- Lack of computer literacy among most JE's adds to further pressure on AE's
- Right person for the right job principle should be put to practice
- Need to improve overall communication system of OWD
- OPWD Code has not be published since a long time it needs to be modified and revised regularly.
- There should be separate teams for investigation, conducting survey, estimation, execution, quality control functions instead of one team performing all functions.
- Training for AE's/JE's is essential on following topics-
  - Real time monitoring of projects
  - Contract and Project Management
  - MS Office
  - MX Road software
  - Auto Cad
  - Estimation software to check detailed estimation/calculation
  - Quality control
  - Soil testing
  - Survey using latest equipment
  - Field quality testing equipment
  - New civil engineering design methods and construction techniques
  - Properties of new construction materials
  - Establishment matters
  - Administrative systems of OWD – File movement - JE's to AE's to EE's
  - Government's accounting system
  - R & R policies, principles, activities and conflict resolution
- Social and Environment impact study

## Annexure IV: Competency survey for assessing the training needs of OWD

**NOTES:**

OWD has undertaken Road Sector Institutional Development and as part of the project, OWS Staff Training and HRD is a key component. Accordingly, this competency survey will contribute towards assessing the needs of the organization.

The objective of this exercise is to map the present and required competency of staff at various levels through this questionnaire based self assessment survey. Your participation will help in assessing the training needs of OWD. The attached matrix is briefly described below:

- **'Key Functional Areas'** have been listed which cover almost all the tasks performed by staff in OWD. Some of these key **'Key Functional Areas'** are being explained to help in understanding and completing the exercise, these are:
    - Policy and Planning : These functions pertaining to OWD are performed at the S.E. level and above.
    - Strategic Planning : This includes preparation of Master Plan of Roads for the State of Odisha. Likewise, preparation of Master Plans for Buildings (public buildings like Hospitals, staff quarters, Schools, Govt. Offices, etc.) form part of strategic planning.
    - Quality policy : It is yet to be instituted formally within OWD.
    - Communication Skills: Includes written and verbal skills.
    - Management skills : Will cover a vast scope comprising leadership, planning, organization, staffing and control.
    - Motivation : Work challenges, professional recognition and rewards
    - Variations : These are deviations from the BoQ for items and/or quantities including substituted items
    - Computer Application: Use of MS Word, MS Excel, MS PowerPoint and internet mailing for day-to-day work
    - F.I.D.I.C. Contracts: Standard procurement bid documents prescribed by International Funding Agencies like World Bank.
- Any additional **'Key Functional Areas'** which may have been missed, can be included in the list.
- Column headings under Section A has four competency measures in the ascending order, these are defined as:

| | **Competency measure** | **Definition** |
|---|---|---|
| I. | *Awareness* | have generally heard about the subject |
| II. | *Exposure* | a broad understanding of the principles |
| III. | *Basic Knowledge* | knowledge on the subject has been acquired through education and training, but has not been put to practical use |
| IV. | *Ability to Work* | have the knowledge, skills and attitude to be able to work in a specified area with satisfactory results |

- Also assessed under this exercise is the usage aspect as indicated in Column headings under Section B, i.e.
    - of having worked in the key functional area in the past or
    - working in a specific area at present and
    - the possibility of working in the key functional area in future.

Please put a tick (√) in the appropriate cell of the matrix. If none are applicable, leave the cells blank. Putting your name at the end of the format is 'optional', your honest feedback will help in preparing correct training plans for OWD staff.

## Competency survey:

| | Competency measure | Definition |
|---|---|---|
| I. | *Awareness* | have generally heard about the subject |
| II. | *Exposure* | a broad understanding of the principles |
| III. | *Basic Knowledge* | knowledge on the subject has been acquired through education and training, but has not been put to practical use |
| IV. | *Ability to Work* | have the knowledge, skills and attitude to be able to work in a specified area with satisfactory results |

*Please put a tick (√) in the appropriate cell. If none are applicable, leave the cells blank. Any additional 'Key Areas' which are to be included in the list, can be added under S. No. 14*

| | Key Functional Areas | Section A | | | | Section B | | |
|---|---|---|---|---|---|---|---|---|
| | | Awareness | Exposure | Basic Knowledge | Ability to work | Worked in Past | Working Presently | Likely to work in future |
| **1** | **Policy and Planning** | | | | | | | |
| | Strategic Planning (Master Plan: Roads, Buildings, etc) | | | | | | | |
| | Quality Policy and systems | | | | | | | |
| | Budgeting Process (Preparation, Control and Outcome) | | | | | | | |
| | Prioritisation of Investments | | | | | | | |
| | Phasing of Investments | | | | | | | |
| | Public/Private Sector Participation | | | | | | | |
| | | | | | | | | |
| **2** | **Personnel Management** | | | | | | | |
| | Communication skills | | | | | | | |
| | Management skills | | | | | | | |
| | Decision-making | | | | | | | |
| | Right to Information (RTI) | | | | | | | |
| | Performance appraisal | | | | | | | |
| | Monitoring skills | | | | | | | |
| | Motivation | | | | | | | |
| | Service conditions | | | | | | | |
| | | | | | | | | |
| **3** | **Project Management** | | | | | | | |
| | Preparation of Work Program | | | | | | | |
| | Staffing &assigning responsibilities | | | | | | | |
| | Monitoring Physical Progress of Work | | | | | | | |
| | Monitoring Financial Requirement for Work | | | | | | | |
| | Construction Procedure and Methodology | | | | | | | |
| | Specification | | | | | | | |
| | Material Testing | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **4** | **Project Preparation** | | | | | | | |
| | Field surveys | | | | | | | |
| | Geometric design | | | | | | | |
| | Pavement design | | | | | | | |
| | Traffic and transport Engineering | | | | | | | |
| | **Key Functional Areas** | **Section A** | | | | **Section B** | | |
| | | **Awareness** | **Exposure** | **Basic Knowledge** | **Ability to work** | **Worked in Past** | **Working Presently** | **Likely to work in future** |
| | Road Safety | | | | | | | |
| | Storm water drainage design | | | | | | | |
| | Bridge design | | | | | | | |
| | Culvert design | | | | | | | |
| | Building design – Multi-storeyed | | | | | | | |
| | – Simple buildings | | | | | | | |
| | Cost estimation | | | | | | | |
| | Analysis of Rates/Schedule of Rates | | | | | | | |
| **5** | **Environmental and Social Management** | | | | | | | |
| | Land acquisition | | | | | | | |
| | Rehabilitation& Resettlement issues, social assessment | | | | | | | |
| | Environmental assessment | | | | | | | |
| | Utility shifting management | | | | | | | |
| | | | | | | | | |
| **6** | **Construction and Supervision** | | | | | | | |
| | Preconstruction | | | | | | | |
| | - Design review | | | | | | | |
| | - Data Collection | | | | | | | |
| | Review of Construction Management Plan | | | | | | | |
| | Undertaking Inspections and Tests | | | | | | | |
| | Review/Reporting of Physical Progress | | | | | | | |
| | Review/Reporting of Financial Progress | | | | | | | |
| | Assessment of Quality of Works | | | | | | | |
| | | | | | | | | |
| **7** | **Contract Management** | | | | | | | |
| | Work Program and Time Management | | | | | | | |
| | Cost Control | | | | | | | |
| | Variations | | | | | | | |
| | Dispute Resolution and Arbitration | | | | | | | |
| | | | | | | | | |
| **8** | **Quality Management** | | | | | | | |
| | Quality Assurance | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Quality Control | | | | | | | |
| | Quality Auditing | | | | | | | |
| | | | | | | | | |
| **9** | **Safety Aspects** | | | | | | | |
| | During Construction | | | | | | | |
| | During Maintenance | | | | | | | |
| | During Operation | | | | | | | |
| | | | | | | | | |
| **10** | **Information Technology** | | | | | | | |
| | Computer applications – M S Office, Web etc. | | | | | | | |
| | Computer applications – Auto CAD, MX Roads, STAAD | | | | | | | |
| | GIS application for planning | | | | | | | |
| | | **Section A** | | | | **Section B** | | |
| | **Key Functional Areas** | **Awareness** | **Exposure** | **Basic Knowledge** | **Ability to work** | **Worked in Past** | **Working Presently** | **Likely to work in future** |
| | e-Governance | | | | | | | |
| | Management Information System (HRMIS) | | | | | | | |
| | Project Management – Prima Vera, M S Projects | | | | | | | |
| | | | | | | | | |
| **11** | **Financial Management & Systems** | | | | | | | |
| | Management of financial instruments and Tax aspects | | | | | | | |
| | Financial MIS– IOTMS and WAMIS | | | | | | | |
| | Delegation of financial powers | | | | | | | |
| | Application of OWD code | | | | | | | |
| | Accounts Audit | | | | | | | |
| | | | | | | | | |
| **12** | **Procurement Management** | | | | | | | |
| | FIDIC Contracts | | | | | | | |
| | BOT/PPP Contracts | | | | | | | |
| | NCB /State Government procedure | | | | | | | |
| | e-procurement | | | | | | | |
| | | | | | | | | |
| **13** | **Maintenance** | | | | | | | |
| | Identification and assessment of pavement distress | | | | | | | |
| | Condition survey and Bldg maintenance management | | | | | | | |
| | Periodic Maintenance/Routine Maintenance planning | | | | | | | |
| | Proposal preparation for Maintenance Requirement | | | | | | | |
| | | | | | | | | |
| **14** | **Others** | | | | | | | |
| | Disaster preparedness | | | | | | | |
| | Legal aspects | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Public relation | | | | | | | |
| | Misc. public services | | | | | | | |
| | - issue of N.O.C.(OFC cables, fuel pumps etc.) | | | | | | | |
| | - calculating 'Fair rent' | | | | | | | |
| | Knowledge of updated codes (e.g. NCB, IRC, BIS) | | | | | | | |
| | Inter-Departmental Coordination | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

