

ROAD SECTOR INSTITUTIONAL DEVELOPMENT

FINAL REPORT ON STRENGTHENING OF THE INSTITUTIONAL FRAMEWORK/STRUCTURES (REVISED) JUNE 2015



Government of Odisha
Chief Engineer, World Bank Projects, OWD



The World Bank
Washington, DC



Intercontinental Consultants
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Government of Odisha
Chief Engineer, World Bank Projects, OWD
Odisha State Roads Project

Consultancy Services for
Road Sector Institutional Development



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FINAL REPORT ON STRENGTHENING OF THE
INSTITUTIONAL FRAMEWORK/STRUCTURES (Revised)
June 2015

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List of Abbreviations

AE	Assistant Engineer
BOT	Build Operate Transfer
CE	Chief Engineer
Ch. ARCH	Chief Architect
CRF	Central Road Fund
CRN	Core Road Network
CVO	Chief Vigilance Officer
DE	Design Engineer
DEA/GOI	Department of Economic Affairs / Government of India
DFID	Department for International Development
ECR	East Coast Road Project
EE	Executive Engineer
E-i-C	Engineer in Chief
FD	Finance Department
GAAP	Governance and Accountability Action Plan
GED	General Electrical Division
GIS	Geographical Information System
GOAP	Government of Andhra Pradesh
GOO	Government of Odisha
GPH	General Public Health
HRD	Human Resource Development
IBRD	International Bank for Reconstruction and Development
ICT	Intercontinental Consultants & Technocrats
ISAP	Institutional Strengthening Action Plan
JE	Junior Engineer
LTPBMC	Long Term Performance Based Maintenance Contracts
MoRT&H	Ministry of Road Transport and Highways
NHAI	National Highways Authority of India
NHDP	National Highway Development Project
NRHM	National Rural Health Mission
OBCC	Odisha Bridge and Construction Corporation
O&M	Operation and Management
OMT	Operate Maintain Transfer
ORAMS	Odisha Road Asset Management System

ORBDC	Odisha Bridge and Road Development Corporation
ORDC	Odisha Road Development Corporation
OSRP	Odisha State Roads Project
OSRRA	Odisha State Rural Road Agency
OSRTC	Odisha State Road Transport Corporation
OWD	Odisha Works Department
P&CD	Planning and Coordination Department
PBMC	Performance Based Management Contracting
PD	Police Department
PMU	Project Management Unit
PPP	Public Private Partnership
PWD	Public Works Department
R&B	Roads & Building
RD	Rural Development
RDD	Rural Development Department
RFI	Request for Information
RFP	Request For Proposals
RSID	Road Sector Institutional Development
RSRDC	Rajasthan State Road Development Corporation
RTA	Roads and Transportation Authority
RTI	Rights To Information
SE	Superintending Engineer
SHDP	State Highways Development Program
SLEC	State Level Empowered Committee
SPV	Special Purpose Vehicle
SRMA	State Roads Management Authority
STA	State Transport Authority
VCR	Vehicle Check Report
VOC	Vehicle Operating Costs

Executive Summary

Institutional Development Support to Odisha's Road Sector had a component on technical assistance and advisory services, with a view to assist GOO to improve its road sector policy, institutional and legal framework to align it with the rapidly changing environment and context. This includes support to the following:

- (a) improving operation and management (O&M) structure for managing the State's Core Road Network;
- (b) establish sustainable road maintenance financing arrangements;
- (c) establish a State road development council to coordinate the various road agencies in the state;
- (d) develop a Road Master Plan, including revision/update and implementation of the road network classification system;
- (e) develop a Road Safety Policy Action Plan; and
- (f) develop state-level axle load control policy and implementation strategy.

The Odisha Road Sector has accountability to three levels of Governance namely, OWD or specific state level road sector organization, GOO and GOI. To meet some of the objectives focused on institutional issues, review and analysis was undertaken for present road sector organizations describing their maturity reflected in their in functions, powers, and access to resource, outputs and operations. The responsibility matrix indicated some overlaps in functional distribution and some responsibilities lacking proper orientation. For development of Institutional Framework/Structures in medium to long-term a number of key sector challenges faced by road sector and existing road sector organizations have been closely examined and analyzed. For this, the ongoing and expected socio-economic development scenario of the state, issues of road sector policy and planning, road sector funding, road construction and maintenance, road safety, human resource development and training of road sector staff, contractors and road sector workers etc. have been considered. Considering medium to long term, the forecast outlined in the Road Network Master Plan (RNMP) for Odisha, which indicated considerable rise in urban population, substantial growth in agricultural, services and industrial sector and associated increase in vehicular demand. It forecasted that with business as usual scenario, about 10,000 km of the major road network would become capacity constrained by the year 2018 and 23,000 km by 2023. To meet potential challenges as forecasted, GOO would have to respond by evolving appropriate institutional mechanisms so as to accelerate road development and maintenance in the state.

The SWOT Analysis of OWD has been presented as an example to depict its Strengths and Weaknesses as well as to adopt required actions so as to operate efficiently and take actions to address any shortcomings. The Opportunities and Threats form an important aspect so that OWD can influence the (GOO) in an attempt to reduce possible threats, which can undermine their business and reduce their operational efficiency. It was considered important to examine the potential transformation of road sector organizations in future, wherein they would have to transfer/undertake some of the functional responsibilities to/from another organization.

As a part of the study, the evolution of road sector entities from traditional PWDs, in some of the other states have been analyzed. This especially included states, where reform agenda have been pursued and some restructuring have taken place. In addition, institutional reforms undertaken by

other states have also been analyzed. The review and analysis of the evolutionary process revealed that, most of the states have established Road Development Corporations (RDCs) to separate the “Owner” organization (i.e. OWD or PWD) from provider (ORDC) organization. Overall, it became evident that to accelerate the road development process, an entity, which could function in an autonomous, non-bureaucratic manner may be needed for the state of Odisha. Accordingly, a detailed paper on the experiences and feasibility of a road development corporation in the state of Odisha has been developed and is annexed.

To have feedback on the institutional aspects, consultations and interactions were held with road sector stakeholders and their feedback has been integrated in the analysis and is well reflected in the report. Considering the potential road sector challenges, feedback from stakeholders, experiences from other states and experience of the consultant, institutional framework/structure envisaged in medium to long term have been suggested in the report. The final proposals include creation of a new entities (ORDC), creation of additional functional units in most of road sector organizations to improve their functioning etc. After careful analysis, it is also recommended to change the mandate of existing organization like OBCC and transform into ORDC. In addition, creation of budget heads for training and road safety has been recommended under budgetary reforms.

Consultants and the World Bank suggested to discuss the advantages and limitations of such entities and to decide the future course of action of such entities. Thereafter, the suggested institutional options have been discussed at highest level (High level meeting cum workshop under the Chairmanship of Chief Secretary, GOO on 12th May 2015) and after intensive discussions, creation of Odisha Road Development Corporation (ORDC) has been agreed. The case of development of ORDC (Odisha Road Development Corporation) was considered more sound and appropriate for Odisha than the creation of State Roads Management Authority. The analysis of consultants had indicated that it was more appropriate to re-engineer existing OBCC rather than developing a new entity. The analysis has also considered and included potential ramifications of such developments on OWD and other road sector organizations. Based on these, it was deliberated in the high level meeting that ORDC should be created by transforming the existing OBCC. The report thus provides required actions at GOO level to re-engineer OBCC into ORDC/ORDC.

Since this is a medium to long term institutional options report, it has not only included but has discussed and emphasized on the need for rejuvenation/ active involvement of existing Road Safety Council and creation of Road Sector Policy Monitoring Committee, Odisha Strategic Transport Modelling Unit, operationalization of Driver Training Institutes, Odisha Engineering Training Institute etc., which have been suggested and agreed under different RSID tasks.

In addition to above suggested entities, as a part of institutional improvements, additional functional units (ex HRD, Social and Environmental Unit, IT, Monitoring and Evaluation Unit, Legal Unit at HQs under CEs etc.) have been proposed as a part of structural framework of existing road sector organizations. It has been envisaged that creation of such units within important road sector organizations would improve their strategic and operational efficiency.

The report has been organized in eight chapters: Introduction, Functional responsibilities of road sector stakeholders, Stakeholder consultations, Analysis of key road sector challenges, Institutional implications of road sector challenges, Lessons from evolution of road sector agencies, Suggestions on improvement in institutional structures/framework in medium to long term and Way forward.

1 Introduction

1.1 Background

The fiscal and governance reforms carried out by Government of Odisha in recent years have contributed to significant changes in economic growth and private sector investment in the state. Economic growth has averaged 8.4 percent per annum since 2004, which is at par with all-India growth rate. Private sector investment has increased, not only in the mining and steel industries, but also in tourism and IT sectors.

Roads, being the major carrier of goods and people have been contributing towards the development of the state. However, the road network development could have contributed much more towards socio-economic development in the state. The present growth associated possession and use of motorized vehicles has resulted in congestion on roads and higher vehicle operating costs (VOC) than required.

One of the major reasons of lack of service orientation is that road sector organizations like Odisha Works Department, RDD and PR are organized similar to a traditional Public Works Department (PWD) with little customer orientation and service delivery focus. These organizations cover a variety of public works in the state, including roads, buildings and sanitation. This institutional arrangement has had the effect of spreading the scarce human and financial resources too thinly to manage various functions entrusted to these organizations. Though Odisha made some ad hoc efforts to improve its roads sector capabilities, this has not so far made a focused approach on policy, process and structural reforms comparable to other major states, and its road infrastructure planning, development and asset management capacities are still comparatively weak. Overall, the present institutional arrangements in Odisha's road sector leave the state ill-equipped to meet the demands and challenges arising from the state's rapid economic development and growing societal expectations.

Although major road construction and improvement works are carried out by the private sector under short-term contract, OWD carries out most maintenance works through its field offices via in-house labor and equipment. There is very little evidence of private sector involvement in the financing and management of state roads. In order to overcome several constraints posed in road network development and management, this Report undertakes a holistic view at Odisha Road Sector Challenges (both present and forthcoming) and sets off the process of identifying appropriate institutional options for management of road sector in medium to longer term.

1.2 Background of RSID Project

To upgrade the major road network in Odisha the GOO with the support of the Government of India (GOI) have embarked on a WB assisted project called the Odisha State Road Project (OSRP). This project is intended to enhance both the major road transport infrastructure as well as the institutional capacity of the Odisha Works Department (OWD), which has primary responsibility for the State's main road network. Road infrastructure will not only play an influential role in creating this 'new world' for Odisha, but also its effective management will be vital to sustain the transformation and to secure the future for Odisha. This will not only lead to development of the road sector, but also have a cascading effect on the overall development of the State.

The GOO too has realized the need for reforms and is preparing itself for capacity building, organizational restructuring and skill up-gradations to meet the new challenges. The Government is not only thinking for Road Sector, but also planning an all-round re-modeling, restructuring and overall review of regulatory framework, to match the development strategy for the State.

1.3 Scope of Work

The scope of work included the following:

- (i) providing an outline-level 'mapping' of the established range of entities, functions and resources involved in roads sector outputs and operations;
- (ii) clarifying the distribution and adequacy of powers, authority and accountability in the sector relative to current and newly emerging priorities facing the GOO and the community in the sector;
- (iii) addressing the more important weaknesses and/or gaps in the existing institutional arrangements in the roads sector;
- (iv) identifying and ranking/prioritizing the more realistic options for medium-to-long term strategic improvements in the sector's institutional framework and structures in terms of enhanced roads management, support for GOO objectives and overall governance; and
- (v) in that context, provide recommendations on the merits and 'domain' of, and funding requirements and implementation timeframe for, a new institution. For e.g., Road Development Corporation or a State Road Authority charged with improved efficiency in procurement, delivery, maintenance, operation and also facilitation of increased private sector participation in road infrastructure provision and management in Odisha.

1.4 Approach and Methodology

Management of roads of any state, depending on categories of road, is an exercise involving various Government entities, i.e. National, State and Local bodies, besides other entities like the construction industry, Training institutions, Laboratories, etc. Consideration of potential in the state and achievements, it can be stated that there are gaps in its functioning and/or in meeting emerging challenges. This can be possibly be improved by responsibility redistribution amongst stakeholders and/or by creating specific entities to address specific domain of responsibilities. This arrangement has been referred as "developing institutional options". As a part of the Future Road Sector Institutional Options report, an in-depth review and analysis of the present institutional mechanism and arrangements in the state's roads sector was made. In this review various entities at central, state and local level were included. The major purpose of such an exercise was to identify/evolve most appropriate options to address specific challenges with improved governance and service delivery. Overall, the methodology adopted for development of future institutional options included:

- Identification of various road sector stakeholders
- Review and analysis of functioning of existing road sector institutions/entities, with regard to their roles and responsibilities, distribution and adequacy of powers and accountability;
- Identifications of overlapping responsibilities as well as unaddressed responsibilities;
- Analyzing important weaknesses and/or gaps in the existing institutional arrangements in the road sector;

- Identification of “responsibility wise” road sector challenges (present and emerging in next 5-10 years) and their institutional implications;
- Developing the basis of Institutional Structural Improvements – this would emanate from integration of weaknesses in responsibility framework as well as measures to address the institutional implications of challenges in next 5-10 years;
- Establishing short to medium term (5 to 10 years) “institutional” requirements;
- Developing and analyzing institutional options – This shall include analysis of options for each specific group of roles and responsibilities;
- Identifying, ranking/prioritising the realistic options for medium-to-long term strategic improvements in institutional framework, which will support road sector objectives of GOO and overall governance;
- Workshop to have feedback and develop consensus on finalization of institutional options;
- Finalization of institutional options.

1.5 Organization of this Report

This report has ten Chapters including the first Chapter illustrating the ongoing reforms in the context of requirements of Odisha Road Sector improvements.

Chapter 1: Introduction

Chapter 2: Reviews Present Road Sector organizations/stakeholders describing their maturity reflected in their in functions, powers, and access to resource, outputs and operations. With a view to evolve institutional options at a later stage, review and analysis of road sector responsibility sharing was undertaken. While undertaking Institutional Empowerment Assessment, this Chapter examines several relevant functional issues faced by GOO and road sector organizations.

Chapter 3: The SWOT Analysis reviews the major Strengths and Weaknesses of road sector organizations like OWD in its efficient operation. The Opportunities and Threats form an external but equally important aspect and road organizations could influence the (GOO) to reduce such possible threats, which can undermine their domain coverage, performance and operational efficiency.

Chapter 4: As a part of RSID Project, consultations with Stakeholders were organized to elicit their views on road sector challenges, present gaps and possible actions etc. The chapter presents the process as well as the salient features of the feedback from the stakeholders.

Chapter 5: Describes key road sector challenges and their institutional implications. It focuses mainly on planning, policy, funding, human resources, technological improvements etc. The important description is about their institutional implications, understanding of which has helped in developing the basis for option development. The chapter also lists down some of the “desired” actions already initiated from the “required” actions.

Chapter 6: It presents the review of evolution of road sector organizations elsewhere as well as in India.

Chapter 7: The chapter presents the analysis and evolves various institutional options to meet present functional gaps as well as upcoming road sector challenges. The suggested options addresses these by either suggesting a new entity, suggesting functional/structural changes within some of the existing road sector organizations, by changing mandate of some of the organizations or

by undertaking some reform actions. It was realized that few states have established “Road Development Corporation” to separate the functions of owner organization (i.e. PWD or OWD) and provider (ORDC) organization. Feasibility of establishing “Odisha Road Development Corporation” (ORDC/ORBDC) was carried out and discussed at the meeting of High-Level GOO Officials. The summary of the same has been included in the chapter. Besides this, pros and cons of establishing other institutional options like road fund, road safety council, training college/academy etc., strategic transport modelling unit etc. have also been described.

Chapter 8: The chapter highlights the “Way Forward” and expectations from the client in carrying forward the recommendations emerging from the institutional options study.

2 Assessment of Road Sector Entities, Functions, Powers & Resources

2.1 Background

The focus of the RSID assignment is on the strengthening and capacity building of road sector institutions in Odisha. It needs to fit in to the modern framework of infrastructure development. It is also intended to ensure matching compatibility at national and international levels so that the GOO and OWD have suitable business environment for private sector to participate in development in the road Sector. Any proposal on institutional strengthening and capacity building of existing OWD structure, therefore involves a detailed and comprehensive study of every institution for its strategic, directional, and ground level functional and professional competencies. Such investigation should be at the level of organization as well as individuals. With this view the RSID Project included assessment of Institutional Structure and Capacity. The Organizational Capacities refer to their Functions, Powers and available Resources for Road Sector Output and Operations. An attempt is made in this Chapter to assess requirements for the entire Road Sector.

2.2 Road Network in Odisha

In the absence of adequate rail network in Odisha, Roads have been crucial in providing connectivity to cities and rural areas and have witnessed a growth aggregating to a length of 253,073.3 km by the end of 2014–15, which is about 5.40% of National Road network (4,689,842 km). Total length of road under Works Department of the State is 21,342.7 km (which is about 8.4% of the total road length in the State) out of which and 3876.537 km NHs and 17,466.170 km State roads. The length of the different categories of roads and the agencies managing those road networks is shown in **Table 2-1**.

Table 2-1: Road Length in Odisha

Road Category	Responsible Agency	Length, km
National Highways	National Highways Authority of India	3876.537
State Highways	Works Department	4840.491
Major District Roads		2820.721
Other District Roads		9804.953
Rural Roads	Rural Development Department	28,158.737
Panchayat Samiti Roads	Panchayat Raj Department	25,702.51
Gram Panchayat Roads		145,367.77
Forest Roads	Forest Department	7,545.799
Urban Roads	Urban Development Department	18,590.689
Irrigation Roads	Irrigation Department	6,277.00
GRIDCO Roads	Electricity Department	88.00
Total, km		25,30,73.207

Source: Economic Survey 2014-2015 for Roads other than PWD, Odisha & Annual Activity Report 2014-15, OWD.

2.3 Key Institutions in Road Sector

The maintenance, improvement and development of the Odisha Road network is managed by a number of national, state level and district level organisations each with its own well defined road network responsibility and operational support structures to carry out planning and engineering activities. Each entity follows its own set of economic and social policy objectives and directions in delivering road user access services to urban and rural communities.

By and large, GOO road sector policy development is principally left to each entity to manage and implement. Little if any coordinated road development planning, investment coordination and prioritisation is undertaken, each entity preferring to make and take its own decisions in isolation to the investment priorities being proposed and implemented by others. This inherent lack of planning and coordinating linkages between the different organisations within the roads sector has in the past 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. The agencies involved in management of road network and the agencies have a direct role in operation on the road network are as shown below:

- Ministry of Road Transport and Highways
- National Highways Authority of India (NHAI)
- Odisha Works Department
- Rural Development Department
- Panchayat Raj Department
- Department of Finance, GOO
- Planning and Coordination Department (P&CD)
- Water Resources Department, GOO
- Forest Department, GOO
- Odisha Bridge and Construction Corporation (OBCC) Ltd
- State Transport Authority (STA)
- Police Department (PD)
- Odisha State Road Transport Corporation (OSRTC)

2.3.1 National Highways Authority of India (NHAI)

The NHAI, separating “provider” functions of MoRT&H, was established under an Act of Parliament of 1988 with the primary objective to address the inefficiencies in the execution of NH works by States. It was constituted in 1994 and became operational in 1995. The objectives of the NHAI are to:

- Develop, maintain and manage the highways entrusted to it;
- Construct workshops and facilities at or near highways vested in it;
- Construct buildings and townships for its employees;
- Regulate and control vehicles on highways entrusted to it;
- Develop and provide consultancy and construction services and carry out research in relation to the development, maintenance and management of highways;
- Provide facilities and amenities for the users of the highways vested in it;
- Form one or more companies under the Companies Act, 1956;
- Engage or entrust any of its functions to any corporation or body owned or controlled by the Government;
- Advise on such terms and conditions as may be mutually agreed upon by any State Government in the formulation and implementation of schemes for highway development; and

- Collect fees on behalf of the Central Government for services rendered under Section 7 of the NHs Act.

Out of 3,876 km of NHs in Odisha, about 2,413 km is managed directly by NHAI and the remaining 1463 km by MORT&H through OWD. The NHAI manages its network through its Regional Office in Bhubaneswar headed by a Chief General Manager, whose powers are equivalent to a Chief Engineer in the State PWD. The Regional Office of NHAI manages the network in the State through three Divisional offices located in Bhubaneswar, Sambalpur and Behrampur, headed by the Project Directors, whose powers are equivalent to an Executive Engineer in the State PWD.

2.3.2 Odisha Works Department

The functions and responsibilities of OWD, as provided in the Odisha Public Works Department (OPWD) Code, are as follows:

- Construction, repair and maintenance of buildings, roads, bridges and other related structures financed from the State and capital budget allocations in Odisha;
- Execution of original, renewal and repair works of the NH network financed through MoRT&H after levying agency charges at the rates agreed between GOI and the GOO;
- Construction of buildings, roads and bridges (R&B) as relief works in the event of floods, cyclones or other natural disasters;
- Ensuring that no encroachment or structure, whether temporary or permanent is erected on the land and property under the control of OWD. It is also responsible for removal of such encroachments as per GOO rules; and
- Maintaining a register of land, buildings and properties belonging to the GOO and under the administration of OWD.

The main function of the OWD is to construct and maintain Odisha's SHs, MDRs and ODRs for the economic and social benefit of the population. Besides, its own responsibilities, OWD also maintains and improves most of NHs passing through the State, on behalf of the GOI and MoRT&H. OWD's road development activities also include road and bridge construction projects for municipal bodies and implementation of projects funded by (Rural Infrastructure Development Fund) RIDF/National Bank for Agriculture and Rural Development (NABARD), Central Road Fund (CRF), etc.

OWD is also involved in undertaking building construction works on behalf of other government departments across Odisha. It also maintains residential and non-residential buildings of GOO.

2.3.3 Rural Development Department (RDD)

The function of the RDD is to provide improved water supply and transport communications to Odisha's 51,394 villages (Census, 2001). The total length of 3762 village roads under its administrative control is 28,159 km by March 31, 2012. Out of these, 17,430 km are black-topped, 2,365 km cement concrete and rest are earthen/*muram*¹. This road network does not include roads within the village block or boundary or the access roads between the village and Panchayat administrative offices.

It has constituted Odisha State Rural Road Agency (OSRRA) by a resolution in May 2003 for implementing PMGSY schemes. Under PMGSY, 4654 habitations were covered by construction/up gradation of 24,914 km roads (13806 km new roads, 11,108 km up gradation) by March 2012².

¹ Source: *Economic Survey 2012-13, Odisha, page 229; Annual Activity Report 2012-13, OWD.*

² Source: *Economic Survey 2012-13, Odisha, page 230.*

2.3.4 Panchayati Raj Department

Article 40 of the Constitution of India states 'The state shall take steps to organize village *Panchayats* and endow them with powers and authority as may be necessary to enable them to function as units of self- government. Within Odisha, the *Panchayat Raj's* role is that of facilitator of rural local self-governance as prescribed by the Constitution. This self-governance is exercised through 30 Administrative Districts, 314 Blocks, and 6234 *Panchayats* (covering about **51394 villages** as per 2001 census and **51,856 habitations as per RNMP** report using ORSAC data).

The *Panchayati Raj* Department (PRD) is responsible for 25,703 km *Panchayat Samiti* roads and 145,368 km *Gram Panchayat* roads, which are mostly earthen with a *muram* sub-base at few sections. These roads are generally of a lower standard than the VRs of RDD. Although the standard of maintenance of roads, under the administration of the PRD, is considered poor in terms of geometry and drainage, the roads are trafficable for low volumes of motorized and non-motorized vehicles.

There is little formal planning interaction between the PRD and the OWD or RDD, although some interaction occurs on an informal basis with each organization pursuing its own development priorities. As a result, transport and access bottlenecks has been observed, as each individual organization places a different emphasis on access priorities on sections of the same road or on linking roads.

2.3.5 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. The State Budget includes both Plan expenditures and Non-Plan expenditure such as expenditure for recurrent road maintenance, and establishment costs including salaries and upkeep of buildings, procurement of tools and plant, etc.

The FD determines the Non-Plan expenditure on the basis of the previous year's expenditure allocation plus a small increase to take account of increased costs and scope of maintenance works. To assist the FD in establishing its various recurrent cost allocations, the GOI provides a set of unit costs or 'norms' that represent the theoretical cost to maintaining a road so as to prevent further deterioration at various levels of traffic density. Because road condition information is not used in deriving these norms, they do not necessarily reflect the true cost of maintaining the roads. In any case, since the State Government is not able to raise sufficient revenue to satisfy its full expenditure needs (that includes its current high overhead costs) the OWD receives less than that arrived at as per the recommended 'norm' for recurrent works.

2.3.6 Planning and Coordination Department

The Planning and Coordination Department (P&CD) is the planning and co-ordination agency for new infrastructure. It is primarily responsible for preparing the Annual State Plan in consultation with each individual department. In absence of various sector policies, it applies a number of norms to assess their infrastructure and other needs. Apart from such norms, there does not appear to be any established methodology/formula based on socio-economic analyses for the funding of new works or prioritization of projects between individual departments. The absence of socio-economic analyses and rates of return on investment costs makes it very difficult for the P&CD to objectively review the relative priorities of projects within individual departmental programs. However, it is recognized that even with the necessary justification/ information it would be difficult to evaluate

priorities between various departmental submissions due to the difficulty in quantifying all costs and benefits. However, due weightage is given to political consideration/ will in investment prioritization under annual plans.

2.3.7 Housing and Urban Development Department (HUDD)

There are a total of 103 municipal authorities (2 Corporations, 34 Municipalities and 67 Notified Area Councils) in Odisha, which have been constituted under Section 4 of the Odisha Municipalities Act 1950 (as amended). Municipal authorities are responsible for the supply and upkeep of a large number of public services and access and necessary upkeep to provide 'adequate' public road access to residential, recreational and commercial areas. Under the GOI's municipal roads development and maintenance scheme, it provides up to 50% cost of upkeep works as grant-in-aid, with the balance being contributed by municipal authorities. 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.

2.3.8 Water Resources & Forest Department

These organizations maintain their own road networks that allow limited vehicle access for the management and operation of their activities. Although these roads are in effect owned and maintained as private roads, they are used from time-to-time for local travel. Since the upkeep of these roads is the sole responsibility of the respective departments any planning and development coordination activities is generally not referred to the other road organizations. The lack of consultation between these organizations and the other road organizations is likely to be a problem at points where 'private' roads join or cross roads under the administration of other organizations 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 take account of seasonal traffic would for example be generated from forestry output

The special purpose networks include:

- Irrigation roads (Water Resource Department): are roads that are developed and maintained to (i) provide transport access for dams and canals besides agricultural inputs and outputs to and from irrigation areas and (ii) to act as flood protection and control embankments for towns and villages.
- Forest roads (Forestry and Environment Department): though considered to be in an unsatisfactory condition, these roads provide vital access to support proper resource management and protection of forests, national parks and nature reserves from environmental and undesirable human impact.

2.3.9 Odisha Bridge and Construction Corporation (OBCC) Ltd

The OBCC is a wholly owned construction agency of OWD under GOO. It was established by an Act of state Government in 1983 with a share capital of Rs 500 Crores to construct bridges. It subsequently expanded its activities to the construction of roads, buildings and power plants. In addition to steel fabrication and electrical works, it also has a unit for sub-soil investigation and testing of soils and

construction materials. The OBCC also collects toll fees on behalf of GOO throughout the State. However, it mainly subcontracts various works rather than undertaking the works with its own resources in line with its mandate and has become a “contracts manager”, which is similar to duplication of mandate of OWD.

A preliminary organizational review by the consultants, indicate high degree of demotivation amongst the staff and poor performance. It is presently overstaffed, possesses unserviceable/ underused machinery and equipment and is strongly supported (financially) by GOO (not a desired scenario for a public sector enterprise). If its mandate and functioning are not changed/ improved, then with BAU (Business as usual) scenario, it shall have to close down its operations very soon.

2.3.10 State Transport Authority (STA)

The STA is responsible for regulating transport within the road sector in Odisha. The head of the Authority is the Transport Commissioner who is based in Cuttack. The Authority has both statutory and administrative functions. The STA's statutory functions are derived from the MV Act. These functions include vehicle registration, driver licensing and enforcement. Administration of the STA is carried out through 3 zones, each headed by a Deputy Commissioner.

Revenue collected by STA includes vehicle taxes and registration fees, driver licensing charges, permit fees, certification charges and fines. The Transport Commissioner reports to the Department of Commerce and Transport. The Secretary for Transport within the Department is a separate arm which 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 is responsible for prevention of overloading in the State road network. On enforcement against overloaded or over-dimensional commercial vehicles, the STA uses a limited number of Government weigh-bridges as well as some private weighing facilities. Fines are defined under MV act. However, the impact is highly limited and the RSID study revealed that more than 90% vehicles are overloaded, the consequence of which is borne by the road agencies in the form of poor road condition and high road maintenance expenditure.