| I have identified the following areas/s of improvement for myself and would like to be trained accordingly (also narrate how the new skills will help in your job performance): | | |
|---|---|---|
| 1 | | |
| 2 | | |
| 3 | | |

**Name:** _____ *(Optional)*

**Designation:** _____ **Division** _____

You are requested to ensure that the filled formats reach the office of **Chief Engineer (WBP),** Office of the EIC (c), Odisha, Nirman Soudha by February 15, 2013.The formats may be delivered directly to Mr. Rashmi Ranjan Bohidar, Superintending Engineer In-charge (ISAP), PMU, World Bank Projects.

# Annexure V: RACI Matrix (Ver. 1)

## *RACI Matrix*

***Definitions***

**Responsible:** The person who is ultimately responsible for getting the work done. This may refer to the individual workers that perform the given task.

**Accountable**: The person who is accountable to oversee that the work gets done. This usually means the immediate manager overseeing the work.

**Consulted:** The person who is the 'subject matter expert' who will do the thinking and suggest any deviations from the Standard Operating Procedure.

**Informed:** The person who have some interest in the performance of a given task. This may be a manager trying to control the execution of the task at hand.

**Please insert: E-I-C, CE, SE, EE, AE, or JE where each is appropriately expected to deliver**

| | Key Functional Areas and Tasks | Responsible | Accountable | Consulted | Informed |
|---|---|---|---|---|---|
| 1 | **Policy and Planning** | | | | |
| | Prepare Strategic Plans (Master Plan: Roads, Master Plan: Buildings) | | | | |
| | • Identify funding mechanism | | | | |
| | | | | | |
| | Promote and Implement Public/Private Sector Participation | | | | |
| | | | | | |
| | Budgeting Process (Preparation, Control and Outcome) | | | | |
| | • Prepare annual budget | | | | |
| | • Carry out prioritisation of investments | | | | |
| | • Carry out phasing of investments | | | | |
| | | | | | |
| | Define Policy and implement systems | | | | |
| | • Prepare 'Quality of Work' policy | | | | |
| | • Prepare HRM and HRD strategy | | | | |
| | • Prepare asset maintenance plan and strategy (Roads, Buildings) | | | | |
| | • Prepare Right of Way – encroachment and land acquisition strategy | | | | |
| | • Periodically update Standard Bidding document | | | | |
| | | | | | |
| 2 | **Project Preparation** | | | | |
| | Carry out Field surveys | | | | |
| | • Conduct traffic survey | | | | |
| | • Prepare road/bridge inventory & condition report | | | | |
| | • Carry out soil investigation, (Task OUTSOURCED) | | | | |
| | • Conduct hydrology study, (Task OUTSOURCED) | | | | |
| | • Carry out topography survey (Task OUTSOURCED) | | | | |
| | • Conduct deflection test for pavement evaluation (in case of existing roads) | | | | |
| | • Conduct social and environmental impact study, (Small, Medium works) | | | | |
| | - do - (Major works) | | | | |
| | | | | | |
| | Prepare Geometric design (Task OUTSOURCED for Major works) | | | | |
| | | | | | |
| | Mark out the right of way | | | | |
| | | | | | |
| | Initiate Land Acquisition | | | | |
| | • Acquire revenue plan (with RoR) from Tehsildar Revenue Department | | | | |
| | • prepare land schedule | | | | |
| | • Calculate value of buildings | | | | |
| | • Filing of requisition and follow up | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Prepare utility shifting plan (Small, Medium works)<br>- do - (Major works) | | | | |
| | Notify all, concerned with utility shifting | | | | |
| | Prepare Pavement design (Task OUTSOURCED) | | | | |
| | **Key Functional Areas and Tasks** | | | | |
| | Prepare design and final drawings of structures<br>• Bridge design<br>• Culvert design<br>• Drainage design<br>• Retaining structures in case of high embankments | | | | |
| | When Outsourced | | | | |
| | Conduct road safety audit | | | | |
| | Prepare Traffic management plan (in case of existing roads) | | | | |
| | Prepare architectural drawings<br>• Assessment of standard drawings with respect to available land area<br>• Conduct contour survey and rainwater drainage criteria<br>• For buildings costing more than 10 lacks (Ch. Arch – S; Dy Arch – √) | | | | |
| | Carry out survey for buildings<br>• Prepare preliminary, alternative site selection report<br>• Participate in site selection committee<br>• Assess availability of services – water, electricity and sewerage<br>• Connectivity and parking facility at proposed site<br>• Habitation covered by proposed structure (school, hospital etc.)<br>• Surrounding structures and their impact (ill-effects) report<br>• Conduct bearing capacity soil test (Task OUTSOURCED) | | | | |
| | Prepare Building design – Multi-storeyed (seismic zone consideration)<br>– Simple buildings | | | | |
| | Prepare BoQ<br>• Define Activities<br>• Match/Prepare Specifications<br>• Prepare Estimates | | | | |
| | Prepare bid documents to include conditions, specifications, drawings, BoQ, contract | | | | |
| 3 | **Environmental and Social Management** | | | | |
| | Conduct impact assessments studies<br>• social impact assessment (Task OUTSOURCED)<br>• environmental impact assessment (Task OUTSOURCED) | | | | |
| | Prepare rehab resettlement plan (R/R) | | | | |
| | Prepare environment management plan (EMP) | | | | |
| | Implement Land acquisition | | | | |