In addition, STA also attends to the accident scenes, where vehicle faults are considered by Police as one of the contributing cause for accident. STA is also authorized to define guidelines for vehicles to be ‘road worthy’ and can impound vehicles, which are considered to be un-roadworthy.

STA also undertakes road safety program supported by GOI in early January each year. On licensing, it was informed that tests for drivers to seek licenses to operate light vehicles were not difficult. As a result, licenses are also issued to those vehicle drivers, who are less competent and don't possess required knowledge of traffic laws and safe driving habits.

2.3.11 Police (Home Department)

The Police (Traffic) operates under the Home Department, GOO and within the roads sector it is responsible for enforcing traffic regulations both on passenger and freight (vehicle overloads), conducting investigations into traffic accidents and prosecuting offenders. In major urban areas, there are separate traffic departments involved in traffic management and enforcement. In rural areas, traffic control is part of normal police duty.

2.3.12 Road Construction Industry

India, during the last decade, has seen a rapid growth in terms of numbers and quality of the domestic contractors for undertaking construction of road and bridges. Construction requirements

of a number of externally aided highway projects have catalyzed and amply supported this growth. The liberalization of the GOI's policy towards the import of specialized road construction plant and equipment has also given an impetus to the contractors to use modern/mechanized methods of construction. The mandatory International Competitive Bidding (ICB) procedures for procurement of goods and services laid down by the international funding institutions encouraged participation of a number of joint ventures between domestic and overseas contractors. Even though some of the joint ventures had some weaknesses, they did contribute to the use of improved technology by the domestic contractors. In spite of the growth in the number and quality of contractors, the Indian contracting industry needs substantial capacity augmentation to handle ambitious targets of highway works.

By consultation with the sector, it was observed that the growth of local contractors in Odisha has not been at the same pace to that at all India level. The number of contractors, operating in Odisha, is far less compared to the requirements for their road and bridge works. It was indicated that most local contractors do not possess reliable plant and equipment fleets comprising heavy earthmoving machinery, crushers, graders, compacting equipment, paving equipment and the mixing plants with capacities matching the paving equipment. While mechanization is on the increase, the majority of local contractors are only capable of handling small to medium road and bridge works.

2.3.13 Road Transport Operators and Users

The majority of road transport vehicles in Odisha, are privately owned and operated. The Odisha State Road Transport Corporation (OSRTC) has almost the entire publicly owned vehicle fleet in providing long distance passenger bus service. Out of about 3,766,450 motorised vehicles (registered as on 31 March 2012) in the State about 80.2% are smaller two and three wheelers and there are about 240,000 goods vehicles and 24,345 registered buses³. In addition to motorised vehicles there are relatively high numbers of road users who travel on rickshaws or 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 needs to be properly managed to improve the safety and efficiency of road travel.

Truck operations in Odisha are almost wholly privately owned with most operators owning a small number of trucks or being owner operators. The fragmented nature of the industry has mitigated against the desired development and articulation of industry is point of view, for the benefit of the community with facilitation from the government. National bodies such as the All India Motor Transport Congress in affiliation with local ones such as the Truck Owners Association have begun to develop industry responses to road transport issues and to forward them to the GOO for consideration. These issues are principally about: Taxes and charges levied on the industry, Tolls, Road safety, Wayside facilities, Conditions of R&B, overloading and enforcement. Increasingly the industry is also seeking a much greater voice in the allocation of funds to roads and in how efficiently and effectively these funds are utilised by road authorities in providing good quality road construction and maintenance services.

There were a total of about 13,565 buses (on road) in the State (March 2012), which translates to 29 buses per lakh of population and compares well with a GOI guideline of 21 buses per lakh of population as a desirable level of supply⁴. Most of these buses are in private ownership.

³ Economic Survey 2012-13, Odisha page 258.

⁴ Economic Survey, 2012-13, Planning and Coordination Organization, GOO, p.258

2.3.14 Odisha State Road Transport Corporation (OSRTC)

The OSRTC is a government enterprise, which provides bus services for long haul journeys generally in excess of 200 km and involving both intra and interstate travel. Like several government corporations in developing countries, the OSRTC is also losing money and market share. The OSRTC has a bus fleet of over 307 operational buses (fleet of 381), which constitutes about 2.3% of the total number of on-road buses in Odisha⁵. It is subjected to the same taxes and regulations as a private company. The OSRTC operates under the Road Transport Corporation Act of 1950, which is a Central Government Act.

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, bus facilities etc.

2.4 Existing Road Sector Functions

The road sector development involves discharging of a number of important functions from planning through implementation to monitoring. The degree and intensity of the need of a specific function could vary on the type of roads to be managed. For e.g. traffic management and road safety are critical on major roads, whereas it has low requirements on Panchayat roads. Therefore, degree of attention required for a “specific function” also varies. As such, a road sector entity may have a functional responsibility but its discharging requirement with regard to the specific function may be very high or negligible.

The management responsibilities vary with the type of roads, e.g. NHs are with NHAI, whereas some NHs are also maintained by OWD, GOO. The SH, MDR and ODR are developed and maintained by OWD, rural roads by Rural Development Department, whereas *Panchayati Raj* Department is responsible for Panchayat roads and Urban Local bodies are responsible for city/urban roads. The responsibility of managing other roads is jointly with the OWD and the specific stakeholder. Funding for the construction of road network (Except those on PPP) is from PLAN allocation of Central and State resources.

Since there are a large number of activities required in road development, it is very necessary to undertake grouping of few closely interrelated activities. Some examples of activity groupings (called as function) can be as follows:

Standards: *This includes not only setting standards of construction and quality but also service level standards, roughness standards, riding quality standards etc. for different types of roads.*

Design: *Road design has been considered mostly as per IRC guidelines or PMGSY guidelines.*

Construction: *This includes construction as per approved plan as well as undertaking required investigations, estimations for “minor” variations in road plans as per “field” conditions and their approval and then needful construction including provision and construction of required fences, gates and by-passes, concerning crossings, footpaths, etc.*

Road Maintenance: *This includes required investigations, estimations and then repair of roads to bring it to desired standards/service levels.*

Road Safety: *This includes road safety measures (geometric design, junction design, provision of signage, awareness, post-accident health care, etc.).*

⁵ Economic Survey, 2012-13, Planning and Coordination Organization, GOO, p.259

ROW Management: To demarcate ROW and also include removal of encroachments/unlawful objects from road reserves (ROW)

LA and R&R: To undertake environmental and social impact assessment, clearances, verification, implementation of R&R policy guidelines of GOO, undertaking required environmental management/mitigation measures including removal of necessary trees/vegetation etc.

Likewise, the activities have been grouped into functional responsibilities. The list below provides the road sector functional responsibilities, which may consist of a single activity or a group of closely interrelated activities towards a single objective:

1. Policy and Planning

- Policy Development and Monitoring (Road Policy, Road Safety Policy, Toll Policy...)
- Strategic Plans
- Operational Plans
- Road Network Master Plan
- Works Plan (Capital Budget)
- Asset Management Systems/Maintenance Plans
- Budget Preparation
- Budget Allocation
- Progress Monitoring (Monitoring of Physical and Financial progress)

2. Pre-Construction Activities

- Surveys and Investigations
- Preparation of Pre-feasibility Studies and DPRs
- Detailed Project Reports (DPRs)
- Land Acquisition
- Environmental and Social Impact Management
- Resettlement and Rehabilitation

3. Capital and Maintenance Works

- Procurement
- Agreements/Contracts
- Construction supervision
- Project Management
- Claims Addressal
- Quality Management
- Public Private Partnership

4. Finance

- Budget Preparation and Allocation
- Receipts
- Accounts
- Disbursement
- Financial Audit

5. Technical Services

- Standards (Roads, Bridges and Associated works)
- Specifications
- Designs – Roads and Bridges
- Technical Audit
- Condition Surveys
- Road Safety – Audit, Awareness
- Quality Audit – During and Post construction
- Research and Development
- Asset Records – Development and Maintenance
- Inventory Records and their Maintenance including Stores and Disposal/write-off of Stores
- Utility Management (shifting, road cutting charges, road repairs etc.)
- Emergency Services (Disaster Management Plans, Resources etc.)

6. Human Resource/Corporate Services

- Human Resource Management
- Performance Management
- Training and Development
- Administration and Personnel

7. Commercial Services

- Rest Houses
- Way side Amenities: Hotels and Restaurants, Filling Stations, Service Stations etc.
- Air rights: Advertisement Franchises
- Road user Charges: Ex. Toll Management (Toll collection, toll plaza management etc.)

8. Public Relations

- Complaint Handling Services
- Right to Information
- Responses to Central/State Government
- Road User Surveys

9. Legal Affairs

10. Vigilance

11. Computerization and IT

In Odisha, most of these functional responsibilities are increasingly being supported by a number of software and computerized management information systems (MIS). These include (list not exhaustive):

- WAMIS
- Asset Management Systems or Road Maintenance Management System
- Project Management System
- Financial Management System
- Human Resource Management System
- E-procurement software

2.5 Existing Responsibility Framework of Road Sector Entities

Management of Roads is an exercise involving various Government entities, i.e. national, state and local bodies, besides other entities like construction industry, training institutions, laboratories, etc. Whereas, there are numerous activities/functions required for efficient development and management of the road sector to meet the socio-economic and other development challenges. For coordinated and smooth functioning of the sector, various functional responsibilities are assigned to different entities, making them responsible, accountable and duly empowered.

2.6 Mapping of Established Range of Entities, Functions and Resources

Development of Institutional Options requires a detailed understanding of present road sector entities and their roles and responsibilities. For the purpose, a detailed analysis of various stakeholders, who have direct roles and responsibilities in development of road sector in the State has been undertaken. This has included both national level and state level organizations. For this, a detailed responsibility mapping has been undertaken, which includes both major and minor activities, to be undertaken for the development of road sector. The responsibility framework defines the existing coordination and management system for public roads, which is supposedly engaged in promoting safe and efficient national, state and local public road networks in the state and the responsible use of road reserves (land within ROW) for other legitimate purposes, such as the provision of wayside amenities, utility services, etc.

The activities include present activities, which has been later expanded to envisaged activities due to other emerging activities like road sector vision development, road sector policy development etc..

Based on review and analysis of available documents and discussions/interactions, consultations a responsibility framework (matrix) has been developed for each desired functional responsibility for the development of specific road sector against the entity (identified above) performing these roles. Table 2-1 provides the existing responsibilities of various entities. The roles and responsibility of entity could be either as a lead (mainly responsible entity) or can be as a support to the lead role (supporting entity). This mapping exercise has been undertaken based on review of available documents, reports and discussions with officials of road sector entities.

The purpose of the mapping exercise has been to bring out two major features: entities having same lead responsibility (overlapping responsibilities – more than one organization having lead role) and uncovered responsibilities (no one having lead responsibility).

2.7 Analysis of Existing Responsibility Framework

The analysis of responsibility framework combined with review and discussions indicated the following institutional gaps;

- Need for Improvements in Mechanism for Futuristic Planning using Transportation Models
- Need for Improvements in Coordinated Planning Mechanism
- Need for Improvements in coordination on road safety
- Need for Improvements in standards and their monitoring
- Need for Improvements in mechanism to promote PPP
- Need for Improvements in facilities and provisions to promote capacity of contractors
- Limitations in funding for both Capital and Maintenance works
- Need for Improvements in capacities of road sector organizations, etc.;

TABLE 2-1: Mapping of Functions and Power of Various Road Sector Stakeholders

Function	MoRT&H	NHAI	OWD	RDD	PRD	Finance	P&C	GA	Revenue	H&UDD	Transport	Home	STA	OBCC	OSRTC	Forest/ Irrigation	Construction Industry	Truck/Bus Operator	Road Users
	Type of Roads																		
	All	NH	NH, SH, MDR & ODR	VR, PMGSY	PRR	All	All		All	UR	All	All	All	Bridges	All	Special Roads	All	All	All
Policy Development and Monitoring	✓		✓				✓				✓								
Strategic Plans	✓		✓				✓												
Operational Plans			✓	✓	✓					✓						✓			
Road Network Master Plan		✓	✓																
Works Plan		✓	✓	✓	✓					✓						✓			
Asset Management Systems/ Maintenance Plans		✓	✓	✓	✓					✓						✓			
Budget Preparation		✓	✓	✓	✓					✓						✓			
Budget Allocation	✓					✓													
Progress Monitoring		✓	✓	✓	✓					✓				✓		✓			
Surveys and Investigations		✓	✓	✓	✓					✓				✓		✓			
Preparation of Pre-feasibility Studies and DPRs		✓	✓	✓	✓					✓				✓		✓			
Design		✓	✓	✓	✓					✓						✓			
Land Acquisition		✓	✓	✓	✓				✓	✓						✓			
Environmental and Social Impact Management		✓	✓	✓	✓					✓						✓			
Resettlement and Rehabilitation		✓	✓	✓	✓				✓	✓						✓			
Procurement		✓	✓	✓	✓					✓				✓		✓			
Agreements/Contracts		✓	✓	✓	✓					✓				✓		✓	✓		
Construction supervision		✓	✓	✓	✓					✓				✓		✓			
Project Management		✓	✓	✓	✓					✓				✓		✓			
Claims		✓	✓	✓	✓					✓				✓		✓	✓		
Quality Management		✓	✓	✓	✓					✓				✓		✓	✓		
Public Private Partnership		✓	✓														✓		
Receipts		✓	✓														✓		
Accounts		✓	✓	✓	✓	✓				✓						✓	✓		
Disbursement		✓	✓	✓	✓	✓				✓				✓		✓			

Function	MoRT&H	NHAI	OWD	RDD	PRD	Finance	P&C	GA	Revenue	H&UDD	Transport	Home	STA	OBCC	OSRTC	Forest/ Irrigation	Construction Industry	Truck/Bus Operator	Road Users
	Type of Roads																		
	All	NH	NH, SH, MDR & ODR	VR, PMGSY	PRR	All	All		All	UR	All	All	All	Bridges	All	Special Roads	All	All	All
Financial Audit		✓	✓	✓	✓	✓				✓				✓		✓			
Standards	✓		✓														✓		
Specifications	✓	✓	✓	✓	✓					✓				✓		✓	✓		
Designs – Roads and Bridges		✓	✓	✓	✓					✓				✓		✓			
Technical Audit		✓	✓	✓	✓					✓				✓		✓			
Condition Surveys		✓	✓	✓						✓				✓					
Road Safety – Audit, Awareness		✓	✓								✓	✓						✓	✓
Quality Audit – Post construction		✓	✓	✓	✓					✓				✓		✓			
Research and Development		✓	✓																
Asset Records – Development & Maintenance		✓	✓	✓	✓					✓				✓		✓			
Human Resource Management		✓	✓	✓	✓			✓		✓				✓		✓			
Performance Management		✓	✓	✓	✓			✓		✓				✓		✓			
Training and Development		✓	✓	✓	✓			✓		✓				✓		✓			
Administration		✓	✓	✓	✓			✓		✓				✓		✓			
Registration of Contractors		✓	✓														✓		
Rest Houses			✓																
Restaurants		✓	✓																
Hotels		✓	✓																
Advertisement Franchises		✓	✓																
Filling Stations		✓	✓																
Service Stations		✓	✓																
Complaint Handling Services		✓	✓	✓	✓					✓				✓		✓			
Right to Information	✓	✓	✓	✓	✓					✓				✓		✓			
Responses to Central/ State Government	✓	✓	✓	✓	✓		✓			✓				✓		✓			
Road User Surveys			✓								✓								
Toll Management		✓	✓											✓					
ROW Management		✓	✓	✓						✓									

There are few functions, which require to be lead by a single or group of road sector stakeholders. These include:

- Strategic planning of road sector developments and recommending a phased implementation of Core Road Network (CRN) in the State;
- Defining criteria for selection and prioritization of roads for development;
- Strategies for road maintenance, improvement, upgrading, rehabilitation, renewal etc., preferably, using HDM-4 model.
- Identifying transport bottlenecks in the network and recommending road links to be undertaken on a priority basis.
- Classification of roads in the State into different categories and allocating unique identifying numbers for all roads in the network; Defining design standards and service levels for different categories of roads and up-gradation of network roads from one category to a higher category; standardization of designs, specifications, operational manuals, contract conditions and document formats for repeated use; Defining tendering norms and procedures to be adopted for different types of road works and contracting modalities;
- Defining ROW and zone of economic interest of all roads in CRN; creation and upkeep of state-wide inventory of road assets; owning & administering Road Information System (RIS) and administering the road sector web site for GOO;
- Functioning as a single-window agency for Inter-departmental/inter-ministerial coordination and to obtain necessary permits for road development projects including coordination of land acquisition, resettlement & rehabilitation, and shifting of utilities;
- Advising road sector entities(OWD, RDD, PR) on Legal and contractual issues related to tendering, contract conditions, contract disputes etc.;
- Preparing necessary legislation and amendments to operationalize the proposed Odisha State Road Sector Policy 2015;
- Improvements in road safety by periodic road safety audits and participation in Accident Tribunals; Recommending measures to prevent accidents at black spots by improving road geometrics, signages etc.
- Enforcing road discipline through an exclusive highway security force (patrolling) & measures to enforce axle load restrictions including inter-agency coordination;
- Institutional Development (restructuring, training, quality control etc.);
- Security of Road assets is not explicitly delegated to any particular entity but OWD is the notional owner of all roads in the state.
- Function as Custodian of stakeholder interests in road projects undertaken in a PPP framework

Overall, the planning functions are shared between the Department of Works, RDD and PR, whereas the regulatory aspects of road and vehicle usage are shared between Department of Works, Transport, Environment and Forests, Home/Police etc. The need for a single authority to oversee all road sector planning and regulatory functions seems to be acute.

3 SWOT Analysis



SWOT Analysis: It provides a Bird’s Eye View of present status of any Sector. For RSID the aspects of SWOT analysis were firm ed up only after a series of discussions with OWD and other stakeholders.

3.1 Introduction

A review of Strength, Weakness, Opportunities and Threats – (SWOT) for Odisha Road Sector was undertaken. An outline is as follows:

The objective of carrying out a SWOT analysis was based on the following factors:

- 1) If OWD is to act as a business in the way it manages the major road network, then it is important that it reviews its Strengths and Weaknesses so that it can operate efficiently and take action to address any shortcomings.
- 2) The Opportunities and Threats form an important aspect so that OWD can influence the (GOO) in an attempt to reduce possible threats, which can undermine their business and reduce their operational efficiency.

Table 3.1 provides details of the basic approach to a SWOT analysis adopted by RSID consultants.

Table 3-1: SWOT Analysis: the Internal & External Environment

Strengths and Weaknesses	The internal environment – the situation inside the organization	For example, factors relating to costs, performance, quality, people, skills, adaptability, services, reputation, processes, systems, structural aspects, infrastructure, etc.	Factors tend to be in the present
Opportunities and Threats	The external environment – the situation outside the organization	For example, factors relating to sectors, economics, politics, society, culture, technology, environmental, media, law, etc.	Factors tend to be in the future

3.2 SWOT Analysis

The SWOT analysis for road sector in Odisha is as follows:

Strengths

- Well established organisational structure and processes;
- Presence of adequate, experienced, qualified and dedicated staff;
- Established and well documented manuals, work procedures, policies etc.;

- Widespread presence in all districts of the state supporting planning, implementation and monitoring of projects/schemes;
- Presence of experienced Technical expertise;
- Strong Government support due to its welfare functions; and
- Have already initiated adoption of modern tools and technologies.

Weaknesses/Limitations

- Continue to rely on a number of policies, norms and procedures;
- Continued application of conventional tools and techniques;
- Reactive organisational culture;
- Lack of accountability;
- Declining number of motivated staff due to lack of promotions as a result of pending litigations;
- Lack of HRD Policy and Human Resource Management structure;
- Unsatisfactory work environment and inadequate infrastructure coupled with their poor maintenance;
- Excessive job security to its employees;
- Ageing manpower especially in higher cadres;
- Multiple responsibilities as well as authority;
- Staff stagnation and issues in cadre management;
- Lack of scientific Human Resource Management tools and their linkages with performance management;
- Employee data collection and its management;
- Many redundant posts leading to high establishment costs;
- Outdated delegation of powers;
- Limited Project Management skills and no use of project management tools; and
- Limited competency improvement opportunities (no time bound training/HRD for substantial number of employees).

Opportunities

- Adequate need/demand for roads for increasing access in the state providing ample work opportunities;
- Active Government Departments engaged in improving access;
- No competitor in the market (monopoly);
- Easily accessible modern technologies, software etc.;
- Increasing demand for quality roads as well as higher ability to pay tolls (user fees);
- Availability of best management practices/models from similar organisations;
- PPP opportunities to outsource some of the specialised services;
- Improved communication supporting decision making; and
- Forward looking state demonstrated by its policies, acts etc.

Threats/Challenges

- Delays in project implementation due to lengthy process of land acquisition (LA), R&R, environmental clearances, litigation etc.;
- Increasing expectations of its stakeholders;
- Emerging market opportunities for qualified manpower of OWD; and
- Political and Bureaucratic interference in implementation of specific policies, projects etc.

3.3 Insights from SWOT Analysis

The SWOT analysis provided some insights into the above factors, which could influence the institutional, ownership and management aspects of the main road network. The conclusions drawn from the above analysis are as follows:

Institutional

- Limited empowerment of OWD and other road sector organizations
- Limited operational flexibility
- Inadequate funds for maintenance of the main network, resulting into increasing backlogs

Ownership

- Empowerment difficulties to prevent/remove encroachments from ROW
- Difficulties in controlling/prevention of damage to roads from over-loaded vehicles, thus questioning the very ownership of roads and ROW

Management Strengths

- Strong engineering capability

Management Weaknesses

- No performance management systems in place
- Conventional organizational structures
- Shortage of staff to enforce quality of work
- Limited training and development opportunities
- Limited opportunity for career advancement
- No incentives for better performers.

The problems of ownership are all related to the powers of enforcement that can be exercised by the Road Agencies. Roads are a public asset owned wholly by the Government and ownership in practice is with OWD. As a result, even though the OWD is responsible for the management of the roads assigned to them, when it comes to preventing encroachment or misuse, OWD can take any meaningful actions, only with the help of the revenue and police authorities. This process is totally ineffective. The management weaknesses are ones which can, and should be, addressed.

Other issues, such as staffing, staff capabilities, staff performance, management capability and efficient working can be addressed through reorganization, organizational development, training and other interventions. These issues are addressed in subsequent sections.

4 Consultations with Road Sector Stakeholders

4.1 Introduction

The Institutional Development (ID) priorities and strategies of OWD have direct linkages and bearings with different Stakeholders in the State. While working on road ID plans for GOO/OWD, it is imperative to incorporate the opinions of Stakeholders, on plans, policies and strategies.

4.2 Stakeholders in Odisha Road Sector

After careful consideration of the list of Stakeholders provided by GOO {vide Letter No: PMU-(WB)-29/2012/12959 dated 17 April 2012}, the RSID Consultants updated the list and finally identified the Stakeholders for intensive consultations, as provided in **Table 4-1**.

Table 4-1: 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 & Management of Forest Roads
General Administration	Human Resources, Policies
Commerce and Transport	Licensing, Regulation of Overloading, Vehicle Testing & Maintenance
Works	Planning, Construction and Maintenance of major road network, owner of roads
Industries	Roads- Industrial
Urban Development	Management of municipal roads
Rural Development	Village roads
Panchayat Raj Department	<i>Gram Panchayat and Panchayat Samiti Roads</i>
Department of Steel and Mines	Planning of Mining Corridor
Tourism Department	Road Connectivity for Tourism Development, (Development Plans, Buddhist Corridor)
Revenue, land records	Land Acquisition
Education Department	Road safety in school curriculum
Transporters/Trucker's and Passenger Buses Representatives	Road safety, Axle load regulation, road network master plan
Road Users, Public	Road Sector Policy, Road Safety, Road Network Planning
Water Resources Department	Construction and Management of Irrigation Roads
Railways	Future Development Plans
Ports and Shipping	Future Development Plans
Home/Traffic Police	Data on Road Accidents & Traffic Management

Source: Letter No: PMU-(WB)-29/2012/12959, dt. 17.04.12 of OWD and subsequent discussions

4.3 Planning of Workshops

As a part of RSID Project, which has focused on strengthening of road network management in Odisha by bringing in institutional reforms, 'Stakeholders' Workshops were organized.

Prior to conducting each workshop, it was put across to the stakeholders that each department related to road sector works to achieve its own priorities derived from Central and State Plans and is carrying out the development to varying standards. However, funds to develop and maintain road network is limited, and this resulted in significant backlog in maintenance and development of the road network.

In addition, there are many development initiatives taken up by varying departments like Industries, Mines, Tourism and others, which will all have an impact on the transport of goods and passengers in the next decade or so. While significant funds are required to develop the road network to meet the future development needs, funds are also required to provide connectivity to remaining 40% of the villages, which at present are not well connected to the mainstream development activities. The major issues/challenges faced by the road network/ road agencies in Odisha are:

- Under-developed road network
- Village Connectivity
- Poor condition
- Congestion
- Road Accidents
- Overloading
- Future development needs
- Funding
- Improved expectations of people
- Greater requirement of transparency
- Capacity of existing human resources in road agencies
- Capacity of the local construction industry

The above issues can't be addressed through an ad-hoc approach. They require a coordinated and comprehensive approach based on coherent policies, strategies, funding arrangements, priorities, programmes and projects.

4.4 Objectives of Workshops

Focus of each workshop was on sharing of ideas and thoughts on the proposed Road Sector Strengthening and Capacity Building for Odisha together with Main Roads Funding Options and Possible Road Funding. In each workshop, participants were expected to provide their opinions/concerns on their expectations in road safety management in the State, issues, concerns and possible interventions.

The Workshops were aimed at achieving the following outcomes:

- Sensitize the stakeholder departments on the emerging challenges in the transport sector and issues affecting the road network
- Deliberate with the stakeholder departments, NGOs and industry regarding the aims and objectives of the road policy, road reforms, road safety management & funding requirements to maintain a network in desirable condition
- Receive valuable inputs which will further contribute to the development of coherent policies strategies to develop a safe and sustainable road network matching public expectations

4.5 Outline on Discussion with Stakeholders

Although no formal questionnaires were circulated to the stakeholders, a number of formal presentations were made to sensitize the participants with regard to the following main topics of the project:

1. Road Sector Policy and Strategy
 - What are the parameters **for bringing about change in road sector of Odisha**, both now and in the future
2. Training and Human Resource Development
 - What are critical training areas, which have become important for road sector?
3. Reorganization and Restructuring
 - What are the functions that different road sector organizations will need to undertake in future and what should be the “timing” of inclusion of these future functions?
4. Road Safety and Planning
 - What are the current and expected impediments, which makes road travel unsafe and how could they be overcome?
5. Road Network Master Planning
 - What do you consider as the priority attributes for an ideal road network for Orissa in terms of adequacy, surface quality, and town/village connectivity
6. Future Funding for Road Infrastructure
 - How can we enhance funding for Roads? (For example, surcharge on fuel, introduction of Tolls, additional taxation or private funding etc.)
7. Road Toll Collection and management
 - Ways to improve toll collection and its effective use for the benefit of road users?
8. Vehicle Axle Load Regulation and management
 - How can occurrences of vehicle overloading be managed to reduce/eliminate road damage?
9. Revision of Works Code and manual
 - What are the major areas needing changes in the current Works Code?
10. Future Features and Activities for Road sector organizations
 - How Orissa road network should evolve for future generations?
 - What roles should be played by existing road sector entities?
 - Need for new entities/functional addition to existing entities

The subject wise discussions during stakeholder workshops is presented in **Table 4-2**.

Table 4-2 Stakeholders Feedback

Topic	Respondent Type	Feedback
1. Road Sector Policy and Strategy	NGO (PASO)	<ul style="list-style-type: none"> • One Organization should be responsible for road development and safety and accountable for this entire task. • There should be a cell or a head in a particular department who will take responsibility for Development of Roads & Road Safety. • The facilities like ambulance etc. are few. • Reduce death rate in Odisha for road accidents.
	NGO FPRA	<ul style="list-style-type: none"> • Transport & Police department should be involved in forming policy for prevention of road accidents. • Need to note the aspiration of common people.
	GOO	<ul style="list-style-type: none"> • Multiplicity of organizations weakens performance of road sector, but

Topic	Respondent Type	Feedback
		<p>once roles/responsible are well defined , it might not be a constraint</p> <ul style="list-style-type: none"> Objectives & indicators are more or less co-terminus.
	NGO	<ul style="list-style-type: none"> It was stated that there is a general lack of good vehicle operators. Therefore, employing trained, organized vehicle operators has become important.
	GOO	<ul style="list-style-type: none"> Take some steps for augmentation of capacity of the contractors. Development of big construction houses for handling big projects is required.
	GOO	<ul style="list-style-type: none"> As most of roads are being developed as per PMGSY standard, we are not able to upgrade MDR/SH. Works department may be declared as nodal agency for development of road network.
	GOO	<ul style="list-style-type: none"> Traffic consists of 2 aspects, namely, 1) roads, & 2) road users and if either lacks behind, system it fails. During construction of roads both OWD and Police should look after the safety of the road users. Care should be taken in designing Turning points, Blind Curves, Junction of two roads, diversion of two roads etc. for construction of good roads. Provide better transport facility to the road users this will definitely lead us toward a better nation.
	LASA	<ul style="list-style-type: none"> Poor Design will not keep the roads safe. He focused on importance of design. He emphasized that roads should be structurally sound. Overlay designed, Overlay constructed roads are simply not maintainable.
	LASA	<ul style="list-style-type: none"> IT Based Asset management should be established for long term development. At present, OWD is developing Asset management, but RD & Panchayat should also adopt similar systems.
	GOO	<ul style="list-style-type: none"> OWD Roads, RD & Panchayat Roads which are priority roads for development should have defined ownership also. Roads of RD Department – identify the roads, which need to be strengthened. Combine resources of different department for the use for development. In PWD codes there are rules & regulations which will be followed by Finance, Rural & Panchayat Samiti Departments. There are some general rules in the policy which will be followed by the road users, road implementing authorities for their use.
	GOO	<ul style="list-style-type: none"> Private investment on roads corridor should be made free from all encumbrances. There are some issues under district administration which need attention. There is a strong need for institutional mechanism, for the pre-construction activities & it should be the mission for the junior officers i.e. at the district level and even at tehsil level also.
	GOO	<ul style="list-style-type: none"> Bus routes play important role as far as the transport is concerned. Bus routes should be mapped & plotted under one control preferably under the control of works department.
	GOO	<ul style="list-style-type: none"> Structural shift towards urban area is bound to take place.

Topic	Respondent Type	Feedback
		<ul style="list-style-type: none"> • City Congestion in cities-Odisha is also rising. • Urban Population will be 50% by 2050. • Let us have a policy to include all above aspects.
	The World Bank	<ul style="list-style-type: none"> • Liaison is very important issue. It was pressed on finding a mechanism for management/ownership of junctions by one of the agencies.
	RSID	<ul style="list-style-type: none"> • The need for Road Safety, which is again a policy issue has been included in the road policy document. • The other issue was skill up gradation. The emphasis of skill up gradation has been described in the road policy and HRD Policy document.
2. Road Safety and Planning	NGO (PASO)	<ul style="list-style-type: none"> • The footpaths all over the city area are restricted to 6ft only. We need this to be 8-10 .In developed countries the authorities ensure that they are not encroached by the vendors& Hawkers. • Putting on some closed circuit cameras are required to check traffic violations. • There is no proper road marking .The marking must be in English and Odiya. There should be some visuals in local languages. • Politicians should be involved to avoid illegal construction on the road side. • Lack of parking areas near NHs side. In USA and Australia if you want to park there are always provisions of parking areas. If you want to eat something and take rest hotels are provided. Area for the road vehicle should be provided and drivers shouldn't park the vehicle on National Highway. • Consistently insisting Road Safety education in schools should be introduced. Make sure Road Safety should be part like NCC training mode. • While buying TV and Radio a manual is given but while buying a car a manual is not given to know how to drive car. While buying a car or a scooter road safety manual should be provided.
	NGO FPRA	<ul style="list-style-type: none"> • Motor vehicle Act does not empower the common police officer who will enforce and compound the offence. • As per the motor vehicle act maximum amount should be collected from the violator. • Trauma care facility is not good. Generally those admitted for motor vehicle accidents are treated as a common patient. Special attention should be given. • NGOs efforts have not been utilized properly. Although there are lot of funds in Odisha for road safety society, even 1% of those funds from violation are not utilized for protection. • There is a need of political will. Unfortunately in the budget there is no such provision for any road safety activity in our state. Other states like Tamil Nadu and Kerala obviously are much developed.
	GOO	<ul style="list-style-type: none"> • He stated that harmonization is necessary to attain the goal. But how to harmonize the working of various departments is an issue.
	The World Bank	<ul style="list-style-type: none"> • He insisted on establishing a coordination mechanism among various departments. • He suggested that harmonization is important & mentioned that steps should be taken. Ensure uniform standard throughout & quality across the

Topic	Respondent Type	Feedback
		<p>board is maintained same.</p> <ul style="list-style-type: none"> • OWD to become the nodal department for all roads. • Road Safety Authority would be enacted through legislative act passed in legislative assembly. • He mentioned that some States have raised the level of Road Safety Council. • Road Safety Authority will have to fund either through Road Safety Fund or budget allocated.
	LASA	<ul style="list-style-type: none"> • Working Road Safety activities of NGOs are not properly viewed. Let's have a common forum for taking action regarding this matter • Road Safety does not require much fund just requires contractor responsibility and enforcement.
3. Future Funding for Road Infrastructure	GOO	<ul style="list-style-type: none"> • Road Fund should be headed by the chief secy. But for CRF Works Secy. should be the convener. If Chief Minister is the chairman Works Secy. should be the convener.
	GOO	<ul style="list-style-type: none"> • The Secretary stated that there should be sustainable funding system. The State has to find out the finances for both capital as well as maintenance
	The World Bank	<ul style="list-style-type: none"> • Where Road Fund is going to be housed? Is it going to be under the works department or is it going to be state fund. This decision depends upon what are the other requirements. What is your priority in terms of safety or maintenance? OWD needs to have some kind of allocation criteria in that regard as well.
	NGO (PASO)	<ul style="list-style-type: none"> • By looking at funds from various sources when we have road accidents or Violation of traffics we should consider fines. It may not be much but it can't be diverted towards development of the roads but can be used for road safety awareness & education.
	GOO	<ul style="list-style-type: none"> • Higher authorities should discourage the hoarding on side road on highway which diverts the attention of the driver and causes accident. • Funds for good road construction and maintenance should be explored in every possible manner.
	NGO FPRA	<ul style="list-style-type: none"> • Public is paying tax for using petrol and diesel. In the policy document this should be reflected and it should be made transparent. • Formation of educating committee. Organizations like NGOs who are working in the field of Road Safety, common people from that NGOs should be the members and represent the committee. Representing Trade Union association, truck or bus owner association is not adequate.
	The World Bank	<ul style="list-style-type: none"> • If we get consolidated budgetary support, then there should be a push towards spending that for capital investment. In spite of effective institution managing those funds for capital investment the Institutions struggle for maintaining those assets which have been created. We should try to secure some funding for maintenance fund. Second aspect is that road fund also should provide check on how efficiently money is used.

5 Key Road Sector Challenges & Institutional Implications

The State is projected to have a number of developments in coming years, which shall require more roads for improved transport infrastructure and safe and comfortable travel. These include:

- Growth of urban population to about 18.5% from the present 16.7% causing greater movement and transport demand of people/freight both intra-city and inter-city.
- Agricultural growth rate of about 2 to 2.5% per annum leading to additional transport demand for marketing, agro-industries and movement of produce;
- Industrial growth rate of 7 to 9% per annum (present rate of 5.6 -6.0%) leading to extra freight movement, requiring additional major roads with enhanced capacity.
- Increasing sea bound trade from existing and upcoming ports requiring improved road transport infrastructure connectivity.
- Development of social infrastructure for improved education, health, shelter and access to safe drinking water, which in turn shall require improved road infrastructure and connectivity

To cater to the increasing demand for efficient travel on its major road network and to bring the rural population to the economic mainstream, the State would require the following:

- Up-gradation of all its SHs and at least 40% of MDRs to have two lane with paved shoulder standards by 2021;
- Railway over bridges to replace all at grade level crossings on SHs and MDR network;
- Provision of roads (minimum two lane standards) with adequate capacity to major centers of tourism, industry and mines; and
- All weather road connectivity to all habitations irrespective of the population.

This indicates that careful planning, coordination and judicious prioritization of investments is required to address the existing issues and to meet the future challenges in the road sector.

For improving the capacity of the major road network alone, the State of Odisha requires to invest approximately Rs. 24,000 Crores over the course of next 5 years⁶. Hence, the budgetary allocation for the road sector has to be stepped up in a progressive manner by increasing the yearly allocation from the present level, by +35% per year for the next 5 years.

As the capacities of existing road sector organizations and the contracting industry is limited, there is a compelling need to create additional capacities in the public as well as private sector organizations. Likewise, there are a number of challenges, already posed or being posed by emerging developments. With growth, various challenges likely to be faced by road sector are described below:

5.1 Vision Requirements

The vision of GOO for the road sector (as per the proposed draft Road Sector Policy) states – “To provide and maintain a quality road network which is safe, sustainable and adequate for efficient transportation of goods and people meeting the socio-economic development needs of the State”. Similarly, the Road Sector Vision 2021 of GOI envisages:

⁶ Completion Report on Road Network Master Plan 2015-35, Submitted by RSID Consultants to OWD, GOO

- Up-gradation of all SHs and at least 40% of MDRs to two lane with paved shoulder standards by 2021;
- Provision of two lane roads with adequate capacity to all major centers of tourism, industry and mines; and
- All weather road connectivity to all habitations irrespective of the population.

To support GOO development targets with a sustainable and quality road network requires a progressive increase in budgetary allocation by 30% per year in the next 5 years.

Institutional Implications: The Institutional implications of the vision development are funding for capital works entailing increased needs for PPP, development of plans for future road network, improved capacities of road sector organizations as well as contractors, speedy land acquisition and project environmental clearances etc.

5.2 Planning & Policy

GOO does not have a Road Policy yet; however, the draft Road Sector Policy is under consideration of GOO for its final approval and enactment. The road sector also lacks a Road Network Master Plan and hence lacks a scientific and need-based approach to develop annual and multi-year road development plans. The parameters such as congestion, road accidents, vehicle operating costs, travel time and other socio-economic benefits are not being strictly followed in the planning process of the development of the road network in Odisha.

The conventional activities of OWD and other road sector organizations (to some extent RD and PR) are presently confined to design, construction and maintenance of roads & CD/ bridge structures. There are no use of Project Management Tools like PRIMAVERA/MS Project software packages (due to lack of capacity building of Engineers and/or lack of Quality Management Practices) to monitor resource allocation, time and cost overrun. Control over its expenditure activities has been usurped by traditional planning processes and other government departments (Finance, Planning and Coordination) by their control on budget and planning. This process needs to take cognizance of the following:

- Roads being part of an integral road/transport network
- There are specific costs involved for various activities under routine and periodic maintenance (These departments follow “standard” norms)
- Scientific investment planning criteria are based on sound economic, social and environmental investment criteria/development potential.
- Integration of needs of road users through public (road user) consultation

Institutional implications are development of policy and planning units within road sector organizations (preferably one central unit for better coordination and development of sustainable expertise) with expertise in traffic/transportation planning, traffic engineering, transport economics, budgeting etc.

5.3 Road Network Development

With multiple authorities engaged in administration and development of roads in the state, achieving an optimal road network (length, hierarchy, standards etc.) is a serious challenge. Coordinated development by these organizations is a necessity for establishment of a road network, which reduces transport barriers and eases traffic. Secondly, the lengthy approval processes and

associated clearances (social and environmental) also slow down the pace of network development. As per RNMP, a robust network needs to be developed by GOO very soon to meet its socio-economic development agenda.

Institutional implications are requirement for improved capacity of road organizations and contractors, computerized design systems, scientific construction/project management, funds for the road projects, improved procurement systems and processes, delegation of more powers to middle level officials etc. Besides, there has to be emphasis on setting standards and quality criteria even for roads providing connectivity.

5.4 Road Maintenance

For maintenance budgeting, GOI has laid various norms, which provides minimum expenditure requirements for maintenance. However, this does not address scientific aspects of road deterioration. The present method of allocation of funds for routine and periodic maintenance does not yield best value for money. The road agencies in Odisha follows an ad-hoc approach towards road maintenance; no road condition data are collected to ascertain the actual needs for routine and periodic maintenance, and this results in arbitrary allocation of scarce resources. Although, OWD is in the process of setting a Road Asset Management System, the sustainability of the Asset Management System (high data collection needs) and road funds for maintenance could continue to pose significant challenges.

Institutional implications are requirement of sustainable data collection mechanism and State-of-the-Art Road Asset Management System, which could assess road deterioration based on actual data, and provide annual and multi-year maintenance plans and corresponding budgetary requirements. No doubt, with increase in road length, increasing fund requirements for maintenance could be a serious challenge to GOO.

5.5 Axle Load Regulation

The vehicle axle load is important from three considerations;

- Pavement design;
- Road deterioration; and
- Maintenance requirements/budget.

The overloading of vehicles has a compounding effect on road deterioration and maintenance requirements. With same axle load, the deterioration is more prominent on rural/village roads than on ODR and MDR. With more than 90% commercial goods vehicles plying overloaded⁷, their regulation poses a serious challenge to the road administrators. The situation is more critical in mining corridors and roads connecting the ports. Establishment of static weigh-bridges and/or Weigh-in Motion units as appropriate and stricter compliance (fines and impounding of excess weight) should work as a deterrent for overloading on Odisha roads. However, needful legal provisions as well as “enforcement” mechanism remains an issue, open to GOO for consideration.

Institutional implications: Requirement of stricter legal provisions, supporting staff and machinery for enforcement of MV act, use of latest technology and policies to encourage use of multi-axle vehicles. It noted that many provisions of MV act (axle loading, speed, vehicle configurations)

⁷ Primary Survey Results, Report on Vehicle Axle load Regulation and Management Vol. I, Submitted by RSID Consultants to OWD, GOO; Dec. 2013

impinge upon design, planning and operation of road network and there is no coordination/feedback mechanism between Department of Transport and organizations engaged in road network design, construction and maintenance. This needs to be addressed under institutional development by review of existing axle load control policy & enactment of a suitable, realistic, sustainable axle load control policy and strategy by transport department by involving co-ordination efforts/inputs from road sector institutions of Odisha

5.6 Road Accidents and Safety

There is a severe competition for road space, with road facilities accommodating a number of legal and illegal users besides their use for parking of vehicles. A high percentage of road users ignore the provisions of Motor Vehicle Act 1988 and its supporting regulations. This along with issues in road alignment and design, signage and human errors are major cause of road accidents. Further, the state lacks the following for improved management of road safety:

- The effective implementation of Odisha Road Safety Policy-2015 by Stakeholder departments including Road Sector Agencies/ Institutions;
- An inter-departmental coordinating body for improved road safety management;
- A reliable and useful road accident database: The present system and records of road accidents provide very little valuable information for developing any effective counter measures. Proper records could assist in developing targeted road safety programs on regions, drivers, practices etc.;
- Sustainable funding for implementing road safety interventions to reduce accidents;
- An efficient driver licensing and vehicle safety inspection system;
- Proper enforcement of traffic laws and regulations; and
- Road safety awareness campaigns.
- Design of Road Safety Engineering aspects/Road safety Audit or assessments

Institutional implication of the above challenges include improved coordination amongst road sector agencies and Departments of Transport, Health, Education (awareness) etc., which can be achieved through effective actions of State Road Safety Council; Coordinated development of improved accident database system and its access; Necessary system and manpower for improved driver licensing systems, dedicated/earmarked funding for road safety and improved enforcement of provisions of MV Act, enhanced accessories, road safety assessment and engineering interventions as deemed fit ,etc. The Resolution of Odisha Road Safety Policy -2015, (notified in February 2015), need to be revisited by all Stakeholder Departments of Odisha to carry out actions earmarked for them , as mentioned therein in order to pave way for better co-ordination of data sharing and its continual improvements and sustainability .

5.7 Village Accessibility

The proposed road sector policy requires GOO to provide all weather sustainable connectivity to all habitations by 2021. With about 1965 habitations (out of about 51,856 as per RNMP report) having no connectivity⁸, the planning, construction and maintenance of all-weather roads poses a serious challenge to GOO.

⁸ Completion Report on Road Network Master Plan 2015-2035, Submitted by RSID Consultants to OWD, GOO; July 2014, page 5-17 of Volume I.

The **institutional implications** of providing all weather connectivity/accessibility are improved capacity (engineering staff) of Rural Department and Panchayat Raj Department, planning of roads (standard designs can be used), quality control during construction, capacity of contractors, maintenance etc. and more importantly plan/capital budget for construction and then for sustainable and adequate funding for road maintenance.

5.8 Human Resources

Most of the road agencies are engaged in planning, design, construction (more by contracting) and maintenance of specified types of roads. However, the number of staff has not kept pace with increase in road length. Based on available man-power strength and average length of roads constructed and managed during last 5 years, on an average, one OWD engineer is maintaining 11 km of road length and constructing about 0.3 km of road. Similarly, an RDD engineer is maintaining about 30 km road length and constructing about 2 km road⁹. Whereas, an PR engineer is maintaining about 90 km road length and constructing about 2 km road per year besides undertaking various other works¹⁰. However, comparative moderation is needed due to variations in use of contractors, road widths as well as high quality expectations (specially from OWD roads) besides multi-faceted works with PR engineers. With **changes suggested in RNMP**, discussions within OWD indicate need of additional engineering and associated staff as well as their competency improvements. These staff shall also be needed for managing new/emerging needs such as asset management, IT, PPP, M&E etc.

Institutional Implications are right placement and capacity building (including multi-skilling) of available human resources, which may require accelerated recruitment/deputation and training.

5.9 Training

There is no system of orientation being adopted for newly recruited engineers/staff in the road sector agencies except passing Departmental and Professional Examination within initial probation period of two years. Further, the concept of developing the competencies of staff to meet projected needs is also alien to these road sector agencies. Discussions with road sector agency staff indicate that human resource development and training are not an area of (major) concern to higher officials, as staff development is not an issue in the current system of performance appraisal using routine confidential reports.

With increasing development of computer software for design, computerization, e-procurement, growing use of management information and decision support systems, etc., there is a strong need for coordinated efforts in training needs assessment, training design, scheduling, training management, trainings, evaluation and appropriate funding. This shall no doubt require adoption of a HRD policy.

Institutional implications: Requirement of wide ranging HRD policy development, establishment of appropriate HRD unit/cell in road sector organizations, improved training management, identification/development of training facilities/providers specific to various trainings, quality of training etc. besides adequate and dedicated funding provisions.

⁹ Calculated and averaged based on last 5 years data of engineering staff and works undertaken

¹⁰ Calculated and averages based on last 5 years data of engineering staff and works undertaken

5.10 Road Sector Financing

It is learnt that investment on plan (road) projects is decided through a political process and priorities may not match the rational socio-economic and traffic needs as well as economic returns. It leads to misallocation of scarce resources and does not improve the road network in an efficient manner. This emanates from the non-presence (not well defined) of a transparent project selection process and non-presence of sound project evaluation practices/mechanism. The project selection process can always provide sound reasons for a pre-defined (transparent) allocation to tribal/backward areas, in line with social objectives of the GOO. Similarly, for non-plan investment programming (mainly maintenance budgeting), road sector organizations does not assess its routine and periodic maintenance requirements on scientific basis and thus budget allocation is more or less normative.

Under fund limitations, maintenance budget and associated activities are the first to be shelved. Through RSID Consultancy Services, GOO has developed a Road Network Master Plan (RNMP) to support scientific investment planning of capital works. Further, GOO is in the process of finalizing for adoption of an Asset Management System (AMS) to undertake condition surveys and then carry out planning, budget allocation and road maintenance management based on scientifically determined maintenance needs.

The implementation of master plan requires significant funds over the course of next 10 years, and this may impinge upon the funding for road maintenance. Therefore, need has been felt for developing mechanisms to have dedicated road maintenance funds for sustainable maintenance of the road network.

Institutional implications of above is capacity and capability improvement of road sector organizations, encouragement to PPP in road sector to leverage available funds, earmarking of funds for maintenance activities and increasing the adoption of user-pay principle and development of efficient road user charge collection mechanism. These may require increased outsourcing of services and enhanced use of contractors.

5.11 Land Acquisition and ROW Management

The land acquisition has been observed to be a major hindrance in project implementation in Odisha Road Sector. At present, it is a time consuming process and involves Department of Revenue besides the road agency. Although, GOO has a very sound R&R policy, but is still deficient in powers as compared to provisions under NH act. With amendments, it is now admissible under law for NHAI to take the possession of land after offering compensation as per their norms. The disputes can be resolved in a court of law, without stopping the progress of the work.

Similarly, encroachments on Right of Way (ROW) affect future developments. The way outs may include proper asset records with satellite and aerial photographs, periodic verification and removal of encroachments and non-cognizance to political machinery, supporting such encroachments on social, religious and similar grounds.

Institutional implications are improvements in LA Act through amendments, cooperation of Department of Revenue in quick settlement, development of inventory of roads with ROW, enactment of Highway Management Act with powers of removal of encroachments to Executive Engineers of road agencies etc. besides provision of additional human resources.

5.12 Environment & Social

The changes in policies, acts and guidelines to protect environment and social impacts due to infrastructure/road development poses a serious challenge to road development. It is imperative to develop road plans to minimize negative environmental impacts of road construction and maintenance reduce traffic through areas of natural heritage, involve least tree cutting, reduce vehicle emissions by reducing traffic congestion etc. Consideration of all these and then having clearances from designated bodies require considerable time. This needs to be either planned well in advance or accelerated for improved road development

Institutional implications are requirement of environmental and social professionals within road sector organizations to undertake required environmental and social assessments, develop appropriate plans, pursue clearances as required and then monitor their implementation. This shall also impact fund requirements for management of environmental and social issues.

5.13 Contracts & Administration

With limited capacities of road sector organization to undertake capital as well as maintenance works, there is increasing need to outsource these activities. The increasing requirement of road network development makes it more compelling to contract out major road sector services. These organizations have initiated to outsource both engineering (survey and investigations, design, construction supervision and quality management) as well as non-engineering (vehicles, data entry operators, gardening etc.) services. In nutshell, the trend is on contracting out various road sector services both from economic as well as management considerations. The contracting out of works, goods and services requires registration and categorization of Consultants and Contractors based on their capacities, procurement of works, goods and services, which involves bid preparation; tendering, negotiations and contracting; processing of claims and disbursements besides monitoring.

The **institutional implication** of increasing capability to meet the needs for higher capacities of these organizations is to contract out and monitor various road sector functions besides the availability and participation of competent contractors.

5.14 Monitoring & Evaluation

Road sector programs shall have to be progressively monitored to assess their progress as well as efficacy in meeting the envisaged objective/targets and expectations of GOO as well as road users. The progress monitoring may include physical and financial progress, whereas monitoring of efficacy and expectations of road users shall require well planned and effective data collection and analysis using suitable techniques. The attributes to be monitored may include road condition, road comfort, volume capacity ratios, reduction in vehicle operating costs, satisfaction derived against payment of toll charges (on toll roads) etc. The results of analysis should be suitably inferred to assess the performance based contracts, maintenance fund requirements etc.

Institutional implication of this challenge is emphasis on monitoring and evaluation is to have a system and structure of M&E (M&E unit) with capable staff in the road sector organizations.

5.15 Road User/Public Expectations

The current expectation of road users (including main and vulnerable), public (truck/bus operator association, public) from major roads is that they should be well maintained and congestion free, whereas for rural roads, they expect them to provide all-weather connectivity with widths

permitting moderate speeds and condition providing good comfort. The road users have started to seek a much larger voice in prioritization of road networks and transparency in process of fund allocation for road development. They are seeking to ensure that the allocations of fund are equitable and there is greater accountability in expenditure of funds. The present institutions with fragmented nature of management of road network and centralized planning (without much scientific basis) and programming processes do not enable and encourage stakeholder consultations. Integration of their changing expectations is a major challenge.

Institutional implication is to develop mechanisms of public consultations on critical road user issues (ex. road network planning, maintenance planning etc.) and to integrate the feedback/views. Besides, the results of road user surveys to assess satisfaction from current status of roads etc. could be a useful input to asset management/road maintenance function.

A summary of institutional implications of key road sector challenges is presented in **Table 5-1**.

5.16 Concluding Observations

In India, road development and management commenced over 100 years ago. During the evolution process, most of the present day systems and procedures were developed and improved. The current maturity of road sector organizations across the Country, is reflected in their functions, powers, access to resource, outputs and operations. There is close monitoring for desired empowerment and legislation. New laws and legislation are framed as demand arises. For example, with establishment of Road Fund at the Central level, necessary authorization and empowerment was accorded to the road agencies. Similarly with enactment of Right to Information (RTI), public accountability was well established. Similarly, Motor Vehicle Act has undergone several updates as and when the need was noticed. No doubt, these changes in acts, policies, rules and structures required little more time than the desired. In nutshell, these responses had been positive, though reactive rather than pro-active, but have satisfactorily responded to ensure sustainability of road capacity.

Overall, as requirements of improved transportation and roads grow up, they are likely to be responded (reactive manner) with desired improvements in the institutional empowerment and capacity enhancement. What is really needed is foreseeing them and to be pro-active in undertaking desired institutional improvements.

Table 5-1: Institutional Implications of Key Road Sector Challenges

Sector Challenge	Institutional Issues - needing redressal	Possible Options	Possible Lead/ Associate	Reasons for Leading	Possible Associates	Required Actions
Policy	Uniform, Strategic Policy Directives	Development of State Road policy	OWD	Experience, owner of major roads	Transport, Road Users, Finance, Legal,	Odisha Road Sector Policy (prepared by RSID consultants) has been endorsed by State level Empowered Committee (SLEC). Comments have been solicited from various concerned GOO departments. After integration, State Road Policy shall be put up to GOO for approval.
Planning	Absence of long term road development plans, lack of scientific investment planning	Centralized Policy and Planning Unit	OWD	Owner of roads carrying major traffic, Possesses Transportation modelling expertise	RDD, Finance, PR, P&C, Road users	Master Planning and its sustained update, capacity building of planning unit, wide spread traffic surveys and data analysis
Road Construction	Increasing work-loads, limited staff, Contractor capacities, Outsourcing of services, Delegation of powers	Staff recruitment, competency needs	All road sector organizations		Revenue to support LA	Improvement in decision making processes and systems for planning, procurement and delivery of road projects; HR Planning, Addressing LA issues, Contractor capacity Development, Project and Contract Management, Staff training
Rural Connectivity	Improved capacity of PR, better standards to lower maintenance, funding	Capacity Enhancement, setting and maintenance of standards	PR	Lead Agency	OWD to guide standards	Training, Setting standards, improved Road database, monitoring
Road Safety	Accident database, coordination amongst stakeholders, funding for road safety	Coordinating Body like Odisha State Road Safety Council with dedicated state funding for road	Executive Board lead by Secretary, Transport		OWD, Home, Health Education, Truck/Bus operators	Road Safety Policy has been notified by GOO in Feb 2015. . Rejuvenation of Existing Road Safety Council has taken place

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Sector Challenge	Institutional Issues - needing redressal	Possible Options	Possible Lead/ Associate	Reasons for Leading	Possible Associates	Required Actions
		safety				and its first meeting has taken place recently. Creation of budget head for road safety is underway
Road Maintenance	Road condition data, Scientific RMMS/AMS	Long term performance based contracts, Computerized road condition database	Respective road sector agencies, mainly OWD		Road users (surveys)	Hardware, software, monitoring, Training, IT wing in the Department, Condition Surveys, Dedicated funding for road maintenance
Capital Budget Funding for Major roads	Funding for capital works and their management	Encouragement to PPP, Separate autonomous entity to promote PPP, External Aid	OWD			Identification of viable (limited to nil Viability Gap Funding) roads for PPP
Capital Budget Funding for "connecting" roads	Plans, Transparent Prioritization criteria	Central and External Aid	OWD and RDD			Availability of Network Master Planning with prioritization for budget
Funding for "maintenance"	Assessment of maintenance funds	Earmarked Funding, Road user charges and its use for maintenance (Road Fund)	All road sector organizations			Asset Management System in place, guidelines for maintenance of roads providing "connectivity", dedicated/earmarked funds for road maintenance, road fund
Contract Administration	Increasing emphasis on outsourcing of works , goods and services, contracting expertise		All road sector organizations for their respective roads			Capacity Building in contract administration and negotiation skills, Standardization of SBDs, Procurement Manual
Human Resources	HR Planning, recruitment of engineering and associated staff,		All road sector organizations			Recruitment, Capacity Building, Multi-skilling, Outsourcing of services
Staff Training	Sound directives, Scientific training Management System	Development of HRD cell and its scientific approach to training, training budget	All road sector organizations for their		OWD Could initiate a Training academy for engineers,	HRD Policy has been approved & the resolution has been notified by OWD/GOO. Establishment of

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Sector Challenge	Institutional Issues - needing redressal	Possible Options	Possible Lead/ Associate	Reasons for Leading	Possible Associates	Required Actions
			respective roads		wherein staff of contractors can also be trained,	HRD & Training Unit is under process by OWD. Similar Policy and Cells/units within each road organizations need to be functional. Twinning with Training Institute/Training Academy for engineering Staff by OWD
Contractor Capacities	Capacity Building, Liaison with Financial Institutions	Budget provision under tenders	OWD			Training by OWD, Twinning arrangements/Training Academy
Social and Environmental	Inclusion of Environmental and social aspects in project development,	Recruitment of Competent Staff	All road sector organizations		OWD takes lead, as manager of major road projects,	Development of Environmental and Social units within road organizations
M&E			All road sector organizations			Setting Key Result Areas and M&E indicators, system of data collection and analysis, Independent Cell/Unit under Planning
Road Users and Public Consultation	Public consultation, feedback from public		All road sector organizations			Development of a consultation mechanism especially for integration of views of stakeholders in planning, system development for assessment of satisfaction of road users

6 Evolution of Road Sector Institutions

For effective road sector management in future, the institutional challenges identified in previous chapter would have to be addressed through institutional arrangements. The possible improvement options include:

- Assigning specific functional responsibility to one or more stakeholders, which may require development/creation of new “functional units” within existing institutions/entities;
- Redefining the mandate of existing institutions;
- Modifying/shifting of some of the responsibilities from one entity to another;
- Changing the “Management Control” (quasi-government, Corporation, Agency etc.) of an institution for improved functioning; and
- Evolving new institutions/entities to undertake some of the functions/responsibilities.