| | Resolve R & R Issues<br>(Policy R & R issues) | | | | |
| | Manage& Implement Utility shifting (Electrical) | | | | |
| 4 | **Procurement Management** | | | | |
| | Implement FIDIC guidelines | | | | |
| | Implement BOT/PPP Contracts | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| | Implement NCB /State Government tendering procedure (Based on OWD Code) | | | | |
| | | | | | |
| | Implement e-procurement procedure | | | | |
| | | | | | |
| **5** | **Project Management** | | | | |
| | Prepare Work Program (CPM/PERT using Primavera/MS Project) | | | | |
| | Allocate Staff & Define responsibilities | | | | |
| | | | | | |
| | Implement traffic management plan | | | | |
| | | | | | |
| | **Key Functional Areas** | | | | |
| | Define Construction Procedure and Methodology | | | | |
| | | | | | |
| | Monitor Physical Progress of Work | | | | |
| | | | | | |
| | Monitor Financial Requirement for Work | | | | |
| | | | | | |
| **6** | **Construction supervision** | | | | |
| | Preconstruction Design review<br>Data Collection | | | | |
| | | | | | |
| | Review contractor's construction Management Plan | | | | |
| | | | | | |
| | Review contractor's traffic management plan | | | | |
| | | | | | |
| | Undertake Inspection of equipment | | | | |
| | | | | | |
| | Quality monitoring of Works | | | | |
| | | | | | |
| | Conduct Material Tests<br>• Field test - for Road: GSB gradation; GSB Compaction (Sand replacement);<br>aggregate crushing value, impact value; Binder quality; bitumen content<br>for Bldgs: Slump test; concrete mix density; water cement ratio<br>• Lab test – for Road: Sand content in soil; liquid limit; plastic limit; CBR Index<br>for Bldgs: aggregate crushing value, impact value; water quality;<br>Steel Tesile test; Concrete cube test (7 & 28 days) | | | | |
| | | | | | |
| | Review, Prepare Report of Physical Progress | | | | |
| | | | | | |
| | Review, Prepare Report of Financial Progress | | | | |
| | | | | | |
| **7** | **Contract Management** | | | | |
| | Monitor Work Program and Time | | | | |
| | | | | | |
| | Monitor & Exercise Cost Control | | | | |
| | | | | | |
| | Assess & Justify Variations (extra/substitute items), award extension of time | | | | |
| | | | | | |
| | Manage Dispute Resolution and Arbitration | | | | |
| | | | | | |
| **8** | **Quality Management** | | | | |
| | Implement Quality Assurance | | | | |
| | | | | | |
| | Monitor & Exercise Quality Control | | | | |
| | | | | | |
| | Carry out Quality Audit | | | | |
| | | | | | |
| **9** | **Safety Management** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Prepare safety plan and implement during Construction | | | | |
| | Implement safety plan during Operations | | | | |
| | Implement safety plan during Maintenance | | | | |
| **10** | **Financial Management & Systems implementation** | | | | |
| | Manage financial instruments and Tax aspects | | | | |
| | Implement Financial MIS – iOTMS and WAMIS | | | | |
| | Utilise/implement financial powers (as per govt./OWD Code) | | | | |
| | Apply OWD code | | | | |
| | Prepare Accounts | | | | |
| | Prepare Accounts Audit replies | | | | |
| | **Key Functional Areas** | | | | |
| **11** | **Maintenance** | | | | |
| | Identify and assess pavement distress | | | | |
| | Carry out condition survey of Bldgs. and prepare Bldg maintenance plan | | | | |
| | Prepare Periodic/Routine/special Maintenance plan | | | | |
| | Prepare (fund) proposal for Maintenance Requirement | | | | |
| **12** | **Other Tasks** | | | | |
| | Carry out Performance appraisal | | | | |
| | Plan and Manage Training | | | | |
| | Manage Asset Records | | | | |
| | Monitor and Report Encroachments | | | | |
| | Prepare Analysis of Rates and periodically revise Schedule of Rates | | | | |
| | Prepare Disaster Readiness Plan | | | | |
| | Prepare 'Legal' replies | | | | |
| | Issue N.O.C.(OFC cables, fuel pumps etc.) | | | | |
| | Calculate and Certify 'Fair Rent rate' for hire of Govt. Assets | | | | |
| | Facilitate Inter-Departmental Coordination | | | | |
| | Carry out Public relation | | | | |
| | Resolve Public Grievances | | | | |
| | Prepare and Manage Documentation (MPR, APR, Utilization Certificate, etc.) | | | | |
| | Manage Library | | | | |
| | Manage Public functions/OWD Events | | | | |
| **13** | **Information Technology** | | | | |
| | Apply Computer applications – M S Office, Web etc. , | | | | |
| | Apply Computer applications – MX Roads, | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | STAAD PRO, | | | | |
| | Auto CAD | | | | |
| | | | | | |
| | Apply GIS application for planning | | | | |
| | | | | | |
| | Apply Project Management Software – MS Project, Primavera, | | | | |
| | | | | | |
| | Implement e-Governance (email, web-site, e-nirman, e-procurement) | | | | |
| | | | | | |
| | Implement Management Information System (HRMIS) | | | | |
| | | | | | |
| **14** | **Personnel Management** | | | | |
| | Apply Monitoring skills | | | | |
| | | | | | |
| | Apply Written and Oral Communication skills | | | | |
| | | | | | |
| | Apply HR Management skills | | | | |
| | | | | | |
| | Implement Decision-making | | | | |
| | | | | | |
| | Apply Interview skills | | | | |
| | | | | | |
| | **Key Functional Areas** | | | | |
| | Apply Service conditions | | | | |
| | | | | | |
| | Respond to Right to Information (RTI) act | | | | |
| | | | | | |
| | Apply Motivational tools | | | | |
| | | | | | |