However, before a decision is taken to select/choose a specific option for a specific institutional issue arising from the emerging challenges, it would be appropriate to review and consider the evolution of road sector organizations.

Evolution of Road Sector Institutions

Road administrations have generally been evolved over a period and the established systems world over have identified five stages for this evolutionary process:

- Stage 1: Traditional construction and maintenance (works) organization
- Stage 2: Identification of client and supplier functions
- Stage 3: Separation of client and supplier functions
- Stage 4: Corporatization of the supplier organization
- Stage 5: Corporatization of the client organization

The evolutionary process identifies and focuses on the following two key requirements:

- Increase the specificity of an organization; and
- Subject the organization to competition.

Specificity

Specificity is the ability of an organization to identify and focus on its core business, without concentrating on the unproductive tasks. The several measures for increasing specificity include:

- **Objectives:** when well-defined, these measures focus on increasing efficiency and meeting road users demand; they should be set in terms of output, and defined with as much precision as possible;
- **Time periods:** for meeting the objectives can also be defined closely; longer time period usually imply lower specificity, and a greater likelihood that an activity will be affected by the vagaries of human behavior or political interferences;
- **Procedures:** for achieving objectives can affect specificity; vaguely defined methods, for which there are only general standards, imply that it will be difficult to measure performance and efficiency; and
- **Control:** of achievement requires the collection of data so that accomplishment can be verified, and is a result of the ability to specify objectives and methods; controlling achievement is easier with higher specificity activities.

- Identification of core issues of road sector requires the recognition of road user groups, and an understanding that the principal aim is to meet their requirements. This will enable the main objectives to be set, and management structures and procedures to be put in place that are designed to achieve these objectives. There is also a need to introduce sound management practices and to encourage managerial accountability.

Competition

Competitive pressure is also a mechanism for increasing effectiveness and efficiency, since it provides user with choices about how their needs are met, and compels providers to become more efficient and accountable. Competition can be:

- **External:** such as between private contractors in a competitive tender situation;
- **Internal:** competitive social pressures can be exerted on an organization by the political establishment, regulatory agencies and by road users, and by managerial measures that create a competitive atmosphere within the organization; and
- **Mixed:** where a public sector organization competes with organizations from the private sector; this has been carried out in the road sector in the various countries and even in some of our States with great success.

Therefore, as per evolutionary process, the emerging options (especially creation of new institutions in road sector) should be specific and competitive (open to competition).

To support the development of institutional options, a broad review of option development in other Indian states was undertaken. The analysis was used as an input for institutional option development (Chapter 7) for the road sector of Odisha.

7 Institutional Options to Address Road Sector Challenges

It is mandatory that before proposing any change in existing institutions or structures for Institutional Strengthening and capacity building, a detailed and comprehensive study of present institutional establishments for their directional, executional and ground level functions, professional competencies etc. be undertaken. In this regard, GOO has undertaken some key initiatives in the past and a review of these provides a better understanding.

7.1 Institutional Strengthening Initiatives in the Past

GOO in 2000 had commissioned an IDS Study to establish a vision for the road sector to reform and enhance the policies, capacities and resources for effective planning and management of road transport. As a result, an Institutional Strengthening Action Plan (ISAP) was prepared. Considering the internal and external 'drivers' for change, a set of institutional developmental priorities and strategies for Odisha's Road Sector were developed. The "drivers" considered for the study were:

Internal Drivers (the pulls)

- Clear regulatory functions
- Stable expanded sources of funding both for improvement and maintenance
- An efficient and effective organizational structure
- Modern, streamlined processes
- Integrated information system
- Shared vision
- Efficient core processes
- Trained manpower and HR policy
- Customer focus

External Drivers (the pressures)

- Optimum capacity of the Road Network to meet the rapidly increasing traffic (passenger and freight) with increasing number of roadworthy vehicles
- Better quality roads
- Transparent and rationale approach for prioritizing the road improvements
- Regulatory environment
- Improved road user safety to reduce casualties on the highways
- Minimization of negative environment impacts of road projects for better environment
- Efficient and effective construction industry
- Transparent procurement of works (e-procurement)
- Increasing need for private Sector investment in road sector (strategy, guidelines, transparent mechanism)
- Based on the critical analysis and detailed discussions amongst taskforce members, OWD Engineers and senior officials of GOO, the draft ISAP was submitted to GOO and WB. Thereafter, with certain modifications the final ISAP matrix was approved during May 2007.

7.2 Improving Institutional Roles and Responsibilities to undertake Challenges

Based on analysis of present institutional capacities, current and future road sector challenges and associated institutional needs coupled with discussions with stakeholders in including OWD officials, a number of propositions were discussed to meet specific challenges. These include:

- Assigning specific functional responsibility to one or more stakeholders, which may require development/creation of new “functional units” within existing institutions/entities
- Redefining the mandate of existing institutions
- Modifying/shifting of some of the responsibilities from one entity to another
- Changing the “Management Control” (quasi-government, Corporation, Agency etc.) of an institution for improved functioning
- Evolving new institutions/entities to undertake some of the functions/responsibilities

As a result, analysis has been undertaken for:

1. Formation of new entities like:

- Odisha Road Development Corporation (ORDC),
- Odisha State Roads Management Authority
- Odisha State Road Fund,
- Odisha Strategic Road Network Planning Unit
- Odisha Engineering Training Academy,
- Driver Training Institute
- Odisha State Level Policy Monitoring Committee

2. Assignment of Additional Functional Responsibilities of

- Centralized Policy and Planning Unit (with transportation planning expertise) at OWD with a operational mechanism of public consultation
- HRD units within all road sector organizations
- IT units within all road sector organizations to support computerization, database management, progress monitoring and communication
- Social and Environmental Management Units within all road sector organizations in a phased manner (starting with OWD)
- Monitoring and Evaluation Units – as a part of Policy and Planning unit in road sector organizations
- Legal Cell: To look after Legal/contractual issues arising out of project execution, procurements, establishments, court cases , RTI matters

3. Change in the mandate of

- Odisha Bridge Construction Corporation (OBCC) to Odisha Road Development Corporation (ORDC)

4. Amendments in Budget Heads

- To create item sub-head of “training”, “road safety” under DPR, Capacity Building etc.

The analysis for each specific case is presented in the following sections.

7.3 Formation of New Entities

7.3.1 Odisha Road Development Corporation

As of now, the OWD manages the road network in Odisha using a traditional PWD model – providing road related services such as planning, design, construction, O&M etc. for which it uses its own cadre of engineers and contractors as well as labour gangs. Over recent years, most of the States in India have recognized that this model was becoming ineffective and therefore most of construction as well as repair and maintenance works are now contracted out to private sector. Typical problems faced by PWDs (in most states) included under-funding, over-staffing (OWD, GOO may require additional staff due to transfer of about +20000 km roads from RDD and PR), high establishment costs, untimely delivery of road rehabilitation and maintenance. While most of the State Governments recognize these problems, it appears there is some reluctance to act because of difficulties anticipated in restructuring their respective PWDs (OWD in case of Odisha).

However, with socio-economic advancement, there is general agreement that road management practices have to be modernized to meet future demands. Some of the States have already adopted the new concept of Development Corporations, such as AP, MP, Tamilnadu etc. and incorporated these organizations under the Companies Act. Similarly, Maharashtra has established the MSRDC through a Government Resolution. These Road Development Corporations are a separate, Government-owned, autonomous entities, specializing solely in the development and management of State roads. Its main role is to manage a quality road network comprising construction, rehabilitation and maintenance works.

The Consultants have examined the experiences of other States in India, where RDCs have been functional and effective. An analysis of evolution, growth and present situation and emerging challenges of Maharashtra and Madhya Pradesh Road Development Corporation is attached as **Annexure A**. The lessons learned from such experiences are:

- RDCs can be effectively used to develop and/or manage PPP projects (roads, bridges, buildings, social infrastructure etc.)
- The autonomy provides improved decision making in selection and development of projects
- Effective cost control: Establishment costs and other costs can be controlled using a flexible approach of recruitment/deputation, outsourcing of housekeeping and non-core, non-critical services etc.
- RDCs can have a lean and flexible structure, which can be modified based on works and requirements
- As far as possible, outsourcing/consultants can be effectively used for survey and investigations, design, financial analysis, quality management etc.
- To build its image, transparent systems and processes supporting faster decision making need to be evolved. In fact, RDCs need to demonstrate these qualities.

The major differentiation in functioning of these RDCs from the conventional PWD model is that all (most of) the needed services are procured through private sector players. This implies that the organizational structure of the RDC can be relatively lean and flexible as compared to the conventional PWD model. Its staff directly manages program proposals of Government and funding agencies and contracts out major functional works like planning, project preparation and supervision, quality control, design and construction, maintenance etc. Along with effective management of the physical assets of the road network, the RDC has the opportunity to:

- Streamline and accelerate construction of the network;
- Increase commitment to maintenance with more emphasis on PPP;
- Return fiscal integrity to budgetary allocations in order to meet infrastructure and maintenance needs; and
- Improve work zone and workplace safety.

The creation of a new, modern road management agency such as an RDC could derive following advantages:

- Focused and speedy development
- A strong sense of corporate purpose concentrating solely on roads;
- A clear mandate from the Government along with assured budget for major road projects;
- Computerized business applications (supporting Transparency);
- Enthusiastic and experienced staff with proven performance drawn from PWD (OWD in case of Odisha), other Government agencies or the private sector;
- Better work environment and facilities, equipment and working conditions supporting work culture;
- Attractive employment conditions;
- Excellent ICT infrastructure;
- Strong commitment to training and HRD;

However, on the limitation side:

- RDC model relies heavily upon the availability of resources and expertise in the private sector to respond competitively to a fluctuating workload. In Odisha, the contractor capacities have been observed to be a major limitation in project execution (besides land acquisition and material management). Therefore, OWD and GOO need to work to improve “Capacities of Contractors” or create an environment, where the State can easily attract outside contractors.
- In principle, RDC is not expected to take over the functional responsibilities of OWD. However, their work zones (both focused on major roads) may overlap due to similar responsibilities. In theory, the two organizations can co-exist, but with separate, well defined zones/responsibilities.
- Through, initial apprehension was that with diversion of part of work from OWD to ORDC, the staff at OWD could remain underutilized. However, with the increasing quantum of road and bridge works (Ref: Road Network Master Plan), OWD would need additional manpower. Therefore, even if RDC takes over some of the experienced and competent staff from OWD, this may not weaken the available competencies of OWD. On the contrary, it may provide opportunities for employee growth.
- However, If RDC concept is accepted and introduced in Odisha, it will require additional coordination effort on the part of the State. With prioritization of roads being undertaken at “Policy and Planning Unit in OWD”, RDC may not have strategic autonomy but could have some “operational autonomy”. The major issue shall be “which” organization (RDC, OWD) undertakes which roads from the “defined” road network development scenario. This needs to be well spelt.

- One of the challenge to RDC could be the “past response to PPP in the road sector of the state”, where viability gap funding seems to be the trend. In Odisha, the possibility of success of “business model as adopted by RDC’s of other states” should be considered with some caution. Alternatively, other civil infrastructure projects with potential of PPP should also be explored simultaneously by the RDC.

Overall, the positive factors are emerging socio-economic development scenario, required road density requirements of the state, need for reduction in congestion and vehicle operating costs etc. requires speedy development and calls for an autonomous “provider’ organization like ORDC. However, experience of PPP in road sector, coordination needs etc. directs us to rethink on the need of ORDC. Based on these, a detailed note, highlighting merits/de-merits on Road Development Corporation is attached as **Annexure B (Case for Establishment of RDC)**. Based on the positives and limitations, consultants had still recommended for formation of such a Corporation (Orissa Road Development Corporation or ORDC). The same have been discussed at a meeting of High-level GOO officials. It has discussed and deliberated on the merits and limitations of the recommendations and has taken an informed decision for establishment of ORDC in the state.

State Roads Management Authority (SRMA)

A close review and analysis of the functioning of road sector entities (chapter 2) indicates limitations in execution of a number of road sector functions. Considering the present status of road sector organizations, strategic, operational and structural changes in these organizations for efficiency improvements is likely to take considerable time. However, there is an emerging need to expand road network to reduce congestion, vehicle operating costs and to support and accelerate socio-economic development of the state. The time in organizational improvements and capacity building of existing road sector entities (especially OWD) is bound to limit “full implementation of RNMP recommendations”. One of the possible options to amply support and possibly accomplish the stated objectives could be through establishment of an ORDC/ORBDC, as suggested in earlier section. However, realizing the pros and cons of ORDC, **if GOO decides not to form an ORDC/ORBDC**, an alternative institution has been suggested i.e. creation of an Odisha State Road Management Authority. The authority may have following functions

- Construction of roads: The authority may initially focus on toll-able stretches of roads like mining corridors, tourism corridors and roads for port connectivity and should exploit PPP options for leveraging of available finance. The construction activities may then be expanded to high volume (PCUs per day) SHs.
- Maintenance of Roads (for only those, which are under its control)
- Regulation of Roads - This may include road network security and patrolling besides control and regulation of encroachments, ribbon development etc.
- Toll collection (contracting Out)

Being a cross functional body, it should function directly under the Additional Chief Secretary who can be the Vice-Chairman of SRMA and Minister, Works as Chairman. It should have separate budget and a separate staff for its work. The newly reconstituted SRMA should be governed/advised by a board comprising officials from all stake holders in the road sector (representing Finance, OWD, Transport, Home/Police, and co-opted non-official members representing, academia, trucking and road construction industry). The day-to-day executive functions of SRMA should be under a CEO/Managing Director (A well-qualified Senior Highways & Transportation Specialist/Highway

Engineer of the rank of Engineer-in-Chief). Such an Authority may work as a lean organization, outsourcing most of the services and capable of managing the same.

The positives of such an authority are:

- Limited operational autonomy
- Most of services are outsourced - permitting hiring of private sector expertise
- Assured budget

Limitations are:

- Vying for the same budget (competing with OWD)
- Due to limited geographical presence even monitoring would have to be outsourced
- Need for developing a “geographically distributed” quality management system
- Another organization needing additional coordination

Although hierarchically, much better than a Corporation due to powers and authority, yet one of the major limitation of an “Authority” is that it needs to be created by an enactment (legislative approval) with required delegation etc., within a policy framework. However, one of the major limitations of the Authority is its stricter adherence (less or no flexibility) to the rules and regulations laid out in the enactment. Even if the Authority proposes to change some rules, it needs to approach the state legislative assembly for amendments. Such processes are time consuming and are likely to limit operational efficiency and autonomy. Overall, in the opinion of the consultants, the “State Road Management Authority” should be seen as a lesser preferred alternate to ORDC.

However, to finalize the creation of new entity versus SMRA, discussions were needed within Government of Odisha. Being applicable to road sector, such discussions were conceived to involve other existing road sector entities. During approval of Draft Institutional Options Report, The World Bank had also desired for an informed decision on the matter by involving other road sector entities.

With the initiation of EIC cum Secretary (W), a workshop of high-level officials of GOO was convened by the Chief Secretary on May 12, 2015 and was attended by representatives from Departments of Works, Rural Development, *Panchayati Raj*, Finance, OBCC etc. It involved a presentation from the consultants encompassing the existing roles and responsibility of various road sector stakeholders, road sector challenges and need for improving institutional responsibilities to undertake these challenges. It also described the institutional development across the world as well as within India including the successful operation of Madhya Pradesh Road Development Corporation and Maharashtra State Road Development Corporation to accelerate road development in respective states. It had also compiled the lessons learned and success factors from such developments. In view of the above, the presentation also included the suggested institutional options by the Consultants included creation of Road Development Corporation, State Roads Management Authority etc. and pros and limitations of such options. The agenda of the workshop included decision making on the following:

- Establishment of Odisha Road Development Corporation or Odisha Roads and Building Development Corporation to undertake PPP Roads, Social Sector Infrastructure building, Quality Management and/or
- Creation of State Roads Management Authority
- Possibility of transforming OB&CC Ltd into ORDC/ORBDC (*discussed later under section 7.4*)

Extensive discussions revolved around the suggested institutional options and on the lessons learned from better performing national experiences. After intensive discussions, the case of establishment of ORDC (Odisha Road Development Corporation) was considered much more suitable and sound for Odisha as compared to creation of a State Roads Management Authority. In nutshell, **after detailed discussions, an informed decision was taken for establishment of ORDC for the state of Odisha.**

7.3.2 Odisha State Road Safety Council & Associated Functioning Mechanism

Deaths due to road accidents in Odisha are alarming. On an average, there are more than 10 fatalities per day on rural and urban roads in Odisha. The situation is very grim compared to many other States of India. In absolute numbers, the fatalities in Odisha can be comparable to many other States of India. However, when vehicle availability (on road) per lakh population is compared, Odisha has only less than 8000 vehicle per 100,000 populations, as compared to other States like Delhi, Punjab and Kerala, where the vehicles population is more than 18,000 to 20,000 per 100,000 population. Therefore, statistically Odisha seems to do it much poorly and road safety situation in Odisha can be considered as more serious than many other States. While undertaking RSID study, road safety experts have recommended 11 key areas to achieve sustainable improvements in road safety and reduction in road accidents and fatalities. These are:

- Road Crash Database System;
- Safe Planning and Design of Roads;
- Improvements in Hazardous Location;
- Driver Training & Testing;
- Vehicle Safety Standards & Testing;
- Traffic Police and Law Enforcement;
- Traffic Legislation;
- Road Safety Publicity and Campaigns;
- Road Safety Education of Children;
- Emergency Trauma Care for Crash Victims;
- Road Safety Research;

What is evident from the above “key areas” and respective departments/stakeholders responsible to undertake these key tasks that there are multiple stakeholders, whose involvement is required to improve road safety. The Resolution of Odisha Road Safety Policy-2015 stipulates the tasks for accomplishment of targeted actions on road safety, which are to be accomplished by the stakeholder road sector departments/ agencies. Road Safety issues are also felt important by GOO to minimize accidents. This multidisciplinary issue is important that interdepartmental and coordinated approach are to be adopted for sustainable reduction of road accidents and fatalities in the State. Based on the assessment of issues concerning road safety across all stakeholder departments (Works, Transport, Police, Health & Education), a comprehensive draft Road Safety Action Plan (RSAP) for the State was developed. The RSAP (Road safety Action Plan of RSID Consultants) explains the role and importance of these key functions in improving road safety scenario in the state. In the action plan, list of actions to be implemented within a time-frame, were suggested for all the above departments. An attempt was made to first identify ‘Who?’ ‘How?’ and ‘When?’. The suggested initiatives need to be pursued by respective GOO Departments for improved road safety in the state.

Co-ordination and Management of Road Safety

Effective road safety management requires shared multi-sectoral responsibility. However, co-ordination between various stake-holding departments has remained more or less non-existent in Odisha. The coordination among departments had remained complicated due to differences in operational ownership of road network. For ex. NHAI owns many roads, but it is felt that local safety issues are not addressed by NHAI in either design or construction.

Following instructions from GOI in 2011, Odisha State Road Safety Council was initiated by Department of Transport. It was proposed to collect necessary funds for the functioning of such council by allocating 50% of penalties collected from vehicle check posts. The proposal since then is with the Department of Commerce and Transport for further actions. To support these, District Road Safety Councils (DRSCs) were formulated with District Collectors as the Chairman and most of them had their initial meetings in 2012. However, the formulation of specific guidelines on fund allocation and availability of funds for road safety had remained a non-starter. Overall, the efforts of Motor Vehicles Department (MVD) through Odisha Road Safety Society (ORSS) and the Road Safety Cell in the office of Transport Commissioner have not yielded any desired results in the past. It is possibly due to general lack of coordination with other departments as well as lack of understanding of road safety interventions required from various stakeholders to improve the situation.

The learning from the experience is that:

- Without **effective** co-ordination arrangements, tangible results in road safety improvements can't be achieved;
- A 'Lead Agency' represented by Senior Government officials with specific assigned responsibilities is required to co-ordinate the road safety activities within the State;
- Strong political, financial and technical support is needed for those delegated to initiate and co-ordinate road safety on behalf of the State; and
- Such co-ordination is best carried out if the proposed institution is supported by experienced road safety specialists and senior functionaries from various stake-holding departments.

Therefore, it was of paramount importance to rejuvenate and activate the existing Odisha State Road Safety Council (OSRSC) to provide effective coordination of various activities pertaining to road safety besides provisioning of specific funds for "road safety". The latest information is that the Council has been activated.

Odisha State Road Safety Council

For increasing its effectiveness, the rejuvenated OSRSC should be headed by the Chief Minister and the Executive Board should include Ministers of Commerce & Transport, Home, Works, Rural Development, Housing & Urban Development, School & Mass Education, Planning & Coordination, Finance and Law. The Council should meet at least twice a year to guide, monitor and evaluate the road safety programmes and outcomes. The Council should be supported by an Executive Committee under the Chairmanship of Chief Secretary, with Secretaries of Works, Commerce & Transport, Home, Rural Development, Housing & Urban Development, School & Mass Education, Planning & Coordination, Finance and Law and Director General of Police as members. The Executive Committee should oversee the selection, implementation, monitoring and evaluation of the road safety programmes taken up. District Road Safety Councils under the Chairmanship of District Collector should identify the projects for road safety interventions and submit the proposals to the Executive Committee to consider. The Council or Committee may co-opt eminent members from the society and/or road safety experts in addition to Government functionaries in the State and District Councils as well as the Executive Committee.

Establish a Dedicated Road Safety Fund in the State:

A dedicated and sustainable Road Safety Fund should be created, which should not be subjected to budgetary constraints. Various sources can be:

- Cess on motor vehicle registrations
- A portion (50%) of penalties collected under various provisions of MV Act
- A surcharge on the vehicle insurance premium
- A portion of funds collected from the border check gates.

During Draft Institutional report, a Road Safety Cell, headed by the Transport Commissioner, was recommended to be constituted/activated within the Transport Department, GOO. Since then, needful action has been taken by the Transport Department and a Road Safety Cell has been established to oversee the administration of the Road Safety Fund. The road safety fund should be used to implement road safety schemes and interventions in road engineering, road safety education and awareness campaigning, enforcement of regulations concerning road safety and other measures required to be taken up for road safety improvements as decided by the Executive Committee. Transport Commissioner should be the Member Secretary of the Executive Committee. It is recommended to GOO to provide a minimum capital (say INR 2 Crores) for the corpus fund of the Council.

Develop a Robust Crash Database System in the State

Though the State Crime Records Bureau collects accident data, it is not comprehensive for determining targeted road safety interventions. Therefore, a comprehensive road accident database management system is required to be developed for causal analysis of the accidents, which should be able to effectively guide the concerned departments, district road safety councils and the Road Safety Cell to plan, design, implement, monitor and evaluate the targeted road safety interventions. The database system can be similar to the model developed by Tamil Nadu and can be implemented in phases for all districts in Odisha. The tentative cost of the development of the software, hosting hardware, and the necessary infrastructure required for housing the server and the database is estimated at Rs. 3.5 Crores. For the sustainability of the RADMS, it should be owned by the State Police Department and should be housed in Police Head Quarters or SCRB.

7.3.3 Odisha State Road Fund

In accordance with the Road Sector Policy proposal, road financing, with focus on maintenance of SH, MDR & ODR, which carries major traffic is important. Policy also lays down that states that priority should be provided to preservation of assets already created than the new works. It realizes the fact that if existing roads are not properly maintained, roads shall deteriorate faster and result in increased vehicle operating costs and travel time besides reduction in safety and comfort.

Road financing has two major components i.e capital financing for new works and financing for maintenance of existing roads. The major sources of fund for the road sector of Odisha are –

1. State Budgetary Allocation for plan and non-plan outlays including Revised Long Term Action Plan (RLTAP) and Tourism;
2. Central Grants from Central Road Fund;
3. Funds under Pradhan Mantri Gram Sadak Yojana (PMGSY);
4. National Bank for Agriculture and Rural Development (NABARD) – Rural Infrastructure Development Fund (RIDF) loan assistance; and
5. Funds from Ministry of Road Transport & Highways (MoRTH), Government of India, for National Highways (NHs) passing through the state.

In addition, there are different specific schemes and projects such as:

1. Economic Importance (E&I) Scheme of Government of India (GOI); and
2. Externally Aided Projects such as Odisha State Road Project of The World Bank

The allocation for capital works under State Budget indicates an increasing trend and with focus of GOO on infrastructure development and this trend is likely to continue. With this, the state budget should be able to cover the projected expenditure of Rs 14,500 crores of capital investment required over the next 5 years. However, there are issues with maintenance budget. Data indicates that the total (Works, Rural Development and Panchayat Raj) maintenance budget of roads over past few years was 940.2 (2010-11), 1089.1 (2011-12), 1294.3 (2012-13) and 1449.9 (2013-14, RE) crores. Out of this, the budget of Works Department was 523.4, 561.5, 671.9 and 747.8 crores respectively. If these allocations are projected, OWD shall allocate a maintenance budget of 660 (2014-15), 759 (2015-16), 873 (2016-17), 1004, 1155, 1328 (2019-20) and 1527 (2020-21) crores respectively.

Similarly, future requirements of funds to objectively meet the maintenance requirements were assessed using Odisha Road Asset Management System (ORAMS). The requirement of funds for maintenance of major road network of OWD is estimated at 931 (2014-15), 1412 (2015-16), 1578 (2016-17), 1762, 2070, 1937 (2019-20) and 1896 (2020-21) crores respectively.

From the comparison of projected budgetary allocation and maintenance requirements, it can be observed that there is a big gap in fund allocation and requirements. This works out to 271 (2014-15), 653 (2015-16), 705 (2016-17), 758, 915, 609 (2019-20) and 369 (2020-21) crores respectively. This accounts to a total gap of Rs 4,280 crores in next 7 years or about Rs 600 crores per year.

The current policy regime of GOO does not ensure/support dedication of road user charges to fund the state road sector i.e. presently the user charges becomes a part of “consolidated fund” of the state and there is no earmarking of such user charges to the road sector. However, the additional funds (beyond normal budgetary provisions) to meet the maintenance gap, can be possibly met through the following sources:

- 1. Existing Sources:** Earmarking of certain portion of existing Road User Charges such as VAT on fuel, toll fees etc. collected by the government and which currently forms part of general budgetary resources. Advantage of such an approach is that it ring-fences road user charges for funding road maintenance and mitigates the risk associated with budgetary funding given the demand on the state exchequer from different sectors. For this, Odisha Budget Manual, 1963 would have to be amended to create a dedicated financing mechanism to meet road sector needs.
- 2. Other Sources:** The other sources of funding could be:
 - Toll Rates: Amount collected by Odisha Bridge Construction Corporation Limited through auctioning of toll collection and management service (presently, amounting on an average to Rs.31.14 crore per year over the last three financial years) being a road user charge is directly linked with proper upkeep of tolled roads and the amount can be dedicated for road maintenance;
 - Utility License Fees: Motels, garages, parking plazas and other wayside facilities are indirect beneficiary from development of the roads. Once the roads are operational, traffic starts commuting and such facilities starts growing providing revenue to these service providers. GOO may consider imposition of licence fees on these utility services and dedicating revenues towards road maintenance;

- Levy on Land Registration Fee: This charge is based on the assumption that lands adjacent to roads have higher market value than the other places. The reason for higher prices is due to development of roads near the land. Government makes investment for the development of the road sector; hence all beneficiaries from the development of road sector should contribute certain percentage of their gains for the development of the road sector. So, to generate fund for the proposed Road Fund government can put extra levy on registration fee on land transactions near the roads that have been constructed or upgraded or widened. It may be mentioned that the Karnataka Highways Act, 1964 provides levy for betterment charges;
- Levy on transport of minerals and agri-based industrial produce in the state- Odisha is rich in mineral resources and mining is one of the main economic activities being performed in the state. However, there is limited scope to increase tax on these commodities. Additional revenue generation through increasing vehicle registration fee for heavy vehicles is an option;
- Pre-constructed ducts under or along new roads: This could be taken up for all up-gradation projects - especially those which are predominantly cement concrete roads. The usage of these ducts could be rented out to telecom companies and other users – and the revenues could flow for maintenance of the roads.
- One time vehicle registration fees; and
- Charges on insurance premium.