**Name:** _____

**Designation:** _____

**Division** _____

# Annexure VI: RACI Matrix (Ver. 2)

***Tick (√)*** *indicates Primary Function, as performed*
**S** *means* ***s****upervised*
***M*** *means* ***m****onitored;*
***X*** *means* ***Not Done*** ***Please mark TN for Training Needed***

| | Key Functional Areas and Tasks | CE | SE | EE | AE | JE |
|---|---|---|---|---|---|---|
| 1 | **Policy and Planning** | | | | | |
| | Prepare Strategic Plans (Master Plan: Roads, Master Plan: Buildings) | | | | | |
| | • Identify funding mechanism | | | | | |
| | | | | | | |
| | Budgeting Process (Preparation, Control and Outcome) | | | | | |
| | • Prepare annual budget | | | | | |
| | • Carry out prioritisation of investments | | | | | |
| | • Carry out phasing of investments | | | | | |
| | | | | | | |
| | Define Policy and implement systems | | | | | |
| | • Prepare 'Quality of Work' policy | | | | | |
| | • Prepare HRM and HRD strategy | | | | | |
| | • Prepare asset maintenance plan and strategy (Roads, Buildings) | | | | | |
| | • Prepare Right of Way – encroachment and land acquisition strategy | | | | | |
| | • Periodically update Standard Bidding document | | | | | |
| | | | | | | |
| | Promote and Implement Public/Private Sector Participation | | | | | |
| | | | | | | |
| 2 | **Project Preparation** | | | | | |
| | Carry out Field surveys | | | | | |
| | • Conduct traffic survey | | | | | |
| | • Prepare road/bridge inventory & condition report | | | | | |
| | • Carry out soil investigation, (Task OUTSOURCED) | | | | | |
| | • Conduct hydrology study, (Task OUTSOURCED) | | | | | |
| | • Carry out topography survey (Task OUTSOURCED) | | | | | |
| | • Conduct deflection test for pavement evaluation (in case of existing roads) | | | | | |
| | • Conduct social and environmental impact study, (Small, Medium works) | | | | | |
| | - do - (Major works) | | | | | |
| | | | | | | |
| | Prepare Geometric design (Task OUTSOURCED for Major works) | | | | | |
| | | | | | | |
| | Mark out the right of way | | | | | |
| | | | | | | |
| | Initiate Land Acquisition | | | | | |
| | • Acquire revenue plan (with RoR) from Tehsildar Revenue Department | | | | | |
| | • prepare land schedule | | | | | |
| | • Calculate value of buildings | | | | | |
| | • Filing of requisition and follow up | | | | | |
| | | | | | | |
| | Prepare utility shifting plan (Small, Medium works) | | | | | |
| | - do - (Major works) | | | | | |
| | | | | | | |
| | Notify all, concerned with utility shifting | | | | | |
| | | | | | | |
| | Prepare Pavement design (Task OUTSOURCED) | | | | | |
| | | | | | | |
| | Prepare design and final drawings of structures | | | | | |
| | • Bridge design | | | | | |
| | • Culvert design | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | • Drainage design | | | | | |
| | • Retaining structures in case of high embankments | | | | | |
| | When Outsourced | | | | | |
| | Conduct road safety audit | | | | | |
| | | | | | | |
| | Prepare Traffic management plan (in case of existing roads) | | | | | |
| | | | | | | |
| | Prepare architectural drawings | | | | | |
| | • Assessment of standard drawings with respect to available land area | | | | | |
| | • Conduct contour survey and rainwater drainage criteria | | | | | |
| | • For buildings costing more than 10 lacks | | | | | |
| | **Key Functional Areas and Tasks** | **CE** | **SE** | **EE** | **AE** | **JE** |
| | Carry out survey for buildings | | | | | |
| | • Prepare preliminary, alternative site selection report | | | | | |
| | • Participate in site selection committee | | | | | |
| | • Assess availability of services – water, electricity and sewerage | | | | | |
| | • Connectivity and parking facility at proposed site | | | | | |
| | • Habitation covered by proposed structure (school, hospital etc.) | | | | | |
| | • Surrounding structures and their impact (ill-effects) report | | | | | |
| | • Conduct bearing capacity soil test (Task OUTSOURCED) | | | | | |
| | | | | | | |
| | Prepare Building design consideration) – Multi-storeyed (seismic zone | | | | | |
| | – Simple buildings | | | | | |
| | Prepare BoQ | | | | | |
| | • Define Activities | | | | | |
| | • Match/Prepare Specifications | | | | | |
| | • Prepare Estimates | | | | | |
| | | | | | | |
| | Prepare bid documents to include conditions, specifications, drawings, BoQ, contract | | | | | |
| | | | | | | |
| **3** | **Environmental and Social Management** | | | | | |
| | Conduct impact assessments studies | | | | | |
| | • social impact assessment (Task OUTSOURCED) | | | | | |
| | • environmental impact assessment (Task OUTSOURCED) | | | | | |
| | | | | | | |
| | Prepare rehab resettlement plan (R/R) | | | | | |
| | | | | | | |
| | Prepare environment management plan (EMP) | | | | | |
| | | | | | | |
| | Implement Land acquisition | | | | | |
| | | | | | | |
| | Resolve R & R Issues | | | | | |
| | (Policy R & R issues) | | | | | |
| | Manage& Implement Utility shifting (Electrical) | | | | | |
| | | | | | | |
| **4** | **Procurement Management** | | | | | |
| | Implement FIDIC guidelines | | | | | |
| | | | | | | |
| | Implement BOT/PPP Contracts | | | | | |
| | | | | | | |
| | Implement NCB /State Government tendering procedure (Based on OWD Code) | | | | | |
| | | | | | | |
| | Implement e-procurement procedure | | | | | |
| | | | | | | |
| **5** | **Project Management** | | | | | |
| | Prepare Work Program | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (CPM/PERT using Primavera/MS Project) | | | | | |
| | Allocate Staff & Define responsibilities | | | | | |
| | Implement traffic management plan | | | | | |
| | Define Construction Procedure and Methodology | | | | | |
| | Monitor Physical Progress of Work | | | | | |
| | Monitor Financial Requirement for Work | | | | | |
| **6** | **Construction supervision** | | | | | |
| | Preconstruction Design review | | | | | |
| | Data Collection | | | | | |
| | Review contractor's construction Management Plan | | | | | |
| | Review contractor's traffic management plan | | | | | |
| | **Key Functional Areas** | **CE** | **SE** | **EE** | **AE** | **JE** |
| | Undertake Inspection of equipment | | | | | |
| | Quality monitoring of Works | | | | | |
| | Conduct Material Tests | | | | | |
| | • Field test - for Road: GSB gradation; GSB Compaction (Sand replacement); | | | | | |
| | aggregate crushing value, impact value; Binder quality; bitumen content | | | | | |
| | for Bldgs: Slump test; concrete mix density; water cement ratio | | | | | |
| | • Lab test – for Road: Sand content in soil; liquid limit; plastic limit; CBR Index | | | | | |
| | for Bldgs: aggregate crushing value, impact value; water quality; | | | | | |
| | Steel Tesile test; Concrete cube test (7 & 28 days) | | | | | |
| | Review, Prepare Report of Physical Progress | | | | | |
| | Review, Prepare Report of Financial Progress | | | | | |
| **7** | **Contract Management** | | | | | |
| | Monitor Work Program and Time | | | | | |
| | Monitor & Exercise Cost Control | | | | | |
| | Assess & Justify Variations (extra/substitute items), award extension of time | | | | | |
| | Manage Dispute Resolution and Arbitration | | | | | |
| **8** | **Quality Management** | | | | | |
| | Implement Quality Assurance ????? | | | | | |
| | Monitor & Exercise Quality Control ????? | | | | | |
| | Carry out Quality Audit ????? | | | | | |
| **9** | **Safety Management** | | | | | |
| | Prepare safety plan and implement during Construction ????? | | | | | |
| | Implement safety plan during Operations ????? | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Implement safety plan during Maintenance ????? | | | | | |
| **10** | **Financial Management & Systems implementation** | | | | | |
| | Manage financial instruments and Tax aspects | | | | | |
| | Implement Financial MIS – iOTMS and WAMIS | | | | | |
| | Utilise/implement financial powers (as per govt./OWD Code) | | | | | |
| | Apply OWD code | | | | | |
| | Prepare Accounts | | | | | |
| | Prepare Accounts Audit replies | | | | | |
| **11** | **Maintenance** | | | | | |
| | Identify and assess pavement distress | | | | | |
| | Carry out condition survey of Bldgs. and prepare Bldg maintenance plan | | | | | |
| | Prepare Periodic/Routine/special Maintenance plan | | | | | |
| | Prepare (fund) proposal for Maintenance Requirement | | | | | |
| **12** | **Other Tasks** | | | | | |
| | Carry out Performance appraisal | | | | | |
| | Plan and Manage Training | | | | | |
| | **Key Functional Areas** | **CE** | **SE** | **EE** | **AE** | **JE** |
| | Manage Asset Records | | | | | |
| | Monitor and Report Encroachments | | | | | |
| | Prepare Analysis of Rates and periodically revise Schedule of Rates | | | | | |
| | Prepare Disaster Readiness Plan | | | | | |
| | Prepare 'Legal' replies | | | | | |
| | Issue N.O.C.(OFC cables, fuel pumps etc.) | | | | | |
| | Calculate and Certify 'Fair Rent rate' for hire of Govt. Assets | | | | | |
| | Facilitate Inter-Departmental Coordination | | | | | |
| | Carry out Public relation | | | | | |
| | Resolve Public Grievances | | | | | |
| | Prepare and Manage Documentation (MPR, APR, Utilization Certificate, etc.) | | | | | |
| | Manage Library | | | | | |
| | Manage Public functions/OWD Events | | | | | |
| **13** | **Information Technology** | | | | | |
| | Apply Computer applications – M S Office, Web etc. , ??????? | | | | | |
| | Apply Computer applications – MX Roads, ??????? STAAD PRO, Auto CAD | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| | Apply GIS application for planning ??????? | | | | | |
| | | | | | | |
| | Apply Project Management Software – MS Project, Primavera, ?????? | | | | | |
| | | | | | | |
| | Implement e-Governance (email, web-site, e-nirman, e-procurement) ??????? | | | | | |
| | | | | | | |
| | Implement Management Information System (HRMIS) ??????? | | | | | |
| | | | | | | |
| **14** | **Personnel Management** | | | | | |
| | Apply Written and Oral Communication skills | | | | | |
| | | | | | | |
| | Apply HR Management skills | | | | | |
| | | | | | | |
| | Implement Decision-making | | | | | |
| | | | | | | |
| | Apply Interview skills | | | | | |
| | | | | | | |
| | Apply Service conditions | | | | | |
| | | | | | | |
| | Respond to Right to Information (RTI) act | | | | | |
| | | | | | | |
| | Apply Motivational tools | | | | | |
| | | | | | | |