However, the most significant and easily collectable revenue can be a part of VAT on fuel. There are increasing trends in consumption of petrol and diesel due to increased use of road by vehicle owners and drivers. Hence, considering increased road use, the consequent necessity for proper road upkeep, assumes more significance and allocation of part of VAT on fuel can be merited for road maintenance. Similarly, charges on Insurance Premium and one-time vehicle registration charges can be considered as other easily collectable sources for road funding. Overall, a dedicated Road Fund may be established to meet the maintenance fund requirements for roads.

If setting up of a Road Fund is considered, the Road Fund can leverage its capital to raise cheaper fund from market and can also raise capital through issuance of bonds etc. Given the complexities in the financing mechanisms for funding the Road Fund and their relative advantages and disadvantages, it would be advisable that the allocation should be made through the budgetary sources which would take care of such complexities. However, this should be followed by a specific provision to institutionalize the funding for Road Fund from budgetary sources, if the Road Fund is considered to be setup. At this stage to further provide a credible financing mechanism, the option of making Road Fund Board as a 'collection arm' can also be built into its financing arrangement.

Road Fund can also fund road sector projects by adopting Public Private Partnership (PPP) model. GOO through Road Fund could target certain specific objectives through PPP, which could include:

- Bridging the funding gap: Investment requirements are high but the public sector already faces a large fiscal deficit. Private finance could supplement public funding and postpone the cost of road investment to the taxpayer and/or road user.
- Increased expenditure and revenue efficiency: The private sector has stronger incentives to operate efficiently, minimize revenue leakage, adjust resources to changing situations, and adopt a comprehensive life cycle approach to road investment and maintenance.

- Unbundling and reallocating risk: Overall costs may be reduced by allocating individual risks to those parties best able to control them.
- Increased Implementation Efficiency: The expertise available with private entrepreneurs could help in improving implementation efficiency.

Thus, a “State Road Fund” has been suggested as a possible institutional option to provide sustainable funding for road maintenance, leveraging capital as well as involving private sector in road development. To manage the proposed “Road Fund”, higher level cooperation and decision making shall be needed. This shall require:

- Legislative actions for enacting State Road Fund Act similar to CRF Act, Kerala Road Fund Board Act, etc.;
- Creation of a State Road Fund Board; Setting up of Executive Committee;
- Development of other management, administrative and accounting/ auditing mechanisms

7.3.4 Odisha Strategic Road Network Planning Unit

The conventional activities of OWD and other road sector organizations (to some extent RD and PR) have been to design, construct and maintain roads. Control over its expenditure activities has been usurped by traditional planning processes and other government departments (Finance, Planning and Coordination) by their control on budget and planning. However, the process does not take cognizance of the following:

- Roads are part of an integral road/transport network;
- There are specific costs involved for various activities under routine and periodic maintenance (Whereas, these departments follow “standard” norms);
- Scientific investment planning criteria has to be based on sound economic, social and environmental investment criteria/development potential; and
- Integration of needs of road users requires public (road user) consultation

On the other end, there are multiple authorities engaged in administration and development of roads in the state, which poses a serious challenge in achieving an optimal road network (length, hierarchy, standards etc.). In fact, coordinated development by these organizations is a necessity for establishment of a road network, which reduces transport barriers and eases traffic. What is really needed is a dynamic and time to time updated Road Network Master Plan (one such plan has been developed under RSID Consultancy) as well as a long term Odisha State Road Policy (being finalized by GOO) to guide the planning for road development.

One of the possible sustainable solutions to such requirements is establishment of a “Policy and Planning unit” within one of the road sector organizations. The unit should have sound expertise in traffic/transportation modelling, highway engineering, transport economics, budgeting etc. To meet such expertise and anticipated requirements, it is suggested to establish a “Policy and Planning Unit” within OWD. The Policy and Planning Unit shall mainly include a “Strategic Road Network Planning” unit for Planning purposes and a small policy unit, which shall support GOO in monitoring the road sector policy and similar initiatives of GOO and provide feedback for their review and improvements.

7.3.5 Odisha Road Sector Policy Monitoring Committee

GOO is in the process of finalizing “Odisha State Road Policy”, which would provide strategic directions to various road sector stakeholders. The Policy in its present form focuses on various

facets of road network development to meet emerging traffic and accessibility needs, sustainable funding for road asset management, improved road safety, strengthening of road sector organizations' capacity and practices, attract private sector investments and sustainable road development with minimal social and environmental impacts and with increased public support and participation.

However, formation of policy is not an end, but what is required is its effective implementation, monitoring and mid-course adjustments to improve its effectiveness. The monitoring should be done by using specific quantifiable measures based on the specified performance indicators which could be: number of villages/habitations connected with an all-weather roads, increase in length of 2-lane State Highways and Major District Roads, increase in paved roads as a percentage of road network increased investment in the road sector as a percentage of GSDP, increase in quantum of road sector investments through PPP mode, reduction in number of axle load violations, reduction in annual number of road accidents and fatalities.

It is therefore proposed to establish a High Level "Road Sector Policy Monitoring Committee" with members from Planning and Coordination, Works, Rural Development, Panchayat Raj, Irrigation, Forest, Transport, Home, Housing & Urban Development, Finance and Law. It is proposed that this committee may be chaired by the Chief Secretary of GOO and the Secretary-cum-EIC of the Works Department should undertake the responsibility of Member- Secretary of the Committee. Besides review, committee should also initiate appropriate improvements consistent with the main aims of the Road Sector Policy.

7.3.6 Training Institutes

7.3.6.1 Odisha Engineering Training College (or Institute)

During organizational diagnosis of OWD and stakeholder workshops, need for capacity building was seriously felt by all road sector organizations. It was recognized that training activities are essential to develop a body of engineers fully equipped with latest technical knowledge, managerial skills and necessary attitudes required to foster efficiency, economy and adopting safe and reliable projects/schemes. Design and implementation of in-service courses and programmes offers such an opportunity to professional engineers to update themselves with the latest body of knowledge on the subject related to their job responsibilities and means of executing the same in a better way. The trainings could provide a platform to share and expose the ideas and experience with others, through formal and informal learning processes and facilities provided at the training institutes. Trainings provide to maintain an up-to-date knowledge of the rapidly changing and advancing technology of engineering science and relevant engineering practices, supports development of good engineering judgment and ability to assess and combine all the relevant factors to achieve the optimum result in any given situation, assists in understanding knowledge of cognate fields such as finance, safety, resource and environment, standards, human relations etc., which they have to regularly face in their profession. Training can also be focused to develop management skills to coordinate men, materials, machinery and money efficiently effectively and economically.

In the context of road sector organizations of Odisha, it was essential to initially undertake a fair assessment of training courses offered by other Training Institutes and their effectiveness in meeting the needs of road sector organizations of the state. For this, it was necessary to analyze – what is presently being offered by other training organizations in the form of advertised or customized training courses:

- **Advertised courses:** These courses are offered by the established training organizations but could fully or partially meet the needs of respective road sector organizations of the state. Though cost wise such advertised courses are generally look attractive, but once consideration is made for their partial (if it does not meet organizational requirements) utility, such courses don't remain cost effective.
- **Customized courses:** These courses are "content-wise" quite effective, as they are designed as per requirements of the organization. However, if there are not enough (about 15-20) number of participants from same/similar organizations, the cost per participant for the training become quite high.

Although both the above options of selection of training courses have few strengths but a number of limitations, yet under normal practice of providing limited training opportunities to its employees by road sector organizations, above systems have worked quite well and should continue to be adopted.

However, under newly evolving HRD policy and restructuring options, HRD/Training has been considered very necessary and suggestions have been made for a dedicated budget (as a % of establishment budget), establishment of dedicated HRD unit within prominent road sector organizations like OWD and training for all employees (at least once in 3 years) etc. For Implementation of some/all of these recommendations, there has to be an increased emphasis on training and requirements of much larger training activities. While considering the option of continuing with present system of advertised and customized courses, other possible options to impart such a large extent of training activities were considered. Besides, review and analysis of existing practices followed by some other state government departments and considering the local situation, it was considered worthwhile to include following options also for training of road engineers for OWD (as well as other road sector organizations):

- **Twinning arrangements with some reputed training organizations:** This could include arrangements with some good training organizations for specialized trainings. The road sector organizations could enter into such arrangements and/or MOUs for training of its personnel with more than one organization. These organizations/institutions may specialize into some specific areas: engineering, management and other areas.
- **Continuing to pick and choose training organizations and their training programs, as is practiced now.** This could include choosing advertised/customized training courses from multiple training organizations (one for engineering, another for managerial etc.). This could include both national and international organizations (subject to approval of GOO).
- **Establishment and Development of a new Training College/Academy with extensive use of internal and external resource persons.** With extensive expertise, resourcefulness and capability considerations, OWD seems to be the best choice.

Taking clue from experiences of engineering departments of Gujarat, Water and Land Management Institutes, Military Engineering Colleges, Indian Academy of Highway Engineers under MoRT&H etc. and considering the requirement of about 2000 man-days per year (+1500 engineers of OWD to be trained for a minimum of 5 days, atleast once in 3 years as per upcoming HRD policy) for OWD and nearly same number of days for RDD and Panchayat Raj (if similar training norms are used), about 4000 man-days of training opportunities exists. With about 20-30% highly specialized training courses, which should be conducted under twinning arrangements or regular/advertised courses by

professional training organizations, adequate number of training days could be managed by such a training college.

Besides staff of officials/staff of road sector organizations, need has also been felt to build the capacity of the contractors in Odisha, where they have been found to lack knowledge/skills in supervision, tendering processes, work programming, project management, construction management, material testing, quality management, cost control etc. They shall also require extensive training to be efficient.

To meet above requirements, establishment of a Training College (name could be Odisha Engineering Training Institute) is recommended. However, to make it sustainable, it must be established with few pre-requisites:

- Identification of internal and external resource persons with requisite knowledge, communication/presentation skills and inclination and time to deliver trainings
- Inclusion of a well-experienced training professional with rich experience in training development, curriculum planning, development of training plan and scheduling, training management etc.
- Strong evaluation mechanism
- Provision of Training of Trainers
- Development of knowledge/skill sets of resource persons to make them abreast with recent advances
- Strong learning (including library) facilities
- Suitable honorarium to resource person
- Limited permission for use of its training facilities by other organizations (availability and cost basis)

This is besides a good training and support infrastructure (training rooms, audio-visual facilities, discussion rooms, communication laboratory, faculty rooms, hostels, kitchen and dining facilities etc.).

7.3.6.2 Training Academy

One of the major limitations faced by contractors is a general lack of adequate number of skilled construction workers to undertake the road sector jobs. GOI has also realized the fact in the past and has supported establishment of a **National Academy of Construction (NAC)**, which is being run by the Government of Andhra Pradesh (AP). The labor industry in Odisha is still not ripe and requires extensive training to make the labor competent and efficient. Overall, there is a strong and regular need for long-term (spanning +4 weeks) training of construction workers to gain skills in specific sub-areas of road construction. However, while focusing on road sector, the academy should be able to also impart training encompassing various facets of infrastructure development. Based on needs, academy can impart such courses. However, it can follow certain guidelines, which may include:

- Courses may be accompanied by comprehensive work booklets which can be retained by individuals and referred to in work places;
- Where possible, recruit of teaching staff may include people from industry. People who are involved in day-to-day industry issues can communicate their experience on to students;
- Include practical, hands-on training with appropriate field visits to observe construction practices; and

- Award of a certificate after successful completion of course to acknowledge the individual's achievement.

It is recommended to improve existing "Construction Workers" training facilities at Gopalpur, Cuttack (presently managed by L&T) to a full-fledged "Construction Academy" with additional disciplines.

7.3.7 Driver Training Institute

Like in other States, Odisha has a well-defined process for issue of driver licenses. The eligibility for receiving a driving license is 18 years for driving of motorized vehicles and 16 years for two wheelers without gears. However, the number of applicants for driving licenses are far too high than the capacity of RTOs to manage the licensing in an efficient and fair manner. The stipulated test time is 30 minutes and about 300 applications are required to be processed per day.

The status of driver training is also not good in Odisha. Mostly, private driver training institutes provide such training and these training centres need to be certified by RTOs. The present system/arrangement is very loosely structured and ineffective in providing required skills. Further, certificate of training is mandatory only for applicants of licenses for commercial vehicles.

From the GOO end, computer simulators are available in some RTOs (Bhubaneswar and Cuttack) besides a dysfunctional advanced driver training institute at Chandikhol, The driver training institute of Ashok Leyland under PPP is yet to start. Similarly, heavy motor vehicle driver training institute at Chatia is not yet fully functional.

The primary focus of private driver training institutes is to get the applicant to know the mechanical aspects of driving, and very little focus and awareness of road safety is found to be existing in their training contents. State Transport Authority (STA) own driver training institutes in Bhubaneswar, and simulators are also available in Bhubaneswar and Cuttack, but not provided in other districts.

The staffing situation of the MVD (Motor Vehicle Department) in Odisha indicates that under 31 RTO's of the state, there are only 33 MVIs and 79 Assistant MVIs besides 27 Traffic Inspectors, 25 Traffic Sub-Inspectors and 156 traffic Constables. These are grossly insufficient, as the applications for driving licenses is steadily growing, whereas the resources and technology required to meet these challenges are not keeping pace with this growth. What is needed is use of technology like on-line test procedures using web-based technologies and modernization of business procedures to improve efficiency.

A very pertinent point to note is that truck drivers and motor cyclists are responsible for a large percentage of road accidents in Odisha and error by driver seems to be the reason for more than 95 percent of road accidents. This seems to be mainly due to the fact that driver training is not focused on safety, but rather on mechanical handling of the vehicle, which results in unsafe road user behavior. Overall, the compliance to safety requirements in licensing and driver testing regimes in Odisha is generally unsatisfactory, and a revamp of the system is required;

It is thus proposed to establish **district wise Driver Training Institutes** in PPP mode with private entrepreneurs, which should provide training in both mechanical and safe driving of vehicles on roads. These institutes, through official arrangements should be authorized to award safe driving certificate after required training and/or tests, which may then be used as a base for issue of driving licenses by RTOs. So, in practice these Driver Training Institutes shall undertake the responsibility of "Testing" for the applicants to driving licenses on a pre-decided fee. This shall reduce the burden of testing from MVD and still ensure issuing of license to only eligible applicants.

Overall, suggestions have been provided to create few new entities. However, if SRMA is accepted then the Odisha Strategic Road Network Planning Unit (undertaking master planning and annual planning) and Odisha Road Policy Monitoring Committee (then can be chaired by Additional Chief Secretary) could become an integral part of SRMA.

7.4 Change in Mandate of Road Sector Organization

As discussed earlier, it is possible that some of the road sector organization may require refocusing of its mandate. Accordingly, review of their mandate and performance of these road sector organizations was undertaken. During review, it was realized that Odisha Bridge Construction Corporation (OBCC) is an organization, which is not functioning in its major focus area (bridge construction) but working in its lesser significant operational area (toll collection). This required a much closer review of the organization so that its performance can be improved or refocused. The details of such analysis are presented below:

7.4.1 Organizational Background

OBCC was incorporated on Jan 01, 1983 under Companies Act 1956 as a government company. Therefore, it is a government company of GOO within the meaning of section 617 of the Companies Act, 1956. Thus, it is a public sector undertaking of GOO. The defined objectives of OBCC are:

- Construction of all types of roads, bridges and various types of buildings
- Maintenance of bridges
- Toll collection
- Survey and investigations (soils, sub-soils)
- Testing of soils and materials

7.4.2 Operational Concept

The OBCC undertakes construction and other works as per the working procedures approved by the Department of Works, GOO vide resolution No. 9133 dated Sept 06, 2012. It was further informed that OBCC has a standing MOU (memorandum of understanding) with GOO, under which they are awarded a minimum construction works of 100 crores per year - however the details of type of civil works managed by them in recent past could not be gathered). In turn, most of these works are awarded to contractors by OBCC and for managing such services, OBCC charges a fee of 10% (departmental charges). Interactions were undertaken with senior officials of OBCC (including Managing Director and General Manager) to understand and have a quick assessment of the functioning of OBCC. Later, discussions were also held with some OWD officials to validate the understandings.

7.4.3 Review and Analysis of Performance Documents

No detailed documents (annual reports of OBCC, details of projects in hand, balance sheet etc.) could be made available). Therefore, proper desk research could not be conducted and thus no analysis of available documents (financial health, toll collection status, comments on balance sheet etc.) has been presented.

7.4.4 SWOT Analysis of OBCC

Based on discussions and validation with OBCC and OWD officials, an assessment of strengths and weaknesses of OBCC was undertaken and efforts were made to explore possibilities of strengthening/improvements. The main issues emerged have been grouped as follows:

Strengths

- Availability of professionals with specialized knowledge on bridge design, construction and maintenance
- Organization is capable to legally garner strong administrative support
- Since the organization is not too old, it should be able to adopt new organizational culture
- Slim and lean structure
- Assured revenue stream from tolling (specific percentage)
- Legally capable to generate finances from market (bonds etc.)

Weaknesses

- Lacks strategies as well as operational plans with commercial orientation
- Poor operation and financial health (expenses higher than income), making it highly dependent on Government Support
- Self-imposed bureaucratic decision making processes and systems (defeating the very purpose of an Corporation)
- Not yet imbibed new/modern technology oriented management approach and infrastructure
- Lack of accountability
- Reactive culture
- Limited geographical coverage – with limited or no offices
- Permitted political interference in decision making, recruitment etc. This has made infusion of high number of lower level officials
- As senior staff are on deputation from OWD, therefore lack of sense of ownership (reflected in dedication)
- Has not changed its role (conventional)
- Lack of resources: Limited and old machinery, equipment to undertake its bridge construction works, soil investigations, quality management etc.
- Operationally on the verge of closure

Opportunities

- Adequate needs of infrastructure development (roads, bridges) in the state. Specialization could be turned into a portfolio approach to development.
- Relatively high cost assets (bridges) should lead to opportunities for private sector participation and induction of commercial capital.
- With projected acceleration in road construction involving substantial number of bridges, ROBs, flyovers etc. adequate specialized works could be captured by OBCC besides other civil works
- OBCC's objectives permit undertaking other infrastructure projects. Thus, it can legally develop itself into a specialized agency (transportation hubs, corridors etc.) as well as in construction of buildings
- Can seek government support (guarantees for raising capital, once stabilized)

Threats/Challenges

- Image issue: Brand OBCC is a negative image
- Increasing competition from private entrepreneurs

Based on the available information, feedback and discussions, it emerges that:

Existing Positives

- Existing “Registered’ Corporation, which can be used as a SPV (Special Purpose Vehicle)/ Corporation by adding certain functional improvements (not much need to create a new entity and seek approval of Government of Odisha)
- Basic infra and HR availability (No doubt, it would have to be supplemented).

Areas needing Improvements in making use of OBCC for similar functions (corporation)

- Culture improvements using Change Management Strategies (both persuasive as well as coercive)
- Development of business sense and culture in its staff including cost control measures
- Capacity Building in business planning, professional project management, project economics, financial evaluation competencies
- Introduction of performance based motivational measures on one hand and voluntary/compulsory retirement schemes for willing/inefficient employees
- Capacity building in other business areas (integrated toll systems, quality management, project management, construction supervision etc.)
- Introduction of transparent, accountable and speedy decision making processes

Possible Actions for Strengthening (including revamping) of OBCC:

- Change of mandate and its total re-orientation
- Operational leadership to be initially entrusted to a professional with “business” acumen (commercial orientation)
- Process and system improvements to support “efficient decision making” as well as “accountability”
- Strong performance monitoring (documentation, balance sheets etc.)
- Initial financial support by GOO (could be even through award of works) coupled with autonomy to generate funds and provide employee incentives
- HR to be equipped with project management, PPP, construction management, contract management, negotiation, facilitation, monitoring and evaluation skills etc., if it is to continue with its present mandate
- Adopting positive Human Resource Management Practices - Performance Management, awards, retrenching, retirement etc.
- Image building: by improved performance and its dissemination

7.4.5 Concluding Suggestions

Considering the experiences and development of similar skills within OWD and RDD, discussion on possible change in mandate was discussed with higher level officials of OBCC and OWD through face to face meetings. During discussions, the type of services being increasingly outsourced by OWD and RDD were explored. It was realized that OWD is regularly requiring external support (full or partial) in preparation of construction supervision, survey and investigations, preparation of Detailed Project Reports (DPRs), Material Testing and Quality Management, Logistic Management etc. Further, it is likely to require extensive support in Road Condition Surveys for Asset Management, Road Safety Survey, Road Safety Planning and Implementation, Road User Surveys etc. It was indicated that “Project Management Component” to support major road sector development government programs is likely to be added to such outsourced services.

To explore possibilities of transformation of OBCC to ORDC, discussions with senior OWD officials were held during Oct-Dec 2013 and Jan-April 2014. Based on discussions, it can be stated that they favored such a possibility, though highlighting a number of limitations. The limitations included competencies and number of human resources, existing organizational culture etc. A similar exercise with OBCC officials resulted in an near unanimous agreement on possibility of such a transformation.

The issue of creation of a new entity like ORDC or develop it by re-engineering/transforming it from existing OBCC was analysed by RSID consultants also. It emerged from their analysis it would be much more appropriate to re-engineer existing OBCC rather than developing a new entity. **The analysis was also presented during the meeting of High Level Officials of GOO on 12th May 2015, which was chaired by Chief Secretary.** It was argued by the consultants that the transformation would require less processing time, as legislative approval would be needed for a new corporation, which is a time consuming operation. Secondly, if a new entity like ORDC was constituted, there would be no future for OBCC and the GOO/OBCC would have to continue to bear the financial burden of establishment cost (staff costs) without any work.

Based on discussions and analyzing the viabilities, it emerged during the Meeting of High Level GOO officials that there lies a good possibility of re-engineering OBCC by changing its mandate and transferring (or augmenting) some of the required competencies. The analysis has considered and included potential ramifications of such developments on OWD and other road sector organizations. Based on the submission, it was conclusively deliberated in the meeting that **ORDC should be created by transforming the existing OBCC** rather than creating it as a new entity. However, it was discussed that OBCC with its present mandate, structure, systems and processes, revenue and expenditure streams etc. was not in a position to provide any distinct advantage in procurement and service delivery as compared to other GOO organizations. Thus, the organization needs to be geared to become an efficient and effective organization. In the opinion of the consultants, this would require **changes in its mandate, adoption of improved system and processes with corporate bias, sound financial management practices, re-constitution of its Board, changes in organizational structure and human resources, operational aspects etc.** so to provide required services in a transparent manner and with a corporate purpose. For ex., with its technically oriented mandate, it will have to optimize its human resources (present staff strength of 205 including only 10 technical staff) to optimize its establishment costs. Overall, a number of changes shall be required within OBCC before it can function optimally with the desired mandate. It was considered appropriate to reengineer it to “**Odisha Road Development Corporation**”. No doubt, it can have construction,

maintenance of roads, buildings, bridges and other civil infrastructure and “Civil Engineering Consultancy” as part of its mandate, which could be developed and offered to road sector organizations at a later stage. To support such transformation (redefined mandate, financial management, initial structure with linkages to workload, other required modalities etc.), a **concept note** has been developed and annexed at (**Annexure C**) with preliminary details of the required actions at GOO/OBCC level to re-engineer OBCC into ORDC/ORDC.

7.5 Assigning/Redefining Functional Responsibilities of Existing Road Sector Entities

Based on the review and analysis, following improvements are also suggested in major road sector entities (OWD, RDD, PR) etc.

7.5.1 HRD Units within Major Road Sector Organizations

All road sector entities should have a Human Resource Development Unit as a part of their structure to promote training and learning of its staff. With strong linkages to Personnel/Human Resource Management (Performance Management), it can assist in evolving an appropriate HRD policy and then the development of its staff.

7.5.2 IT units within all Major Road Sector Organizations

Realizing the increasing role of IT, there is a strong need for computerization, database management besides electronic progress monitoring and e-communication. Besides, future trainings and learnings shall also make use of it. It is therefore suggested to have a strong IT Unit within each of these road sector organizations.

7.5.3 Social and Environmental Management Units within Major Road Sector Organizations

The upcoming road sector development is normally faced with issues of land acquisition and environmental management. The current policies and acts require well managed resettlement and rehabilitation besides mitigation of environmental impacts. For the purpose, there is a need for establishment of a full-fledged “Social and Environmental Management Unit” within OWD, which with passage of time may have to be created within RDD.

7.5.4 M&E Units

One of the effective ways to improve an organization is to monitor its performance in key areas and manage the improvements. This requires an effective monitoring and evaluation system within an organization. For the purpose, there is a need for establishment of a “Monitoring and Evaluation Cell/Unit” within major road sector organizations. The Unit could be a part of Planning Unit of organization or must have a close linkage with the Planning Unit.

7.5.5 Legal Units

Considering increasing litigations especially in contract administration, procurement etc., road organizations could have a centralized legal cell.

Overall, there are various institutional needs for which detailed analysis has been undertaken based on available data/information and stakeholder feedback. Based on these, various institutional options have been proposed and feedback on some of the suggested options has already been undertaken in detail from various road sector entities. These options are submitted for consideration of the various road sector entities including OWD and the prepositions requires further feedback from various stakeholders.

8 Work Plan and Way Ahead for Implementation of Institutional Options

A considerable work has been undertaken to address various road sector challenges by using existing various institutional framework/structures of Orissa's road sector. This has also contributed towards implementing ISAP within OWD, GOO. However, a number of actions are still needed to address these road sector challenges. The road sector stakeholders need to undertake/carry forward various actions to support the process of institutional development of the road sector so as to meet the challenges. **Table 8.1** provides the stakeholder wise actions needed to address key road sector challenges and their current status. To further the progress, the identified lead stakeholders in collaboration with associate stakeholders need to develop their action plans based on available human resources, funds and coordination requirements so as to make these sustainable.

One of the important actions taken during the period of consultancy has been to persuade, some of the suggested actions, with GOO using State Level Empowered Committee (SLEC). During SLEC meetings, it was indicated that as per contract provisions, the RSID consultants were ready to provide broad-based support to the management of OWD and stakeholders in the overall coordination and monitoring of the ISAP implementation process and carrying forward the recommendations of the above institutional options. This will mainly involve:

- helping the OWD-led ISAP Working Group and OWD senior management with periodic oversight of the various ISAP-driven activities and the associated inputs, with a view to optimizing the capacity-building, knowledge-sharing and skills-transfer benefits for OWD staff through proactive coordination and (where appropriate) integration, and
- assisting with monitoring and reporting of progress on institutional options and progress of ISAP implementation.

Such ISAP implementation support from the Consultant will be required not only during the contracted period of the services but also after submission of Draft Final Report. It is proposed that as per needs, RSID Team will indicate the areas and forms for further involvement of the Consultant's Key Staffs and other supporting staff, that may be warranted and necessary in assisting with monitoring and reporting of the ISAP implementation process beyond the contract period. This requirement will then be reviewed by OWD for consideration of any possible extension of contract with skeletal arrangement of some key/support staff, if required.

Table 8-1: Road Sector Stakeholder Wise Actions to Address Key Road Sector Challenges

Lead Stakeholder	Sector Challenge	Institutional Issues - needing redressal	Possible Options and Status	Associate Stakeholders
OWD	Policy	Uniform, Strategic Policy Directives	Notified Road Sector Policy for Odisha Status: Odisha Road Sector Policy (prepared by RSID consultants) has been endorsed by State level Empowered Committee (SLEC). Integration of Comments of other stake-holding GOO departments is underway, before submitting it for approval/notification by GOO.	Transport, Road Users, Finance, Legal,
	Planning	Absence of long term road development plans, lack of scientific investment planning	Centralized Policy and Planning Unit Master Planning and its sustained update, capacity building of planning unit, wide spread traffic surveys and data analysis Status: Separate Planning and Asset Management Unit has been established in OWD, Preliminary Training On Strategic Transportation Modeling has been provided	RDD, Finance, PR, P&C, Road users
OWD, RDD, PR	Road Construction	Increasing work-loads, limited staff, Contractor capacities, Outsourcing of services, Delegation of powers	Staff recruitment, competency needs HR Planning, Contract administration, Addressing LA issues, Contractor and staff capacity Development, Project Management. Status: Based on Sound HR Plan, OWD has initiated the process of recruitment of engineers.	Revenue to support LA
RDD and PRD	Rural Connectivity	Improved capacity of PR, better standards to lower maintenance, funding	Capacity Enhancement, setting and maintenance of standards Road database Status: Road Network Master Plan has identified habitations without all-weather road connectivity.	OWD to guide standards
Transport	Vehicle Axle Load Regulation and	Need to regulate axle loads, which impacts road deterioration and	Specific Modifications/Amendments in Motor Vehicle Act Establishment of WIM (Way in Motion) and Static Weighbridges at Check Posts and Toll Plazas,	OWD to support

Lead Stakeholder	Sector Challenge	Institutional Issues - needing redressal	Possible Options and Status	Associate Stakeholders
	Management	pavement design	Offloading/ Parking of Overloaded vehicles at check posts and toll plazas	
Transport (Executive Board lead by Secretary, Transport)	Road Safety	Accident database, coordination amongst stakeholders, funding for road safety	Rejuvenation/Activation of the Coordinating Body (Odisha State Road Safety Council) Dedicated state funding for road safety Approval of Road safety Action Plan and its implementation Status: Odisha State Road Safety Council is now functioning Process of road safety audit is under finalization by OWD Odisha State Road Safety Policy has been notified.	OWD, Home, Health Education, Truck/Bus operators, NGOs
OWD, RDD, PRD	Road Maintenance	Road condition data, Scientific RMMS/AMS	Adoption of long term performance based contracts, Computerized Road condition database and AMS Actions: Assessment, procurement and installation of required Hardware, software, monitoring, Training, IT wing in the Department, Condition Surveys Status: Asset Management Cell in OWD	Road users (surveys)
OWD	Capital Budget Funding for Major roads	Funding for capital works and their management	Encouragement to PPP, Separate autonomous entity to promote PPP, External Aid Scientific identification of viable (limited to nil Viability Gap Funding) roads for PPP Status: Some major roads have been identified for PPP External funding (World bank) is continuing	Planning, Finance
OWD, RDD	Capital Budget for “connecting” roads	Plans, Transparent Prioritization criteria	Budget Support, Central and External Aid Adoption of RNMP and prioritization of roads for integrated development Status: Rural roads are being extensively built with PMGSY funds.	Planning, Finance

Lead Stakeholder	Sector Challenge	Institutional Issues - needing redressal	Possible Options and Status	Associate Stakeholders
OWD, RD,PRD	Assured Funding for “road maintenance”	Assessment of maintenance funds	Earmarked Funding, Road user charges and its use for maintenance (Road Fund) Besides AMS of OWD, guidelines for maintenance of roads providing “connectivity” Status: Only budgetary funds are presently used for maintenance A separate dedicated fund by using cess or surcharge on petroleum fuels has been positively discussed by Secretary (Commerce) and Secretary (works)	Finance
	Contract Administration due to increased outsourcing	Contracting expertise Lack of standard procedures and contract documents for goods, works and services	Adoption of standardized contract documents, Use of procurement manual, Capacity Building in contract administration and negotiation skills Status: Standard bidding documents and procurement manual have been developed besides improvements in OPWD Code and Manual.	
OWD, RDD, PRD, Transport	Human Resources	HR Planning, recruitment of engineering and associated staff,	Recruitment, Capacity Building, Multi-skilling, Outsourcing of services Status: OWD has initiated the process of recruitment of engineers.	
OWD, RDD, PRD	Staff Training	Sound directives, Scientific training Management System	Development of HRD cell and its scientific approach to training, training budget Acceptance of HRD Policy by other road sector departments, Establishment of HRD Units within each road sector organizations, Twinning with Training Institutes OWD managed Training Academy for road engineers, wherein staff of contractors can also be trained Status: HRD Policy for OWD has been approved	

Lead Stakeholder	Sector Challenge	Institutional Issues - needing redressal	Possible Options and Status	Associate Stakeholders
			Creation of a Training & HRD Cell in OWD is underway.	
OWD	Contractor and Workmen Capacities	Capacity Building, Liaison with Financial Institutions	Budget provision under road construction and maintenance tenders Training by OWD, Twinning arrangements/Training Academy Status: Construction Academy Building has been completed. GOO in collaboration with Larsen & Toubro have been imparting training to unemployed youth for skill development in Masonry, Bar bending and form-work under carpentry.	RDD, Road Construction Industry
OWD and RDD	Social and Environmental	Inclusion of Social and Environmental aspects in project development and implementation	Recruitment of Competent Staff Development of Environment and Social units within these organizations Status: Individual subject matter experts or consultants are being used by various road sector agencies	
Planning and Coordination Department	Monitoring and Evaluation	Need for improved monitoring to support planning and assessment	Identifying Key Result Areas (KRAs) and setting KPIs (key Performance indicators) Development of system of data collection and analysis, M&E Unit in Planning and road departments	OWD, RDD and PRD
OWD and RDD	Road Users and Public Consultation	Public consultation, feedback from public	Development of a consultation mechanism especially for integration in planning, assessment of road user satisfaction Status: Planning unit has been established in OWD	Truck and Bus Operators, NGOs
GOO	Institutional Developments	Efficient and effective project development, procurement and delivery	Transparent and quick decision making processes and systems in place along with availability of competent staff to manage them, Inculcation of corporate culture (value for money) Status: Meeting of High Level Officials of GOO had recommended formation of ORDC by transforming it from OBCC.	

Appendix-A- Lessons from Madhya Pradesh and Maharashtra RDCs

1. Madhya Pradesh Road Development Corporation

1.1. Genesis & Evolution (2004-05 to present)

Madhya Pradesh had a Bridge Corporation formed in 1979. Due to non-performance, the Bridge Corporation was closed down in 1992, and the staff (recruited and deputed) of the Bridge Corporation was merged into PWD. Around 2001, the Government of Madhya Pradesh has started a company to fast track road development projects. The company was given responsibility to implement 10 BOT projects. During 2004-05, Madhya Pradesh Road Development Corporation (MPRDC) was formulated by taking all assets and liabilities of the earlier defunct Bridge Corporation. MPRDC was incorporated in July 2004 as a wholly owned State Govt. Company under Companies Act 1956.

During 2004-05, the Govt. declared MPRDC as the State Highway Authority and entrusted development and maintenance of all SHs to MPRDC. PIUs were formed in PWD to implement ADB projects. The whole team of PIU with ADB project was later transferred to MPRDC. During the initial stages, all staff was on deputation from departments like PWD, Housing Board etc. The MPRDC started with 15 to 20 staff and with one Chief Engineer, and currently have 171 employees with 14 divisions across the State. Of the 171 staff, around 100 are engineers.

1.2. Mandate & Current Workload

The mandate of the corporation was to implement BOT projects in PPP. The MPRDC started with 10 BOT projects. Soon after, the entire State Highway (SH) network was transferred to MPRDC from PWD. As time progressed and due to the efficient functioning of MPRDC, a limited length of MDR network and other projects such as major buildings, Border Check posts, Hospitals etc., were entrusted to MPRDC for implementation. The summary of MPRDC portfolio is shown below.

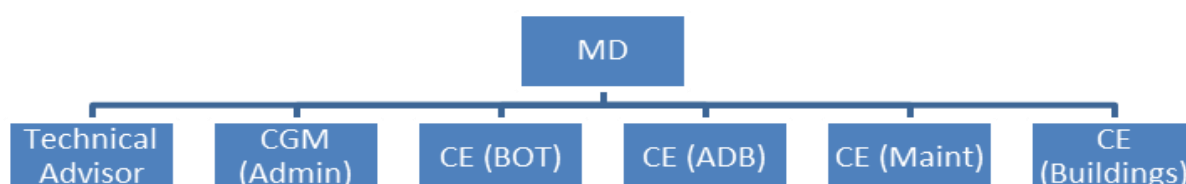
Particulars	Unit	Quantity	Remarks
Roads			
NHs	Length	1,443 Km	Out of total 4,709 km
SHs	Length	10,356 km	The entire length
MDRs	Length	5,032 km	Out of total 19,574 km; managed by PWD
Buildings			
Medical Colleges	Nr	3	At Ratlam, Vidisha & Shahdol
Convention Centre	Nr	1	
Others			
Border Check Posts	Nr	24	
ROBs	Nr	34	

1.3. Organization Structure & Staffing of MPRDC

MD of MPRDC is of rank of Secretary and he is the ex-officio Secretary of PWD to GoMP. The MD of MPRDC is empowered to sign the loan agreement with multi-lateral funding agencies. The organization structure follows:

Chairman:	The Chief Minister
Vice Chairmen:	Minister of PWD & The Chief Secretary
Board Members:	Secretaries of the PWD, Finance, Forest, Urban Affairs & Mining Department & MD of MPRDC

The MD is supported by four Chief Engineers as shown below:



The MPRDC is organized with Head Office at Bhopal and 14 Divisional offices across the State, headed by Divisional Manager equivalent to the rank of Executive Engineer. It shall be noted that divisional offices are not segregated based on the area, rather the projects assigned.

1.4. Financing of MPRDC

During the initial stages, the State Government supported the initial expenses including establishment costs. However, after the implementation of BOT projects, MPRDC managed to sustain through the premium received from the BOT projects and from other sources. The major source of funding of MPRDC is as shown below:

- Premium from BOT Projects (selected SHs)
- Budgetary support for development and maintenance of SHs, apart from funds under BOT & ADB
- Interest on Fixed Deposits
- Agency Charges (6%) to execute projects from other agencies such as Buildings, Integrated Border Check Posts etc.
- Performance Security (very strict in implementation) of default bidders is retained

1.5. Type of Projects & Sources of Funding

The MPRDC adopts the following funding mechanisms for implementation of projects.

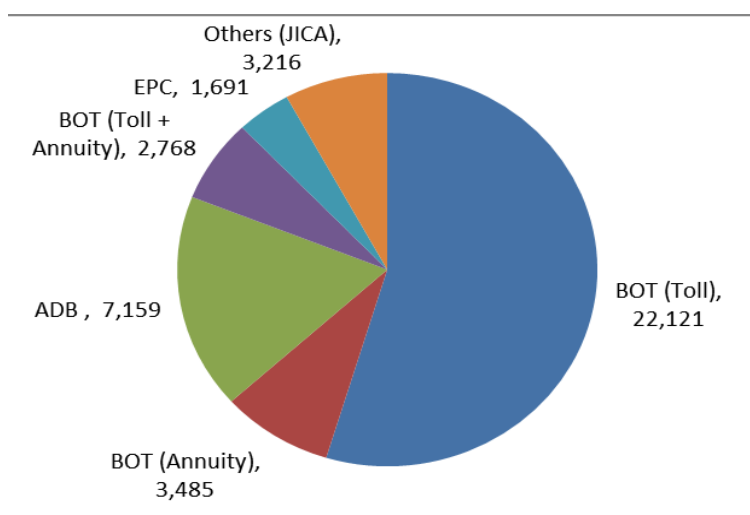
- BOT (Toll)
- BOT (Toll + Annuity)
- BOT (Annuity)
- ADB Funded
- EPC
- Others (JICA, Building Works)

The different models of financing adopted by MPRDC and project portfolio (executed & pipeline) is presented in the following Table & Figure:

Cost in Crores

Model	NH	SH	MDR	Others	Total
BOT (Toll)	8,459	10,600.14	96.73	ROB/ RUBs 1,330 Border Check Posts 1,094 Airport 250 Convention Centre 200 OMT 9	22,120.81
BOT (Toll + Annuity)		1,798.07	970.16		2,768.23
BOT (Annuity)		101.04	2,321.11	Medical Colleges 1,050 ARS 12.50	3,484.65
ADB Funded		4,159	3,000		7,159
EPC	526.13	1,691			2,2217.13
Others (JICA)			3,000		3,216
Grand Total	8,986.07	18,349.25	9,388	4,242.50	40,965.82

Cost Share in Crores of Rupees



It shall be noted that the quantum of projects managed by MPRDC raised from Rs, 7,000 Crores during 2006-07 to Rs. 40,000 Crores by 2014-15.

It is also worth noting that only about 100 engineers has managed around 16,000 km of road network, apart from other buildings and Rs. 33,000 Crores worth projects during the last 5 years.

1.6. Success factors of Corporation

Outsourcing – MPRDC outsources all technical (design, costing, construction & maintenance) to consultants and contractors and manages all technical activities through them. Even, the maintenance of the road network is carried out through Operation, Maintenance & Transfer (OMT) arrangement using performance based maintenance contracts. The risks associated with a project are rightly apportioned. All matters related to Land Acquisition, environment & forest clearances, Tree cutting, shifting of utilities etc., are directly handled by MPRDC officials, particularly field divisions.

Rapid Decisions – MPRDC has developed quick decision making capacity. A typical example is illustrated below.



The process from bid submission to issue of letter of acceptance only takes 6 to 8 days in MPRDC. The decision making is streamlined. For example, any bid above Rs. 5 crores has to be approved by the Tender Committee, which is headed by the Chief Secretary. The process is insulated from political involvement. To quote another example of rapid decision making, systems have been developed within MPRDC to pay the bills/ receipts submitted by the Contractors/ Consultants within 2 working days, which has largely been adhered to.

Transparency - All procedures of MPRDC are transparent, including the bidding process. This enabled MPRDC to gain the trust of politicians, public, consultants and contractors and concessionaires. The corporation has gained the faith of all lenders ensuring financial closure of BOT projects.

Leadership – Leadership is a key factor in the success of MPRDC. It has been noted from the officials the role, dynamism and political influence of the Managing Director (present and past) played a big role in the successful operation of MPRDC. Some of the people interviewed suggested the leadership as the most influencing factor in the success of MPRDC.

Human Resources – MPRDC has managed to develop a hard working team who respond to urgent situations in quick and appropriate manner. It has been noted that an efficient system is now set in place and anybody deputed to MPRDC must perform. Most of the engineers in MPRDC are deputed from PWD and they found to be easily adapted to the new work culture and environment.

Other factors – deployment of supervision and quality control consultants with international expertise; adequate budget provision for annuity and VGF payments by the State Government; annual payment along with bonus on due date; expert like legal advisor, chartered accountant, environment expert, MIS expert, road data system engineer etc., are engaged in-house; political commitment and support; and concessionaires are treated as partners;

1.7. What happened to PWD?

The rise of MPRDC did not hamper the expansion of PWD. In fact, in recent years, PWD has expanded in staff and quantity of work load. PWD still is responsible for development and maintenance of large number of buildings owned by the Government, in addition to around 14,500 km of MDRs and all of the ODRs. PWD manages buildings and the road network through its 50 field divisions (headed by Executive Engineer) spread across 50 districts in the State.

1.8. Strengths & Weaknesses: MPRDC

Strengths

All of the points mentioned in section 1.6, which otherwise if difficult to achieve in a traditional set up of PWD.

Simplified Administrative Procedures – As noted early, administrative procedures are confined to a single building and few individuals, and these results in effective and efficient administration.

Ability to take up big projects – Mega projects requires quick decision making. Moreover, in

PWD, projects are confined to divisions. Therefore, the bids has to be sliced to accommodate the jurisdiction of division, whereas in the case of Corporation, a road spanning 3 or 4 divisions, can be tendered as a single project and then managed through a team of consultants.

Weaknesses

Personality driven, not system driven - The major weakness is that MPRDC is still personality driven, rather than system driven. If the leadership becomes slack at any given time, there is a high risk of MPRDC becoming inefficient.

Political Support – The political commitment and non-interference in the operations of MPRDC is a significant success factor. Any change in this scenario, will affect the functioning of MPRDC

2. Maharashtra State Road Development Corporation

2.1. Genesis & Evolution (2004-05 to present)

During 1995-96, the Government of Maharashtra (GoM) created Maharashtra State Road Development Corporation (MSRDC), a fully government owned company with an equity capital of 5 Crore, to attract private finance in the road sector. MSRDC was established under the Companies Act, 1956. The MSRDC started with the development of now famous Mumbai Pune expressway, along with 59 flyovers in Mumbai.

2.2. Mandate & Current Workload

The original mandate of MSRDC was to undertake works on BOT basis in Public Private Partnership (PPP). Key projects include Mumbai Pune Expressway, Worli Sea Link & 50 flyovers in Mumbai. Since its inception until date, MSRDC has completed projects to the tune of around Rs. 7000 Crores. The list of projects completed by MSRDC is shown below:

Sl. No.	PROJECTS	Project Cost	Total Cost
1	Mumbai - Pune Expressway	2,136.00	2135.13
2	55 Flyovers in Mumbai	1,617.00	1,264.06
3	ROB's in Maharashtra	195.00	213.92
4	Kalyan Durgadi Bridge	15.12	15.12
5	Thane - Ghodbunder Road	117.88	72.16
6	Wardha Nakoda	7.68	7.68
7	PWD Projects	59.07	78.00
8	Integrated Road Development Projects in Latur	33.40	33.06
9	Four laning of Satara - Kolhapur - Kagal National Highway	750.00	817.84
10	Integrated Road Development Projects in Baramati	36.04	60.07
11	ROB – Nandgaon	3.02	4.49
12	Bandra-Worli Sealink	1,634.25	1,690.76
13	Integrated Road Development Projects in Pune	270.52	164.00
14	Integrated Road Development Projects in Solapur	88.00	103.81

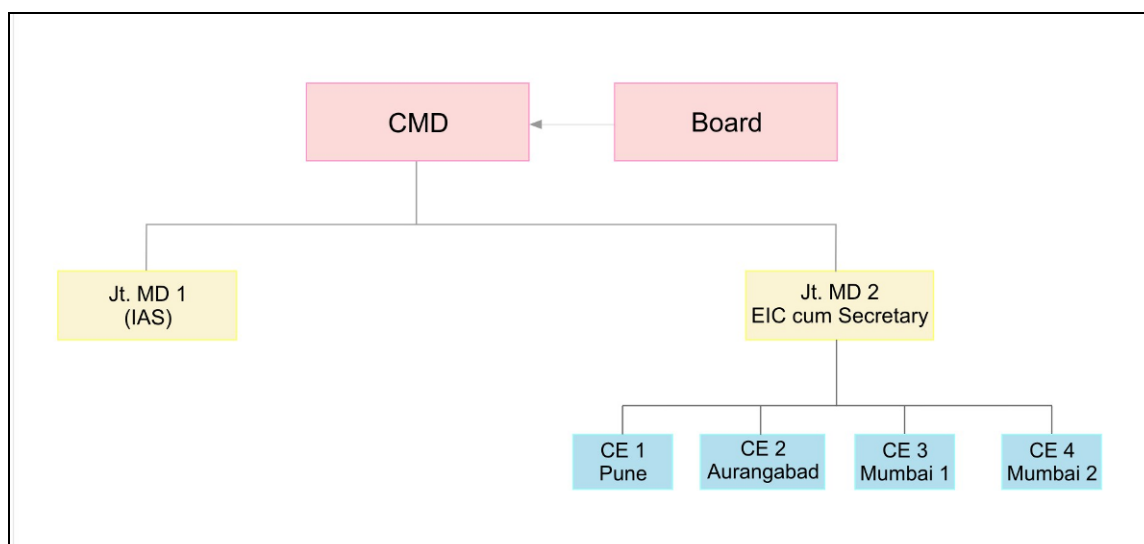
15	Integrated Road Development Projects in Nandurbar	21.00	27.35
16	Integrated Road Development Projects in Nanded	87.57	107.42
17	Integrated Road Development Projects in Amravati	115.00	156.32
	Total Cost - Projects Completed (A)	7,186.55	6,951.19

The ongoing projects under implementation by the MSRDC are to the tune of Rs. 1,500 Crores. The list of ongoing projects is provided in the following table.

Sr. No.	Particulars	Estimated Cost	Expenditure
1	Nagpur - Aurangabad - Sinner Ghoti Road	722.00	792.79
2	Integrated Road Development Projects in Nagpur	422.00	451.88
3	Integrated Road Development Projects in Aurangabad	142.00	205.30
4	Integrated Road Development Projects in Kolhapur	172.00	4.80
5	Integrated Road Development Projects in Beed		2.36
6	Widening of Nagpur Katol Jalalkheda Road	11.00	3.23
7	Misc. Projects -	55.00	92.39
	Total Cost – Ongoing Projects (B)	1,524.00	1552.75

2.3. Organization Structure & Staffing of MSRDC

The management of MSRDC is by a board, of which PWD Minister is the Chairman and the CMD of MSRDC is the member secretary. CMD is a senior level IAS officer. CMD is assisted by 2 Joint Managing Directors (Jt. MD). One Jt. MD is an IAS officer, who is responsible for the administration and commercial aspects of the Corporation, while the other Jt. MD is a technical person, equivalent to EIC cum Secretary (PWD), responsible for technical and project management aspects of MSRDC. The Jt. MD 2 (EIC cum Secretary) is assisted by four Regional Chief Engineers (Pune, Aurangabad, Mumbai-1 & Mumbai-2).



The total staff of MSRDC is about 80, of which 25 to 30 are engineers. Most of the staff working in MSRDC have been recruited on deputation from PWD. Other activities such as project preparation, quality control etc. is outsourced and carried out through the Consultants.

2.4. Financing of MSRDC

MSRDC has an equity of INR 5 Crores. The main sources of revenue of MSRDC are:

- Surplus generated out of the completed BOT projects;
- Toll income of ongoing projects;
- Income from the toll of the projects completed through State Budget, and such projects which are transferred to MSRDC for further toll collection with condition of maintaining the same;
- Surplus generated out of the development of Govt. land belonging to PWD or other department; and
- Income from roadside advertisement, leasing of borrow area land after completion of the project, lease rent from cable ducts, etc.

2.5. Type of Projects and Sources of Funding

MSRDC activities are limited to development of highways, flyovers, ROBs, Bridges and Integrated Road Development Projects in Urban Areas. Unlike MPRDC, MSRDC have not ventured into Buildings and other infrastructure works. The sources of funding are mainly tolls. The projects developed by MSRDC are maintained by them as well.

2.6. Strengths & Weaknesses

Strengths

Outsourcing – MSRDC outsources all technical (design, costing, construction & maintenance) to consultants and contractors and manages all technical activities through them. Even, the maintenance of the road network is carried out through Operation, Maintenance & Transfer (OMT) arrangement using performance based maintenance contracts. All matters related to Land Acquisition, environment & forest clearances, Tree cutting, shifting of utilities etc., are directly handled by MSRDC officials, particularly field divisions.

Raising of Funds – Comparatively easy to get loan for the specific project or sets of projects fulfilling some objective. The MSRDC enjoyed Government Guarantee, but now not available.

Rapid Decisions – For mega projects, a mechanism to ensure quick technical, financial and administrative decisions is needed, which can only be achieved, in the current climate, through a corporation. The decision making is much faster in MSRDC compared to PWD, as expected.

Flexibility in Contracts – MSRDC's experience indicates that any changes required in scope of work, concession period, other contractual amendments, etc., can be achieved without any controversy in a corporation set up, compared to PWD.

Viability Gap Funding – For marginally unviable projects, the Corporation can do the viability gap funding out of the surplus generated from other projects

Coordination with other departments – The CMD of MSRDC, being senior government officer, is able to influence officer of other departments for quick positive outcomes of any pending issues such as land acquisition, police protection, quarry permits etc.

Weaknesses

Personality driven, not system driven – Like in other road corporations, the major weakness is that MSRDC is personality driven, rather than system driven. If the leadership becomes slack at any given time, there is a high risk of MSRDC becoming inefficient.

Political Support – The political commitment and non-interference in the operations is a significant success factor. It appears that MSRDC is weakened by the political environment in the State.

Case for Establishment of Odisha Road Development Corporation

(submitted as draft in 2014 for review by ISAP Cell)



1. Consensus



2. Commitment



3. Upholding Financial Growth



The on-going Road Sector Institutional Development (RSID) study has brought out various challenges to the road sector and associated shortcomings in the Institutional Capacity of the road sector organizations of Odisha. Further, in view of the requirements of ToR, RSID consultants have been analysing the possibilities for establishment of Odisha Road Development Corporation (ORDC) to meet a number of road sector challenges.

Accordingly, a report by reviewing and analysing related experiences in the country was developed and an option for Establishment of ORDC was presented to OWD officials. After the presentation of reform initiatives and experiences with Road Development Corporations of various states, in March 2014, to the E-in-C (Civil), Chief Engineer (DPI & Roads) and other senior officers of OWD, the Chief Engineer directed the RSID Consultants for exploring further possibilities and developing a case for deciding further course of action for establishment of ORDC/ORBDC in the state.

This Report makes an analytical case for ORDC. In this background, proposal for establishment of a Corporation (ORDC/ORBDC) deserves serious considerations by GOO in reducing/eliminating a number of institutional limitations in addressing the key road sector challenges.

Executive Summary

In 2009 the Government of Odisha (GOO) initiated Institutional Development studies for road sector in Odisha and developed an Institutional Strengthening Action Plan (ISAP) 2008-18. Its focus was on to carry out reforms in the road sector. The ISAP 2008-18 identified various key areas for implementation. In order to meet the multi-faceted road sector challenges, GOO has been pursuing various reform initiatives in the road sector administration to accelerate infrastructure development in the State. The reform initiatives are being formulated with an objective to improve the quality of lives and achieve sustained socio-economic growth.

The Road Sector Vision 2021 by Government of India stipulates up-grading of all State Highways and Major District Roads by 2021. One of the major reforms indicated was the Establishment of ORDC. But the proposition for ORDC was not realized mainly because necessary environment for this initiative was not available. Now the Road Infrastructure Reform Process has gained momentum and encouraging developments are taking place. This environment is encouraging

In order to address road sector institutional strengthening needs, a number of studies/investigations have been taken-up under the on-going RSID assignment. The strategic analysis contained in the RSID reports emphasized various challenges and ways to overcome existing shortcomings and need for strengthen road sector organizations. These reports covered the areas of Road Sector Policy & Strategy, Reorganization & Strengthening of OWD, Staff Training & HRD for OWD, Road Safety Engineering & Planning, Road Network Master Planning, Road Toll Collection & Management, Future Roads Management Funding, Vehicle Axle Load Regulation & Management besides Revision of OPWD Code and Development of OPWD Manual. The on-going study on 'Future Road Sector Institutional Options' also underlines the need for establishment of an autonomous organization like Odisha Road Development Corporation (ORDC). The growth forecasts outlined in the Road Sector Policy document indicates considerable rise in urban population, substantial growth in agricultural, services and industrial sector and simultaneous increase in vehicular demand. The analysis undertaken for Road Network Master Plan indicates that with business as usual scenario, about 10,000 km of the major road network would become capacity constrained by the year 2018. These studies emphasize on urgent need for accelerating road sector development.

In order to identify relevant organizational characteristics of a potential road sector organization to address the existing road sector challenges, RDCs of Karnataka, Maharashtra, Gujarat, Madhya Pradesh, Kerala and Tamil Nadu were reviewed. Further, well-established RDCs like Gujarat, Andhra Pradesh, Madhya Pradesh and Maharashtra were also examined closely to identify their suitability for Odisha. A few more recently created Road Corporations in Bihar and Rajasthan also provided required insights. The review and analysis identified few relevant good practices for possible adoption by Odisha: 1. Incorporation as a company under the Indian Company's Act, 1956 as either wholly owned or majority holding by government, 2. forming a Board of directors, 3. setting up Organizational structure units and designations on functional lines; 4. Dedicated planning and management functions; 5. Specific commercial wing for tolling and 6. Exploitation of Right of Way assets.

Based on the experience of various states, it is anticipated that RDC needs to be provided required 'business/operational autonomy'. However, to exercise some Government Control, it should report to a Governing Body. Accordingly, the proposed RDC will have operational autonomy like a commercial organization but still will be subjected to some Government control.

With the presence of existing organizations like OWD, RDD and PR Department, it would not be prudent to allow overlaps in functional responsibilities and/or coverage. Therefore, RDC should focus on development and maintenance of proposed roads with heavy traffic and on roads of strategic importance to the state. The roads with potential heavy traffic and of strategic importance, are the ones, which is likely to attract the private sector participation in the foreseeable future. In nutshell, proposed RDC can focus on the suggested roads and encourage private sector participation for the construction and maintenance. Instead of development of ORDC from the beginning an option of converting existing Odisha Bridge Construction Corporation (OBCC) Limited to ORDC was also reviewed. Though administratively easier, the current scenario indicates that such transformation shall require serious efforts in changing the culture and HR of the organization. No doubt, the resources like manpower, construction equipment and building structures can be used by ORDC.