**Name:** _____

**Designation:** _____

**Division** _____

# Annexure VII: Details of Meeting & Presentation for the Task of Road Safety Engineering & Planning

## A. Crash Data Collection & Selection of Districts/Roads to carry out RSA

The meetings and consultations carried out for collection of accident data and consultations carried out to select the roads in the selected districts, and to conduct the RSA in 2000+ kilometers of roads are presented in respective table below:

**Meetings/Consultations conducted for Accident Data Collection**

| Sl. No. | Stakeholders Consulted | Date |
|---|---|---|
| 1. | Officials of Transport Department, Bhubaneswar | 8 May 2012 |
| 2. | Transport Commissioner, Cuttack | 9 May 2012 |
| 3. | Director, Office of Transport Commissioner, Cuttack | 9 May 2012 |
| 4. | Inspector General, Crime Branch, Cuttack | 9 May 2012 |
| 5. | Secretary, Rural Development Department (RDD) | 19 May 2012 |
| 6. | Director (Statistics), Office of Transport Commissioner, Cuttack | 19 May 2012 |

**Meetings/Consultations conducted for RSA**

| Sl. No. | Personnel Consulted/Meetings held | Date |
|---|---|---|
| 1 | Executive Engineer, Sambalpur R&B Division | 28 Nov 2012 |
| 2 | Executive Engineer, Balasore R&B Division | 29 Nov 2012 |
| 3 | Executive Engineer, Cuttack R&B Division | 29 Nov 2012 |
| 4 | Executive Engineer, Sundargarh R&B Division | 01 Dec 2012 |
| 5 | Executive Engineer, Charbatia R&B Division | 02 Dec 2012 |
| 6 | Executive Engineer, Mayurbhanj R&B Division | 02 Dec 2012 |
| 7 | Executive Engineer, Keonjhar R&B Division | 04 Dec 2012 |
| 8 | Executive Engineer, Panikoili R&B Division | 07 Dec 2012 |
| 9 | Executive Engineer, Ganjam-I R&B Division | 11 Dec 2012 |
| 10 | Executive Engineer, Bhanjanagar R&B Division | 12 Dec 2012 |
| 11 | Executive Engineer, Ganjam-II R&B Division | 14 Dec 2012 |
| 12 | Executive Engineer, Rayagada R&B Division | 18 Dec 2012 |
| 13 | Executive Engineer, Koraput R&B Division | 19 Dec 2012 |

**B. Road Safety Management Capacity Review**

The consultations carried out to review the capacity of stakeholder departments in management of road safety in the State are shown in table below:

**List of Consultations held for Road Safety Management Capacity Review**

| Sl. No. | Stakeholder Consulted | Date |
|---|---|---|
| 1 | Executive Engineer, Balasore R&B Division | 18 January 2013 to 30 January 2013 |
| 2 | Mr. P. K. Mohapatra, Secretary, Health Department | |
| 3 | Mrs. Usha Padhy, Secretary, Education Department | |
| 4 | Mr. Binod Das, ACP, Traffic Police, Bhubaneswar | |
| 5 | Mr. K. C. Samal, ACP, Traffic Police, Cuttack | |
| 6 | Dr. V. N. Mohanty, Principal-in-Charge, SCB Hospital, Cuttack | |
| 7 | Mr. Bramhananda Rao, Associate Director, Transport Department, Cuttack | |
| 8 | Mr. Panigrahi, Additional Commissioner, RTA, Cuttack | |
| 9 | Dr. Nehar Patnaik, Director, SCERT | |
| 10 | Mrs. Nandita Mishra, Addl. Director, SCERT | |
| 11 | Mr. Shroff, City Engineer, Bhubaneswar Municipal Corporation | |
| 12 | Mr. Panda, Advocate, High Court, Odisha | |
| 13 | FPRA, NGO working in Road Safety | |

**C. Presentations/Workshops in Road Safety Planning and Engineering**

The methodology, progress and subsequent findings of various activities in the task of road safety engineering and planning is presented at various forums during this reporting period, as shown in table below:

**List of Presentations/Workshops**

| Sl. No. | Presentations/Workshops | Date |
|---|---|---|
| 1 | Stakeholders Workshop | 09 Nov 2012 |
| 2 | ISAP Review Committee | 19Nov 2012 |
| 3 | ISAP Working Group Meeting | 19 Dec 2012 |
| 4 | World Bank Mission | 11 Dec 2012 |
| 5 | ISAP Review Committee Meeting | 31 May 2013 |

## Annexure VIII: Details of Meeting for the Task of Road Network Master Planning

**List of Consultations/Meetings for Secondary Data Collection**

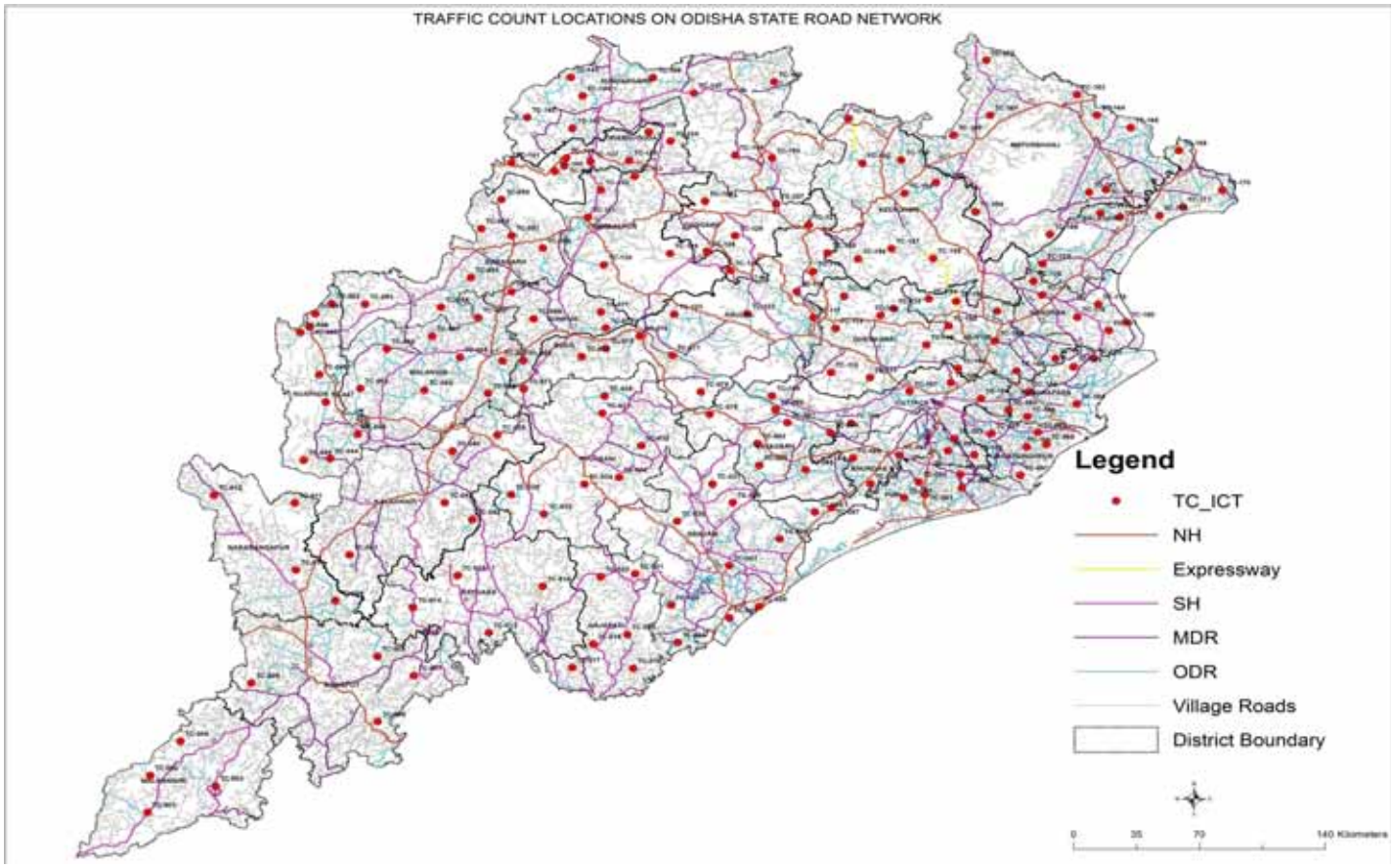
| Sl. No. | Date | Meeting | Type of Data |
|---|---|---|---|
| 1. | 11 April 2012 | Asset Management Consultants | Traffic Data & GIS Map of OWD Road Network |
| 2. | 17 April 2012 | IT/ICT Consultant | Plans of ICT in OWD works |
| 3. | 8 May 2012 | Motor Vehicle Inspector in Bhubaneswar | Vehicle Registration Data |
| 4. | 9 May 2012 | Transport Commissioner, Cuttack | Vehicle Registration Data |
| 5. | 10 May 2012 | Director, Department of Mines | Proposed mining corridor and future expansion plans |
| 6. | 19 January 2013 | Town Planner, Directorate of Town Planning, Bhubaneswar | Multi-modal transport planned for major cities and towns |
| 7. | 23 January 2013 | CGM (P&C), IDCO, Bhubaneswar | Industrial development plans |
| 8. | 24 January 2013 | Infrastructure Expert, IDCO, Bhubaneswar | Industrial development plans |