Overall, the fulfilment of ORDC's role and mandate will be based on setting up of required functions under the organizational Structure for ORDC. Functions and Departments in ORDC may include PPP Department, Finance Department: Accounts, Corporate Services, and Units of MIS, Technical Services, Procurement, Commercial Services, Public Relations, Legal, Vigilance and Audit. In order to make new departments effective some functional resources from OWD may have to be transferred to new ORDC. But, such transfer will mainly depend upon the extent of requirement felt in the growing ORDC. No transfer should take place causing harm to on-going operational functioning of OWD. However, it should be noted that it is important to firm up on recommendations relating to ORDC.

Advantages of Establishing ORDC

The creation of a new, modern road management agency such as an RDC could derive following advantages:

- Autonomy of operations leading to high operational efficiency
- Good office environment and facilities, equipment and working conditions;
- Attractive employment conditions;
- Excellent ICT infrastructure;
- Computerised business applications;
- Enthusiastic and experienced staff with proven performance drawn from OWD, and other Government agencies or even the private sector;
- Strong commitment to training and HRD;
- A strong sense of corporate purpose concentrating solely on roads; and
- A clear mandate from the Government and assured budget for major road projects.

Limitations of ORDC

However, on the debit side, the RDC model relies heavily upon the availability of resources and expertise in the Private Sector to respond competitively to a fluctuating workload. Further, ORDC is not expected to take over the responsibilities of OWD, which shall continue to have the major role of Strategic Policy and Planning. The two organizations can co-exist, but with separate responsibilities. However, if RDC concept is accepted and introduced in Odisha, it will add yet another organization and require additional coordination effort on the part of all road organizations in the State. Its creation would require deputing better expertise from OWD and could weaken OWD. This aspect will need deliberations within OWD and GOO.

In order to make new organization strong and sustain its vigour, a number of developments during implementation have been outlined. These could be: Establishment of State Road Authority, Implementation of Governance and Accountability Action Plan (GAAP), Performance Benchmarking of Organizations, Road Funding Mechanism, Performance Based Maintenance Contracting etc. It is anticipated that Establishment of ORDC/ORBDC could mark the beginning of a new era of rapid and sustainable development of Road Sector in Odisha.

1. Background



Government of Odisha (GOO) initiated Institutional Development studies for road sector and had approved an Institutional Strengthening Action Plan (ISAP) 2008-18 to carry out reforms in the road sector. The ISAP 2008-18 has identified various key result areas and actions in order to improve the development and management of road sector in the state. Ongoing Road Sector Institutional Development (RSID) study is a major step forward in this respect.

1.1. Introduction

The Government of Odisha engaged the services of ICT Pvt Ltd. in April 2012 to assist GOO in implementation of the ISAP objectives. The Consultants reviewed the ISAP objectives, Key Result Areas and actions identified against key result areas. Since inception of the RSID project, the Consulting Team have assessed the performance of various key functions of OWD and other agencies operating in the road sector. Significant progress has since then made towards achieving the key result areas of ISAP.

As a part of institutional options study, the RSID Team assessed, discussed, evaluated, developed and presented a paper - 'Case for Odisha Road Development Corporation (ORDC)' in March 2014. It included road sector challenges, limitations in institutional capacities and thus a need for autonomous operations to accelerate road development and maintenance in the state. In view of this, it also proposed roles, functions, powers and responsibilities for a potential Odisha road Development Corporation (ORDC). The paper described analysis of a number of Road Development Corporations (RDCs) in Indian States and identified their relevance to Odisha. The paper also had a draft outline of proposed ORDC. The presentation was made to Engineer in Chief, Chief Engineers as well as other Senior Engineers of OWD. Based on this, RSID was directed to prepare detailed feasibility of ORDC for the GOO to take an informed decision on its establishment. This report builds upon the earlier work and details out towards establishment of ORDC/ORBDC and provides required recommendations for implementation.

1.2. Focus of the Report

This report highlights road sector challenges and limitations in scrutinizes assessment of the functional, organizational, staffing, financial, administrative and legal/authority enhancements

requirements of ORDC It then assesses examines measures required in the present role, mandate, governance and resources of the ORDC. New organization should effectively undertake the 'ownership' and management of the Road Network Management (CRN) for the network when it is made accountable. The application of Strategic issues addressed in ongoing RSID project has been given priority consideration in preparing Feasibility of ORDC. Soon after its establishment this will make ORDC attain its sustainability and perform its lead role in managing capably Road Sector of Odisha.

1.3. Structure of the Appendix

After the section on background, Section 2 describes the Road sector Scenario for Odisha. Section 3 focuses on upcoming road sector challenges, limitations in institutional capacities to address them and attempts to evolve possible institutional options. Referring to existing inadequacies in OWD and future challenges, it highlights the need for an autonomous organization like ORDC. Section 4 undertakes an exhaustive review of existing RDCs of other states and focuses on the issues, which ORDC can emulate. Section 5 proposes ORDC as one of the viable solution and identifies possible functions for it. The need for operation of ORDC, as a Business Unit, has been stressed in this context. While considering traditional functions of Public Works Departments, a comprehensive list of 47 such functions was developed and a number of them could be undertaken by ORDC, to which 3 new functions have also been added. With existing limitations, it stresses the need for participation of private sector in the development and maintenance of road sector.

Section 6 explores ways to formulate ORDC. As the Odisha Bridge Construction Corporation has not been performing effectively, the chapter also scans its environment with a view to explore option of transforming it into future ORDC. The analysis results into a high possibility of such re-engineering/transformation.

Appropriate functional requirements for ORDC have been brought out under Section 7. Following the requirements of functional departments, an outline of future Organisation Structure is also presented in the chapter. Important requirement in development of ORDC is addressing the need for legal provisions. The same has been described in Section 8. Section 9 describes phasing of ORDC development along with their probable timing. Last Section 10 on Way Ahead makes a case for the need for evolving a sustainable ORDC. For this, a number of initiatives to make ORDC sustainable have been indicated.

2. Road Sector Scenario of Odisha

2.1. Present Road Sector of Odisha

The present status of road sector of Odisha is as follows:

1. The density of “surfaced” roads is only 140 km per 100,000 population, which is much below the national figure and other States like Punjab, Gujarat and Karnataka;
2. Length of State Highways per million population is only 89 Km in the State, while all India average is 135 Km;
3. Approximately 25% of the major road network i.e. approximately 4,260 km road have been operating under capacity constrained conditions;
4. Approximately 40% of the villages/habitations does not possess any all-weather road connection with the existing road network;
5. Approximately 40 percent of the existing urban roads are unpaved, resulting in reduced operating width of major city roads;
6. Almost constant declination of road safety situation over the years with a recorded 3,500 fatalities in recent past year that amounts to average 10 fatalities per day; and
7. About 90 per cent of the commercial vehicles plying on the road network are overloaded;
8. Significant maintenance backlog on the major road network resulting in poor road surface condition and increased vehicle operating costs.

2.2. Future Road Sector Issues and Shortcomings

The **Road Sector Vision 2021 of Government of India** stipulates for up-gradation of all State Highways and at least 40% of MDRs to two lane with paved shoulder standards by 2021, provision of two lane roads with adequate capacity to all major centres of tourism, industry and mines and all weather road connectivity to all habitations irrespective of the population, which is a major challenge to Government of Odisha (GOO). Other challenges faced by the State in the road sector are:

- Low infusion of private sector investments
- Capacity constraints of local construction industry
- Lack of awareness on implementing environmental mitigation measures
- Need for coastal highways cum surge embankments to mitigate the consequences of natural calamities i.e. cyclones, floods etc.

In order to meet the above multi-faceted road sector challenges, Government of Odisha (GOO) has been pursuing various reform initiatives in the road sector administration to accelerate infrastructure development in the State. The reform initiatives are formulated with an objective to improve the quality of lives in addition to achieving sustained socio-economic growth. Some such initiatives are:

a. Road Sector Policy and Strategy

A good quality road network is essential to achieve high socio economic growth in the State of Odisha. In order to achieve this it is essential to have a Road Sector Policy which will provide a directional framework for developing future road development plans on a scientific basis, and shall also accord a special priority to the road sector. Some of the progressive States having Road Sector Policy are Gujarat, Kerala, Karnataka, Andhra Pradesh etc. However, implementation of policy directives would require changes in existing institutional framework.

b. Future Roads Management Funding

The works undertaken on situation of financing road development and maintenance recommends initiating process for dedicated road funding mechanism for maintenance through road user charges and enhancement of VAT on petroleum products. This shall require needful legislative actions.

c. Road Safety Engineering & Planning

The road safety scenario of Odisha is not too good. The issues in road safety are: lack of coordination among concerned departments, poor law enforcement, lack of road safety engineering skills in road agencies, limited road safety awareness campaigning. In addition, Police do not have training and hence inadequate involvement in road safety. Under reform initiatives, improving coordination by formulation of a State Road Safety Council has been proposed, which may coordinate development of a Road Accident Database Management System and pursue dedicated funding for road safety interventions. Other issues, which needs redressal are driver training. Until, such measures are implemented along with improved engineering measures (junction design, signage etc.), level of satisfaction of the road users may not improve. .

d. Road Network Master Planning

Future challenges in the Odisha Road Network Development have been detailed in the Road Network Master Plan (RNMP). Highlights of key challenges are as follows:

National Highways – Minimum of two-lane carriageway with paved shoulders by 2021 will be needed. All SHs and 40 percent of MDRs should have a minimum of 2-lane carriageway by the end of 2021. Bypasses around congested towns, and all at-grade level crossings has to be provided with ROBs by 2021. Appropriate connections will have to be made to tourist centres, mining areas, power plants, industrial complexes and ports. Improved village connectivity will also lead to release of suppressed demand. Development of 14 ports for which Industrial/ Mining Corridor will have to be developed. Improved tourism connectivity shall be needed, as Odisha plans to grow as an attractive tourist destination. Selected SEZs will be developed. Overall, this shall require massive road development in next 10 years.

2.3. Existing Institutional Inadequacies

Review of the main factors indicated above and specific deficiencies of Road Sector in Odisha discussed with the officials as well as outlined in the RSID Reports. There is an opportunity for

overcoming shortfalls with establishment of ORDC and equipping it with desired capacity. Reported shortcomings are as follows.

- a) **Outdated Management Structures:** Despite their large asset values and high annual turnover (particularly with maintenance fully funded), roads in general are still administered like a small government department, resulting in structural weaknesses.
- b) **Lack of Clear Responsibilities:** Responsibility for roads is often diffused among several Government ministries and local government administrations.
- c) **Human Resource Constraints:** Some roads agencies are within government administrations suffer from severe human resource constraints brought about by acute shortage of qualified and experienced technical and managerial staff, while at the same time they often have too many unskilled workers.
- d) **Weak Management Information Systems:** Effective management requires timely collection and analysis of both physical and financial information. This shortcoming is resolved by introducing road management systems, but with little success. Effective outcome of just completed Odisha- AMS is awaited.
- e) **Inadequate Financing:** Road Sector is suffering from a shortage of funds for maintenance and improvement of roads. This is manifested in the form of rapidly eroding asset values, increase in traffic congestion, deteriorating road safety, and worsening environmental pollution. In particular, expenditure on road maintenance is well below the level required to stop the steady decline in asset values and keep road networks in a stable, long-term acceptable condition.
- f) **Perception of Roads as a Public Good:** Roads have traditionally been managed as a social service for the good of the public. While sectors like water and electricity find it relatively easy to charge for their services, roads are often viewed as a “free” service. This is mainly a problem of perception.

Challenges in Odisha Network Development: Forecasted road network requirements for Odisha are enormous both in terms of size and its funding requirements. For example, in order to implement forthcoming road proposals as per Road Network master Plan, substantial funds will be needed. For example, Year 2014 -18: Investments needed (annually) around Rs. 4,500 crores on the network. Later, for development of SHs, MDRs & ODRs another Rs. 15,000 crores required in the next 5 years. Estimated maintenance requirements (as on date) for existing SHs & MDRs to be brought to a desirable condition is about Rs. 2,350 Crores. Overall, accelerated traffic growth and demand for wider roads will rise substantially. With available capacity, OWD alone may not be able to cope with **the emerging demands. This scenario demands need for an autonomous organization to accelerate road development using other sources of road financing like PPP etc.**

2.4. Forecasted Scenario

The forecast indicates considerable rise in urban population, substantial growth in agricultural, services and industrial sector and simultaneous increase in vehicular demand. With business as usual

scenario, about 8,000 km of the major road network will become capacity constrained by the year 2018. Though GOO has initiated the flagship programme 'State Highway Development Project' with an aim to convert all State Highways to Two Lane standards, the gap in funding for objective requirements of road development, network maintenance and connectivity will become critical. The resulting constraint on objectively-necessary new works and maintenance will lead to congestion, poor road condition, increase in road accidents, higher vehicle operating costs and constrained socioeconomic development.

Overall, there are a number of road sector challenges, which must be addressed by GOO for the socio-economic development of the state. The above scenario clearly demands institutional intervention to get over current shortcomings and future challenges faced by the Road Sector. One of the emerging solutions sought by the strategic planners is to establish an autonomous organization dedicated to road construction and maintenance.

2.5. Future Performance Challenges for Road Organizations

As international experience on performance of several road organizations is available, there are noticeable trends on their future operations. With increasing evolution, construction and maintenance is now being outsourced. For maintenance, performance management is being practiced by some of the leading overseas road agencies by following these principles:

- (i) Establish goals and performance targets to manage, explain, deliver, and adjust their roads budgets and internal activities;
- (ii) Establish effective and achievable performance levels based on input from the public, elected officials, and the business community; and
- (iii) Demonstrate good governance and accountability in meeting or exceeding performance expectations.

Road Organizations are becoming answerable and accountable to the public for the effective performance of its portfolio. However, the accountability is being exercised, as the performance of the road sector agencies are increasingly and effectively monitored. Performance measures are critical for monitoring progress in achieving government's strategic goals and objectives. For effective performance management and monitoring, there must be absolute clarity regarding the major functional activities required to render the mandated services, as well as clarity and consensus amongst top management on the activities involved and on the outcomes of these activities. Furthermore, there must be a sound basis for allocating expenditure to the outputs generated. Performance is judged on the basis of 'public accountability', 'sound management', and the 'efficient and effective provision of services'.

Public accountability is an obligation to account for a conferred responsibility. Effective accountability is often linked with disclosure in the form of a report. Legal accountability is associated with the public's right to seek information from the Agency, the right to sue in law courts and the power of the courts to make the latter financially liable for violations of the public interest.

Road Agencies are adopting sound and effective business practices in policy-making, financial administration, human resource administration, control mechanisms, and responsiveness to public needs. It is expected that various road agencies shall be monitored for its performance as well as for its accountability to the state and the public.

Overall, the business climate (both in terms of requirement and demand for quality roads) is rapidly changing and road agencies will have to be more responsible, accountable as well as responsive. This shall require considerable changes in internal environment of various road sector entities.

3. Learning from Other Road Agencies and Road Development Corporations in India



Choice of Good Practices: Indian track record in development of RDCs is quite positive. There is variety of innovations worth emulating by upcoming organizations.

3.1. Identification of Relevant Features from Road Development Corporations

A review of similar organizations in India was made to draw lessons from restructuring exercises carried out in various organizations. For analysis purposes, the selection of the organizations is based on the following criteria:

- a. Organizations which has been well established and providing continuous service to the citizens of the country/state.
- b. Organizations providing services in the Civil Engineering domain and the Road sector in particular.
- c. Organizations with a large employee base of engineering personnel like the OWD.

The major Road sector organizations were identified to study their experiences. In the context of possible establishment of an autonomous organization like Odisha Road Development Corporation or Odisha Road and Bridge Development Corporation (ORDC/ORBDC), the functioning of the following Road Development Corporations was reviewed and analysed:

1. Karnataka Road Development Corporation Limited
2. Maharashtra State Road Development Corporation Ltd
3. Madhya Pradesh Road Development Corporation Ltd
4. Tamil Nadu Road Development Company Limited
5. Roads and Bridges Development Corporation of Kerala Limited
6. Gujarat State Road Development Corporation Limited
7. Rajasthan State Road Development Corporation Ltd (RSRDC)
8. Punjab Roads and Bridges Development Board
9. Bihar State Road Development Corporation Limited

3.2. Karnataka Road Development Corporation Limited

Karnataka Road Development Corporation Ltd (KRDC) was incorporated on 21 July 1999 as a wholly owned GOK Company under the Company's Act, 1956. KRDC is a company under the Public Works, Ports & Inland Water Transport Department. The Corporation has an initial authorized share capital of Rs. 200 crores. KRDC was established to promote surface infrastructure by taking up Road Works, Bridges etc., and to improve road network by taking up construction, widening and strengthening of roads, construction of bridges, maintenance of roads etc., by taking up projects on BOT, BOOT and BOLT. KRDC has a team of professionals consisting of Engineers, Chartered Accountants, Company Secretary, Manager-Finance & Accounts and other supporting staff, all working under the guidance of the Board of Directors and the Managing Director. All Engineering & Accounts staff are on deputation from PWD, IWTD and organizations like KPCL, MPML, SAD and other managerial staff are on contract basis. The organization Chart of KRDC is depicted in **Figure 3.1**.

3.3. Maharashtra State Road Development Corporation Ltd

Maharashtra State Road Development Corporation (MSRDC) Limited is a corporation established and fully owned by the Government of Maharashtra through a resolution of 9th July, 1996 and has been incorporated as a limited company under the Companies Act 1956 on 2nd August 1996. MSRDC mainly deals with the properties and assets comprising movables and immovable including land, road projects, flyover projects, toll collection rights and works under construction which vested with the State Government and was under the control of the Public Works Department. These have been subsequently transferred to MSRDC.

Functions of MSRDC are:

- a. To promote and operate road projects
- b. To plan, investigate, design, construct and manage identified road projects and their area development.
- c. To enter into a contract in respects of the works and any other matters transferred to the Corporation along with assets and liabilities.
- d. To invite tenders, bids, offers and enter into contracts for the purposes of all the activities of the corporation.
- e. To promote participation of any person or body or association of individuals, whether incorporated or not, in planning, investigation, designing, construction and management of transport projects and area development.
- f. To undertake schemes or works, either jointly with other corporate bodies or institutions, or with Government or local authorities, or on agency basis in furtherance of the purposes for which the Corporation is established and all matters connected therewith.
- g. To undertake any other project and other activities entrusted by the State Government in furtherance of the objectives for which the Corporation is established.

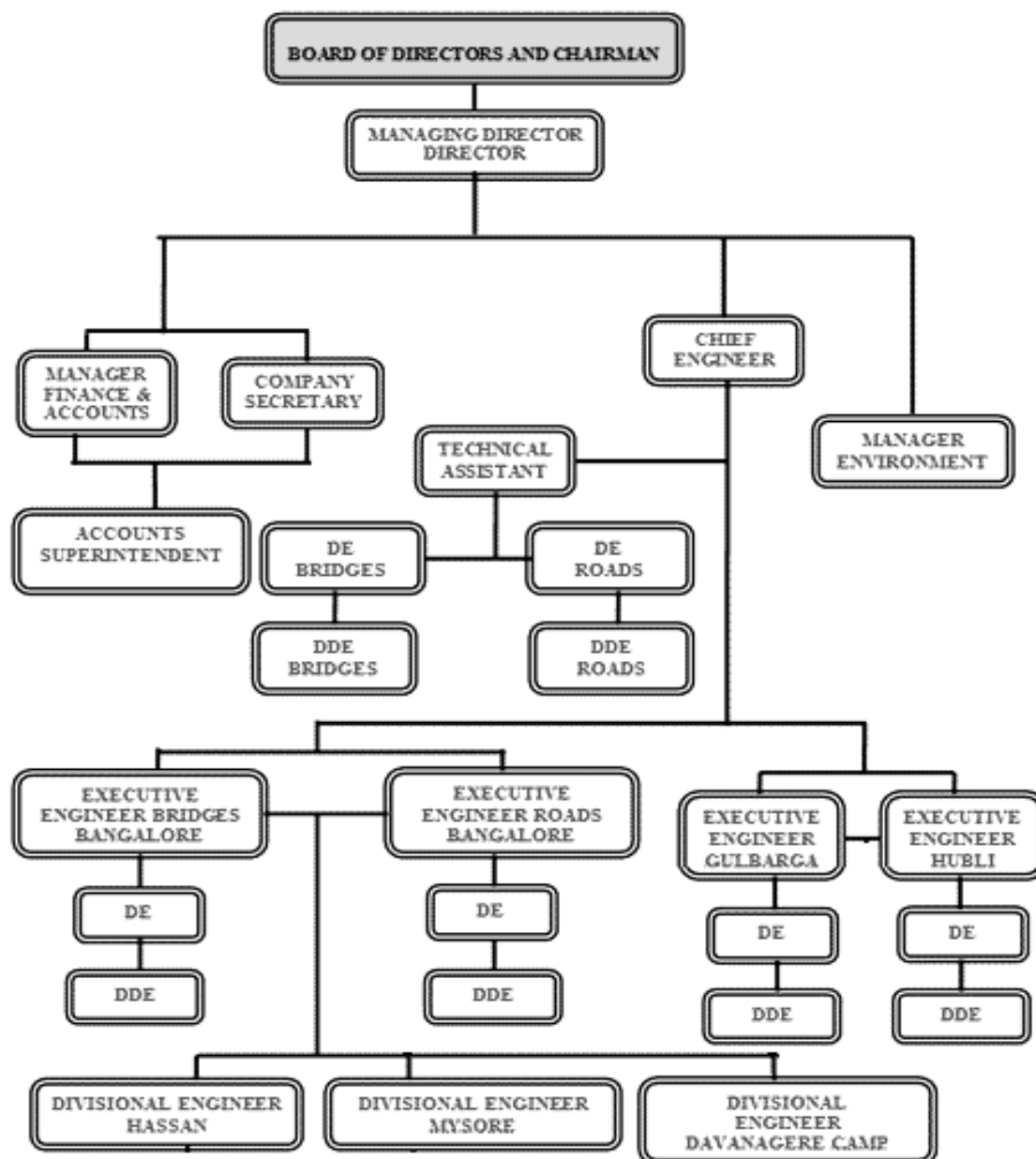


Figure 3.1 Organisation Chart of KRDC

Departments of MSRDC

- a. Administration
- b. Engineering
- c. Toll Monitoring
- d. Land
- e. Accounts/Finance
- f. Commercial

The Board of Directors is the highest decision making authority of the organization. The Board of Directors from time to time delegates administrative and financial powers to the VC & MD. Decisions

which are substantive or of policy in nature or involve substantial financial outlay have not been delegated to VC & MD and their decisions are taken by the Board. The Technical wing of MSRDC is headed by Joint MD (I). The projects of MSRDC are supervised by Executive Engineers, who are assisted by Deputy Engineers and Junior Engineers. The Executive Engineers are supervised by Superintending Engineer or Chief Engineer.

3.4. Madhya Pradesh Road Development Corporation Ltd.

M.P. Road Development Corporation Ltd. (MPRDC) is a wholly owned company of Govt. of Madhya Pradesh looking after State Highways and other Infrastructure Development projects of Madhya Pradesh. MPRDC employs professional staff independently. MPRDC invites applications from eligible candidates for the required positions, on contractual basis.

The MPRDC policy objectives in line with Government's policy framework are:

- To continue construction, maintenance and upgrading of the State Highways & Major District road networks in partnership with Private Sector
- To protect the high level of investment in the State Highways & Major District Road Network through effective controls on vehicle overloading and ensuring adequate maintenance through road cost recovery;
- To promote efficiency and safety through application of commercial and best practice principles to ensure access to safe, reliable, affordable and cost effective service.
- To improve efficiency in the provision of transportation services and infrastructure through corporatization, commercialization and outsourcing of maintenance and construction activities;
- To ensure access to affordable transportation services, infrastructure and supporting public amenities for the public.

The focus of policy Objective is on achieving the following specific outcomes:

- Reduction in VOC and savings in travel time of road users
- Improvement in safety, thus economic savings from avoided injury and damage.

3.5. Tamil Nadu Road Development Company Limited

Tamil Nadu Road Development Company Ltd. (TNRDCL), incorporated in May 1998, is a 50:50 Joint Initiative of Tamil Nadu Industrial Development Corporation Ltd. (TIDCO), the investment arm of Government of Tamil Nadu (GoTN) and Infrastructure Leasing and Financial Services Ltd (IL&FS), an all-India infrastructure development and financial services company. TNRDC was set up with the mandate of developing road sector initiatives by catalysing private sector resources and investments under Public-Private Partnership (PPP) framework.

TNRDC was formed to develop, finance, build, operate, maintain and manage highway systems, design and engineering for integrated toll road management of highways. TNRDC is the concessionaire for East Coast Road Project (ECR) and Managing Associate for i) Outer Ring Road Project of Chennai by Government of Tamil Nadu, ii) Guindy Industrial Estate Infrastructure Up-gradation Company, SPV of SIDCO iii) NHAI Projects. In addition, TNRDC has

created a Special Purpose Vehicle, viz. IT Expressway Ltd. for improvement and Maintenance of Rajiv Gandhi Salai (IT Corridor) from Madhya Kailash to Mahabalipuram in two Phases.

The Company is an innovative and unique institutional mechanism that complements the visionary zeal and administrative strength of GoTN and the project development and financial acumen of IL&FS for developing infrastructure projects. TNRDCL is managed by a high powered Board comprising nominees from TIDCO, IL&FS and independent directors reflecting the Company's public-private partnership identity.

Table 3.1 Board of TNRDCL

NAME/DESIGNATION	POSITION
An IAS officer as Secretary (Highways and Minor Ports) / GoTN	Chairman
An I.A.S. Officer, Chairperson & Managing Director / TIDCO	Director
Managing Director / IL&FS	Director
President & CEO / NTBCL	Director
President & CEO / IL&FS ITNL Ltd	Director
An IAS Officer (Retd.) Former Secretary, Government of India	Director
An experienced I.A.S. Officer	Managing Director

3.6. Roads and Bridges Development Corporation of Kerala Limited

Govt. of Kerala established Roads and Bridges Development Corporation of Kerala Ltd (RBDCKL) in September 1999 to give a thrust for multifaceted growth in transport infrastructure by generating additional resources through institutional finance, market borrowing and private participation RBDCKL is a company under the Public Works Department of Government of Kerala.

To construct, maintain, operate and manage Highways, Expressways, Roads, Bypasses, Bridges, Over-bridges etc., entrusted to and vested with the Company by the Government of Kerala or any other Government/ Governmental agencies/ Organizations including improvement, strengthening and rehabilitation of road network identified as core network and to regulate and control the use of the roads vested in, or entrusted to it.

To undertake construction and maintenance of such facilities for and on behalf of any Government, Governmental agencies and organizations on Turn-Key, Build-Own-Transfer, Build-Own-Operate and Transfer or any other basis and to collect tolls, user charges and such other revenues for the use of such facilities from the public, Government and other agencies.

To raise funds subject to the provisions of section 58 A of the Companies Act 1956 and Reserve Bank of India guidelines issued from time to time for construction, maintenance, improvement and operation of such facilities etc. or by market borrowing, issue of shares, debentures, bonds or by way of loans, grants and borrowings from Government, Financial institutions including International Financial institutions.