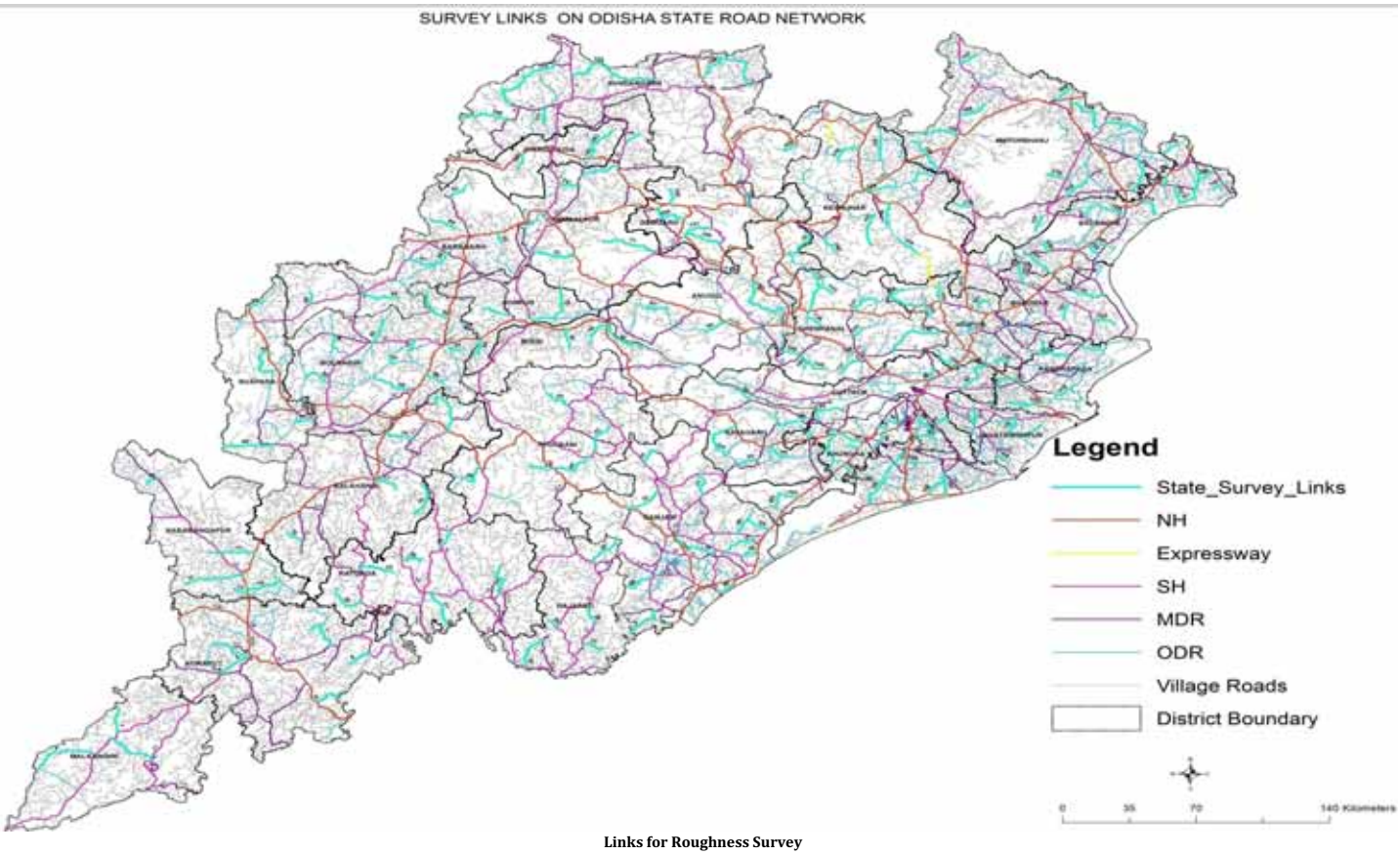
**List of Meetings held to obtain GIS Maps**

| Sl. No. | Date | Meeting | Agenda |
|---|---|---|---|
| 1. | 12 April 2012 | CE, NH Division, GOO | Collect reclassified NH network |
| 2. | 12 April 2012 | CE, Rural Development, GOO | Collect CRN of rural roads and District Rural Road Plan (DRRP) |
| 3. | 11 May 2012 | Director, Survey of India, Odisha | Procure road network map of Odisha State |
| 4. | 18 May 2012 | Director, Survey of India | Follow up meeting to procure Odisha road network map |
| 5. | 19 May 2012 | Secretary, RDD | Collect CRN of Rural Road Network and DRRP |
| 6. | 19 May 2012 | CE, RDD | Collect DRRP and CRN of rural road network |
| 7. | 2 July 2012 | CEO, ORSAC | Obtain GIS enabled road network map of Odisha |
| 8. | 4 July 2012 | CEO, ORSAC | Follow up meeting |

| Sl. No. | Date | Meeting | Agenda |
|---|---|---|---|
| 9. | 5 July 2012 | Principal Scientist, ORSAC | Follow up meeting |
| 10. | 8 October 2012 | Principal Scientist, ORSAC | Follow up meeting |
| 11. | 31 January 2013 | DC-cum-Addl. Chief Secretary to GOO | High level meeting to decide sharing of GIS maps with consultant |
| *Note: In the above meeting, the DC-cum-Addl. Chief Secretary instructed the CEO of ORSAC to provide all data for the development of master plan including GIS maps to the Consultant.* | | | |
| 12. | 1 February 2013 | CEO, ORSAC | Follow up meeting to obtain GIS maps |
| 13. | 5 February 2013 | Principal Scientist, ORSAC | Follow up meeting to obtain GIS maps |
| 14. | 8 February 2013 | Principal Scientist, ORSAC | Follow up meeting to obtain GIS maps |
| *Note: GIS maps of 30 districts provided to the consultant on 7 February 2013.* | | | |

**Annexure IX: Location Map of Various Surveys Conducted for Task of Road Network Master Planning**



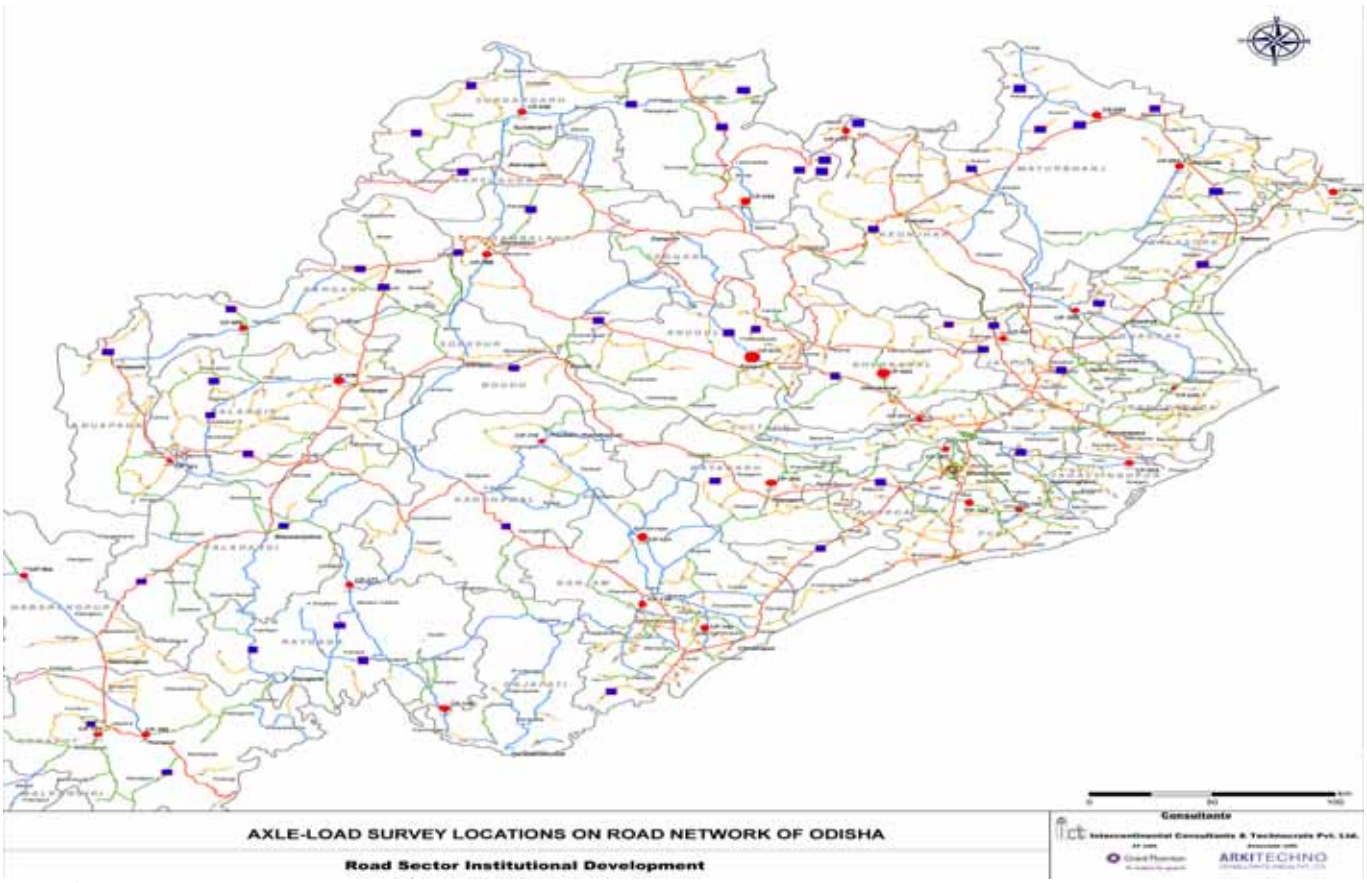



**Links for Roughness Survey**

## Annexure X: Axle load Survey Locations and Map

| IAL No. | Name of the Road | Road Identification | Location of AL Point |
|---|---|---|---|
| 1 | Sohella to Bargarh | New NH 53 | Mid Way |
| 2 | Attabira to Sambalpur | NH 53 | Near Attabira |
| 3 | Bargarh-Bolangir-Boriguma | NH 26 | Near Barpali |
| 4 | Angul to Dhenkanal | NH 55 | Mid Way |
| 5 | Rourkela to Rajamunda | NH 143 | Mid Way |
| 6 | Titilagarh to Bongomunda | NH 59(A) | Near Titilagarh |
| 7 | Kantabanjhi to Belpara | MDR 36 | Mid Way |
| 8 | Padampur to Jagdalpur | MDR 36 A | Mid Way |
| 9 | Nuapada to Khariar Road | NH 353 | Mid Way |
| 10 | Sonepur to Boudh | NH 57 | Mid Way |
| 11 | Keonjhar to Pallahra | NH 49 B | Near Keonjhar |
| 12 | Cuttack Paradeep Road | SH 12 | Near Patapur |
| 13 | Jasipur to Bisoi | NH 49 B | Near Bisoi |
| 14 | Baripada to Balasore | NH 18 | Near Betnoti |
| 15 | Balasore to Bhadrak | NH 16 | Near Bahanga |
| 16 | Kuakhia to Bari Road | MDR 14 | Near Baruan |
| 17 | Berhampur to Khariar | NH 59 B | Near Daringbadi |
| 18 | Jharsuguda to Kanaktora | NH 49 A | Near Belpahar |
| 19 | Sambalpur to Angul | NH 55 | Near Rairakhol |
| 20 | Bhawanipatna to Nawarangpur | NH 26 | Near Koksara |
| 21 | Nayagarh to Khurdha | NH 57 | Near Begunia |
| 22 | Khurdha to Chattrapur | NH 16 | Near Sunakhala |
| 23 | Bhawanipatna to Muniguda | MDR | Near Bhawanipatna |
| 24 | Talcher to Kaniha | ODR | Near Gopalprasad |
| 25 | Angul to Budhapal | SH 63 | Near Chhendipada |
| 26 | Barikpur to Dhamnagar | MDR 8A | Mid Way |
| 27 | Belpara to Pithapathar Road | ODR | Near Gambhari |
| 28 | Sindurpanka to Samasingha Road | MDR 19 | Mid Way |
| 29 | Bramhanipal to Duburi Road | ODR | Near Bramhanipal |
| 30 | Jeypore to Phampuni Road | MDR 110 | Near Phampuni |
| 31 | Semiliguda to Haniput Road | MDR 55 | Near Nandapur |

| IAL No. | Name of the Road | Road Identification | Location of AL Point |
|---|---|---|---|
| 32 | Komtalpeta to Tumudibandh Road | SH 5 | Near BissamKatak |
| 33 | Kakiriguma to Gunupur | SH 4 | Near Kolnara |
| 34 | Rupkana to Kalahandi Border | SH 44 | Near Kashipur |
| 35 | Tomoka to Mangalpur | ODR | Mid Way |
| 36 | Sukinda to Hatibari Road | ODR | Near Hatibari |
| 37 | Duduka-Gopalpur-Taparia Road | ODR | Near Gopalpur |
| 38 | Bhasma to Nuagaon Road | SH 10 | Near Kukurbhuka |
| 39 | Lafripada to Balisankara | ODR | Mid Way |
| 40 | Karanjia to Khicching Road | ODR | Near Khicching |
| 41 | Suleipat to Jhaldunguri Road | ODR | Mid Way |
| 42 | Handa to Sirsa Road | ODR | Mid Way |
| 43 | Dengula to Kaleiposh Road | ODR | Near Dengula |
| 44 | Nuagaon to Mandap | ODR | Near Mandap |
| 45 | Samntipali to Tumba | ODR | Near Jarada |
| 46 | Nuagaon to Bahadajholla | ODR | Mid Way |
| **Survey on Rural Roads** | | | |
| 47 | Bhanjapali-Kalmanga | L 034 | Koida |
| 48 | Koida-Patmunda | L 037 | Teherei |
| 49 | Beleipada-Kulumu | L 021 | Sialijoda |
| 50 | Raruan-Nakasara | L 055 | Bamanposhi |




**Note:** *Map of Odisha showing Axle Load Survey locations in small violet coloured squares. Red coloured circles show LASA Axle Load Survey locations.*