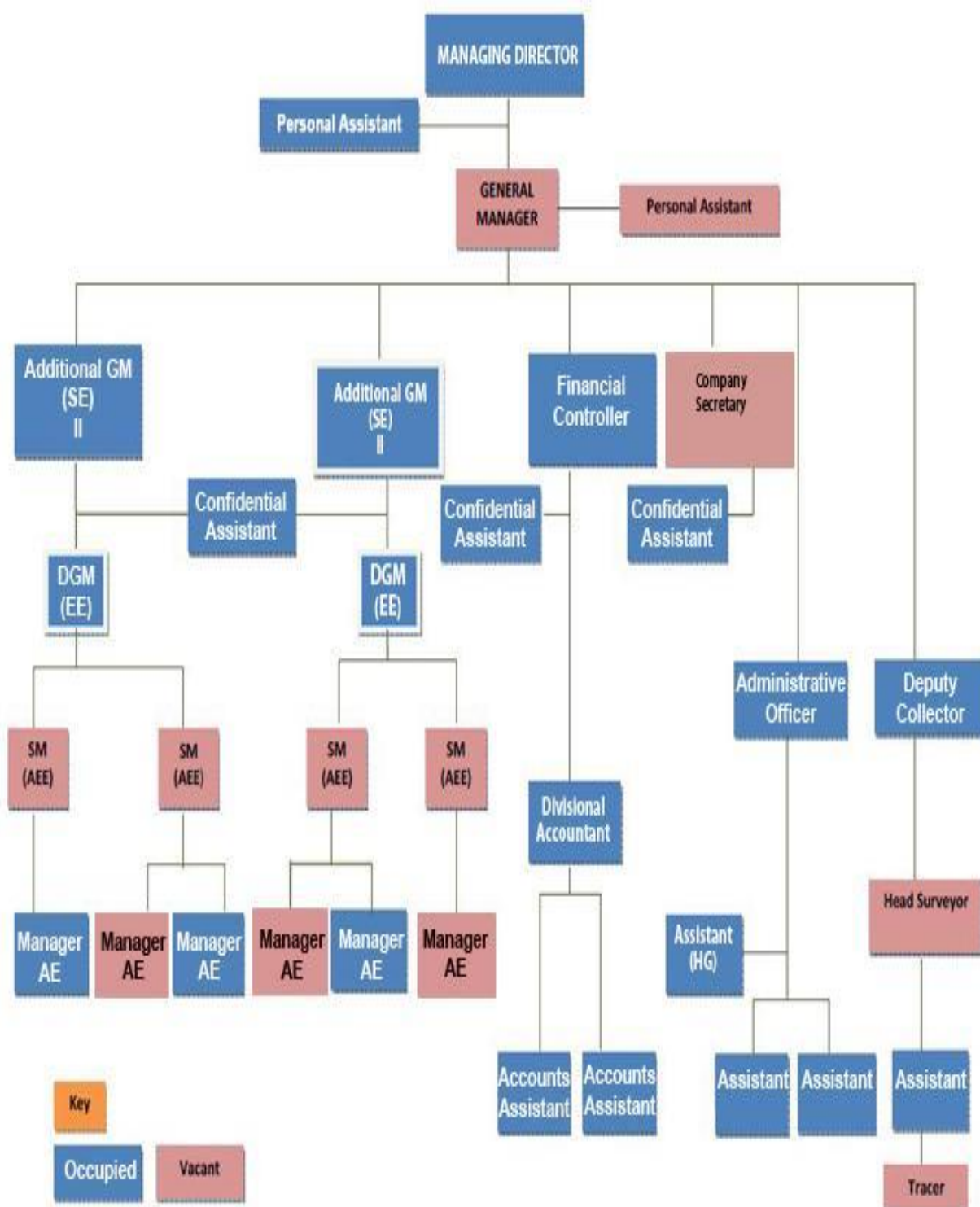


Figure 3.2 Organization Chart for Madhya Pradesh Road Development Corporation

3.7. Gujarat State Road Development Corporation Ltd. (GSRDC)

Gujarat State Road Development Corporation Ltd (GSRDC) is a wholly owned Govt. Corporation established by the Government of Gujarat, through a Government Resolution dated Feb. 20, 1999 and the GSRDC has been incorporated on 12th May, 1999 as a limited company under the Companies Act, 1956. The major objectives of corporation are:

- To undertake the development of bridges and roads.
- To raise financial resources form banks, Institutions, mutual funds, individuals etc.
- To commercially develop & exploit land alongside the roads/bridges.
- Other objectives: Draw up plans for the projects, undertake feasibility studies, become a consultant or appoint a consultant for environmental studies etc.

The organization structure for the GSRDC is depicted in **Figure 3.3**.

3.8. Rajasthan State Road Development Corporation Ltd. (RSRDC)

The Rajasthan State Road Development and Construction Corporation Ltd (RSRDC) is a wholly owned undertaking of Government of Rajasthan (GOR) and was formed in February 1979, as "Rajasthan State Bridge and Construction Corporation Ltd." It is the premier nodal agency for construction of Bridges, Roads & Buildings funded by the GOR and is registered under the Companies Act 1956. It was created to augment the limited number of specialized & quality construction agencies available in the State/Country so as to reduce the cost/time overruns in the construction of Bridges, Roads and Buildings.

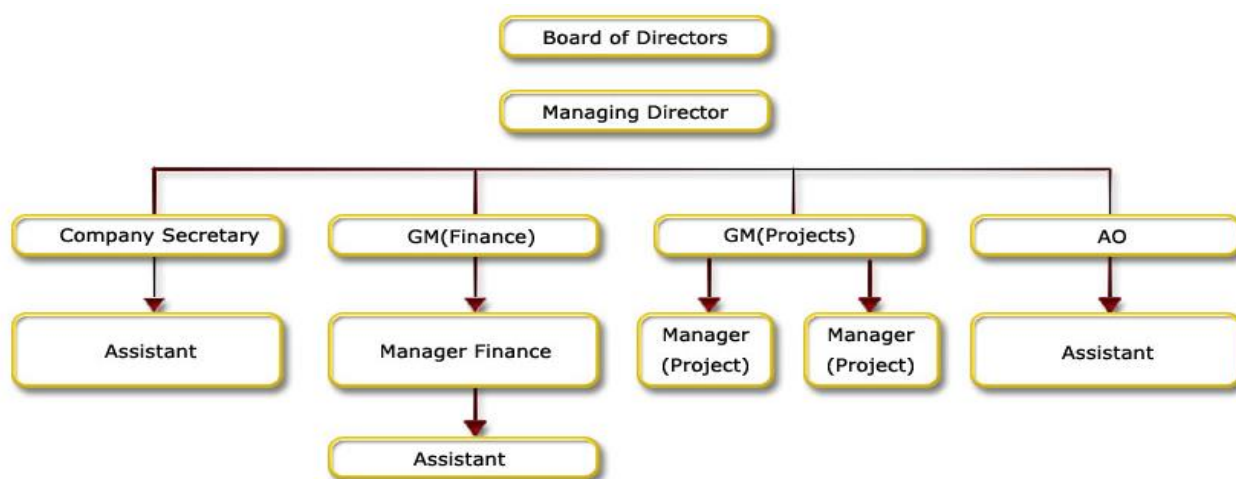


Figure 3.3 Organisation Chart of GSRDC

In the year 2000, the Board of Directors resolved to rename the company as "RAJASTHAN STATE ROAD DEVELOPMENT AND CONSTRUCTION CORPORATION LTD." to include the construction of privately financed infrastructure projects, mainly Highways, Bridges and ROB's, to be constructed on BOT/PPP Model. In addition to above, RSRDC regularly participates and executes open tendered works of various Government Bodies/Organization throughout the country

At present (2014), there are 33 execution units in operation (29 civil units + 3 Electrical Units + 1 Mechanical Unit), employing about 175 engineers on various works under progress. The total number of staff is about 310, which varies with the requirement of work.

- Established in the year 1979 as RSBCC
- Has executed about 80 Building projects in the Institutional, Industrial, Commercial and Residential sectors.

- Has executed 31 No. Bridges/ROB's on NHs/SHs & other roads.
- Executed 16 Road Projects involving NHs, SHs and even Rural Roads.
- Executed works worth Rs.1426.6 crores and earned a gross profit of Rs. 61.34 crores,
- Has regularly paid dividend to the GOR.
- ISO 9001:2000 certification (Sept. 04).
- Is known for the quality of works, and completion within the given cost and time frame.

3.9. Punjab Roads and Bridges Development Board

The Punjab Roads & Bridges Development Board (PRBDB) was constituted by the Government of Punjab vide Punjab Act No. 22 of 1998 and notified on 27th July 1998 as an undertaking of the State Government to act as a catalyst for infrastructure development in the road sector in the State.

PBRDB acts as a nodal agency to plan, and monitor all aspects relating to construction and improvement of roads and bridges in the State. This Board is responsible for planning and deployment of funds on State roads, fiscal management, project management, inter-departmental coordination and the other key areas. The Board also manages the World Bank aided Punjab Road Sector Development Project (PRSDP).

3.10. Bihar State Road Development Corporation Limited

Bihar State Road Development Corporation Ltd (BSRDCL) is one of the latest State Road Corporations established in India and has therefore benefited from the experiences of other RDC's in operation. BSRDCL was incorporated in 2009 as a Govt. of Bihar Undertaking under the Companies Act 1956 with an authorized share capital of Rs. 30 crores. The functions of BSRDCL are:

To construct, execute, carryout, improve, work, develop, administer, manage, control or maintain in Bihar and elsewhere all types of roads, highways, express routes, paths, streets, bridges, sideways, tunnels and other infrastructure, works and conveniences, approach road, sheds, temporary dwelling huts in case of calamity or any emergency pertaining to all departments of Government of Bihar or any other department, agency, organization or body through Road Construction Department or directly. Major functions are:

- To undertake projects under PPP (Public Private Partnership) including arranging finances for such projects.
- To take up above works through private construction agencies or departmentally or through government bodies including using the manpower of the Road Construction Department or entering into a public private partnership as per a Model.
- To raise financial resources from banks, institutions, mutual funds, individuals etc.
- To commercially develop and exploit land alongside the roads/bridges.
- To take up works entrusted to it by Road Construction Department, Govt. of Bihar or other departments/agencies/Organizations of State/Central Government.
- To undertake projects outside Bihar either in Joint Venture or alone.

The Organization Structure of the BSRDCL and its constituent wings is depicted in **Figure 3.4 (a, b c and d)**.



Figure 3.4a Top Level Structure of BSRDC



Figure 3.4b Structure of Administration Wing of BSRDC



Figure 3.4c Structure of Finance Wing of BSRDC

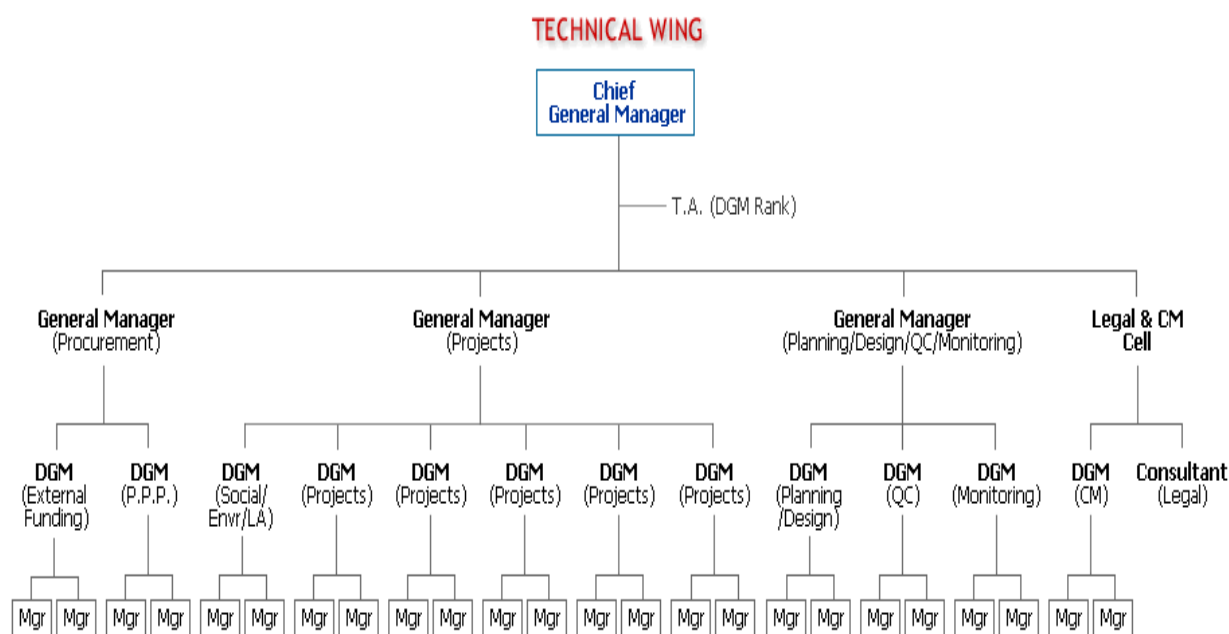


Figure 3.4 d Structure of Technical Wing of BSRDC

3.11. Important Findings Relevant for Formation of ORDC

None of the Road Agencies or Corporations described above may be exactly similar in role and functions of the proposed ORDC. The organization design for ORDC should therefore be based on sound management principles and tempered by practical considerations of feasibility and implementation ability within the existing Government framework. Some positive lessons and successful practices of different Agencies DGM can be emulated by ORDC.

- a. Almost all the RDC's in India are dedicated to new road investment programs without being assigned the responsibility of managing the existing road network assets. All the RDC's were created to manage large investment programs and often under new funding mechanisms beyond the Government budget; with the premise that a Corporation should be more efficient to implement such programs.
- b. At the time of creation, ORDC too should be mandated to manage new road investment programs. Subsequently as the proposed concept of Core Road Network (as successfully followed in the APRDC), is developed and implemented in Odisha, the responsibility of managing the CRN can be entrusted to the ORDC. It will be unique in this respect, combining both the responsibilities of managing new road development programs as well as to look after the more valuable component of the State's existing road assets - the Core Road network. The major up-gradation works under the previous World Bank assisted project as well as the ongoing project with emphasis on PPP works should be carried out on the roads belonging to the Core Road Network and the same can be managed by ORDC.
- c. The above analysis will set ORDC as a unique RDC with a wider responsibility similar to some of the other RDCs. Additionally, ORDC should emerge also as the PIU for the World Bank assisted projects. Thus the MD of ORDC may be said to be wearing *three* hats, as CE (CRN), Project Head for OSRP and as MD of ORDC. It may be noted here that in Odisha the World Bank aided Projects are handled by a Chief Engineer designated as CE (World Bank).

- d. All the RDCs, with exception of the Punjab Roads and Bridges Development Board (PRBDB), are registered as Limited Companies incorporated under the Indian Companies Act 1956 with either 100% or majority shareholding by the Government. ORDC should be incorporated as a Company under the Companies Act. There should be a 'Governing Board' in the ORDC.
- e. Tamil Nadu Road Development Company is a Joint venture 'Company' between TIDCO a Government owned Corporation and ILF&S, a private sector partner. The TNRDC itself is authorized to establish further Joint venture companies for specific Projects.
- f. ORDC may not have the mandate to form a joint venture company. It may require therefore have powers to create SPV's for special projects in future.
- g. There should be guidelines to facilitate its full operationalization.
- h. The RDC's are under the control of the Ministry/Roads department with the Minister for Roads of the State and the Principal Secretary of the Roads department being the key members of the Governing Board.
- i. Most of the RDC's are involved in high value investments and often the PPP projects and the externally funded Projects.
- j. The RDCs have dedicated Finance and Commercial wings.
- k. The structure of different RDC's are arranged to take care of the Projects taken up; the only similarity being that they are arranged on functional lines with Financing, Commercial and Public relations playing an important role in the business-like operation of the RDC
- l. Many of the RDC's have the flexibility of taking staff on deputation from Government Departments as well as hiring professional staff from the market, especially in the specializations not available with the Govt. departments. This is an important empowerment if ORDC has to carry out all the important functions effectively.

3.12. Core Road Network-Primary Responsibility of ORDC

The roads with heavy traffic and which are of strategic importance were the ones entrusted to most of the RDCs. Because of their heavy traffic and importance, these are the only roads, which were conceived to attract the private sector in the foreseeable future. The other factors were the forecasted growth of traffic on these roads. Roads, which are of strategic importance normally tend to be also of economic importance. This means that traffic volumes are likely to substantially increase on these roads, which meets the ideal requirements for PPP.

It is unlikely that any of the roads entrusted to the OWD carry such high traffic volumes. However, it is more likely that sections of such core road network may carry high traffic volumes and are suitable for PPP. A obvious question may be that under such situation, why the function of PPP should be transferred to the ORDC. If PPP could have been pursued through OWD, there was not much need for ORDC. However, the type of competencies are not available within OWD and their immediate acquisition is not easy. Secondly, such projects are to be executed in a mission mode and not as routine projects. OWD with its inherent limitations, can't accelerate such processes and systems this limiting project implementation.

Table 3.3 Good Practices from Other Road Sector Organizations

Sl. No.	Issue	RDC/Agency	Usefulness / Relevance	Recommendations for ORDC
1	Incorporation as a company under the Indian companies act- 1956 as either wholly owned or majority holding by govt.	MSRDC, KSRDC, TNRDC, MPRDC, GSRDC etc.	<ol style="list-style-type: none"> 1. Operating at “arm’s length” from the government while being under full control. . 2. Flexibility of operations under the “board of directors.” 3. Powers to raise resources from the market and lenders. 4. Greater efficiency with accountability to the government, taxpayers, road users and stakeholders. 	<ol style="list-style-type: none"> 1. Register as a company under the Indian companies’ act 1956.
2.	Board of directors	Other RDC’s	The board is empowered to take all decisions under the overall legislative provisions without the need to refer to the government for individual projects.	<i>The Board of Directors to include representatives from industry and road users.</i>
3.	Organizational structure units and designations on functional lines.	Other RDC’s	Clear assignment of responsibilities and uniformity with other RDC’s	<p>Develop functional units of projects/engineering, PPP, Commercial, Legal etc.</p> <p>Use designations of Manager, GM, CGM, Director, MD, DG etc. in organization structure.</p>
4.	Dedicated planning and management functions	RDCs	Effective planning and management of ORDC functions	Include Planning services etc. In ORDC structure
5.	Specific commercial wing for tolling and exploitation of row assets	Maharashtra & Madhya Pradesh	Generation of finances from users	Provide for a commercial wing in ORDC.

PPP is a concession and it permits RDCs to become heavily involved in concessions with respect to wayside amenities such as hotels, restaurants, and filling stations. It is for this reason that a Commercial Services Division has been proposed in RDC in the longer term. It is anticipated that this Division will generate income for the RDC, thus making it sustainable.

The OWD has a history of successful implementation of PPP projects. Whilst it is appreciated that currently staff can be moved from OWD to ORDC and vice versa this can have a serious impact upon the commitment and motivation of all staff. This affects not only those who have been transferred but those with whom they have to work.

There would seem to be little logic in transferring PPP to the OWD when it will be effectively managed within the ORDC. But the main concern is that the only roads likely to be attractive for PPP are those which have been assigned to the ORDC. As such management of the core road network will be split between two organizations which is likely to have a detrimental impact when it comes to budget allocation, road maintenance in particular.

4. Case for Establishment of ORDC

4.1. Background

In order to address institutional strengthening needs, OWD has been already pursuing in-depth investigation in its ongoing Road Sector Institutional Development (RSID) study. The strategic analysis contained in the reports emphasizes how to overcome current shortcomings and strengthen road organizations. These reports cover the areas of Road Sector Policy & Strategy, Reorganization & Strengthening of OWD, Staff Training & HRD for OWD, Road Safety Engineering & Planning, Road Network Master Planning, Road Toll Collection & Management, Future Roads Management Funding, Axle Load Regulation & Management and Future Road Sector Institutional Options.

To support some of such developments, formation of Odisha Road Development Corporation is under discussion for some time. Since Odisha has established OBCC in the past and the experience has not been very positive, the proposition for ORDC could not be realised, mainly because necessary environment for this initiative could not be developed. With initiation of reform process and its momentum, encouraging developments are in the process of being adopted by GOO. For example, in Odisha a number of comprehensive Institutional Strengthening initiatives have commenced with a view to improve Road Sector by reducing/eliminating existing weaknesses in the road Sector. This environment is encouraging for consideration of an initiative of formation of ORDC.

The report on 'Future Road Sector Institutional Options' underlines the emerging need of establishment of Odisha road Development Corporation (ORDC) on priority. Strategic issues related to ORDC are summarised below:

4.2. Need for ORDC to Operate as Business Unit

International experience indicates that Road Agencies operating on the principles of a business entity and adopting a customer focussed approach, tend to achieve better results. There has been a worldwide shift in focus from the traditional public service delivery approaches to other, more innovative means, which are considered to be more effective, cost-efficient, customer-orientated, business-like and flexible.

The following trends are revealed in the ongoing RSID studies for Odisha regarding the management of their road infrastructure:

- a) Increased involvement of private sector in building, maintaining, managing and operating road infrastructure; and
- b) More emphasis placed on road users and the development of methods to communicate with road users to take into account their needs and concerns in the provision of road infrastructure.

The main aim for creation of Organizations like ORDC is to improve service delivery beyond what a Government Department can achieve. For this purpose the ORDC needs to operate at arms' length from the public service, to deliver specific services on commercial principles or in formal partnership with role players from the private or voluntary sectors. They often exist as separate agencies with

business/operational autonomy, but not totally independent of government. They operate as a business entity/unit or commercial organization, under the direct control of a governing board, and with their own enabling legislation.

The management challenges with which government is faced have intensified and there is increasing pressure to do more with less. Fiscal constraints and a taxpayer perception of bureaucratic inefficiency have contributed to a drive for greater productivity. At the same time, interest groups and customers are expecting and demanding more. Good governance has become a prerequisite.

In the commercial world the most important characteristics of a business Unit is to make a profit. However in the government sector important characteristics of a Business Unit is to provide value for money to both government and stakeholders, in this case the road users.

Their involvement helps the road agencies to recognize that they are in the business of delivering road services to clearly defined customers and that they need to pay more attention to the needs of these customers by operating in the most efficient manner, making optimal use of the resources and delivering maximum value. There is an implied need to ensure that they retain optimal levels of staff through a number of factors including salary, performance bonus, career development plans, promotions, etc.

5. Option of Transforming OBCC into ORDC

Instead of development of ORDC from the beginning an option of converting existing Odisha Bridge Construction Corporation (OBCC) Limited to ORDC is worth investing. This alternative would no doubt need thorough scanning of requirements of proposed ORDC and fitting them in the existing configuration of OBCC, which has evolved in last thirty years. Relevant aspects of this proposition are briefly as follows:

5.1. Odisha Bridge and Construction Corporation Ltd.

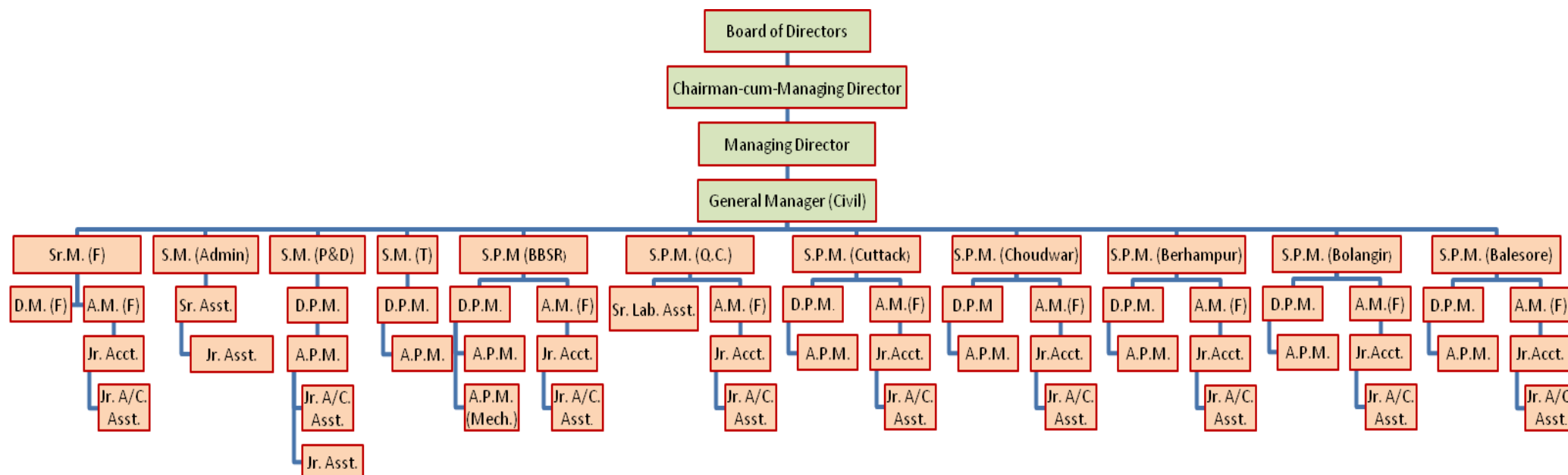
This organization has been established by an Act of state Government in 1983 with a share capital of 500 Crores to construct bridges. It is wholly owned construction agency of OWD under GOO. It is headed by a MD of the rank of CE. The EIC-cum-Secretary is the Chairman of this organization. This Wing is responsible for construction and maintenance of bridge works allotted to it by the Works Department and other Government agencies in the State. It has subsequently been expanded to takes up the activities of construction of roads, buildings and power plants. In addition, it also takes up steel fabrication and electrical works. It also has a unit for subsoil investigation and testing of soils and construction materials. The OBCC collects Toll fees on behalf of GOO throughout the state. However for sometimes, this organization has not been in its self-sustaining healthy financial position. Its working has been under question for its efficacy and output. As observed by the Consultants as well as advised by client and WB, its working needs to be reviewed in consultation with EIC-cum-Secretary for its final outcome i.e. to be merged with proposed new Institutional Structures or otherwise. It will be based on its working profile of last five years with regards to financial contribution to GOO.

5.2. Organizational Profile

OBCC is a wholly owned construction agency of Odisha State Government. It subsequently expanded its activities to the construction of roads, buildings and Power plants. In addition to steel fabrication and electrical works, it has set up a unit for subsoil investigation and testing of soils and construction materials. The OBCC also collects toll fees on behalf of GOO at 20 tollgates throughout the state. The OBCC has a board of 8 members including representatives from the RDD, Water Resources, Public Enterprises and Finance Departments.

At the time of its establishment it was meant to improve the competitiveness of the road and bridge construction industry in Odisha. Its introduction to the field at that time had the desired effect of reducing contract prices. Subsequently, it became a very poorly performing and dysfunctional public sector enterprise. Currently the OBCC is overstaffed with respect to its income and has underutilized and unserviceable machinery and equipment. It requires heavy subsidization from GOO and is unable to meet time, cost and quality objectives in the projects that are assigned to it.

Figure 5.1: Present Organization Structure of OBCC



- **Financial Decline**



Financial Decline of OBCC: One time OBCC was on financially prosperous path. But In 1999, the annual expenditure of the OBCC was about Rs 6 crores, which was down from Rs 15-20 crores during 1994-95. Currently it continues to decline and its rejuvenation has become imperative.

- **Organization and Engineering Staff Make Up**

The OBCC represents an undesirable posting especially to engineering staff that makes up the senior structure. This results in a lack of dedication in senior managers and some very poor practices such as the payment of bonuses to staff whether or not targets are met. The loss of key people in construction units in recent years has also resulted in the OBCC subcontracting work rather than in undertaking the work with its own resources in keeping with its mandate. In becoming a contracts manager it has in effect become a smaller scale works department which is seen as an unnecessary duplication of the OWD.

Total staff numbers in December 1999 was 612, which included engineers and other technical staff. The staff numbers have reduced from 1000 five years ago through natural attrition. Approximately 50% of the plant and equipment owned by the OBCC is not serviceable. Through a memorandum of understanding with GOO, Rs 100 crores was meant to be the minimum value of works to be allotted to the OBCC each year. This level has however not been forthcoming in recent years. Currently staff strength of OBCC is 229 with 12 professional engineers. Although the organization has been sanctioned to grow, but currently there is no adequate workload to absorb.

Conclusions

An option of converting OBCC to a consultancy organization was considered but it is becoming increasingly difficult to realise such plan. This is mainly because the consultancy sector is becoming focussed and equipping themselves with special skills sharpening their areas of expertise. OBCC will not be able to cope with such stern competition in the immediate future. On reviewing the above scenario it appears serious efforts shall be required in converting OBCC into ORDC. Though, its resources like manpower, construction equipment and building structure could be used by ORDC.

6. Developing ORDC Functional Departments

6.1. Possible Functions for ORDC

The Odisha identified several agencies namely: Odisha Works Department (OWD), Rural Development Department, Panchayat Raj Department, Transport Department, OBCC (Odisha Bridge Construction Corporation), Odisha State Rural Road Agency (OSRRA) and Urban Local bodies (ULBs). The Policy also stated that these agencies at times functioned in an uncoordinated and isolated manner. As a result, the transport demand for freight and people has outpaced the road capacity and thus the increased demand continues was met by over straining (increased volumes, undesirable overloading etc.) of the existing road infrastructure. In addition facing investment shortfall for maintenance and road upgrading were common occurrences. This is resulting in deterioration of existing road network and calls for integrated road development and management. Overall, a well laid out integrated road network is essential and the need for a separate authority was felt. Therefore, an efficient, dependable and well managed road infrastructure by ORDC became paramount importance.

The Odisha Road Policy aims at the creation of an efficient, safe and environmentally sustainable road network in the state. It also emphasises on technology up-gradation, institutional strengthening and overall cost effectiveness. In the context of functions of proposed ORDC the following Policy directives are important.

1. Develop an efficient road network that facilitates sustainable and well balanced socio economic development
2. Strengthen delivery capacity by organizational, procedural and capability development.
3. Enhance fund inflow to the road sector by generating additional resources and encouraging private sector investments.

As a first step towards developing an organizational structure, suggested role and mandate (business objectives) of proposed ORDC for key functions was necessary. The next step had been to logically group these functions to determine the number of potential divisions the ORDC might require. The functions have been grouped under following headings based on potentiality of grouping and considered workload. **The list may not be all-inclusive but it provides a broad 'Check List' for framing organizational structure for ORDC. However, it needs to be remembered that these functions apply only to specific roads (SHs and Specific corridors, other infrastructures) allocated to ORDC.**

A. Planning and Investigations

- 1) Strategic and Business Plans
- 2) RMS
- 3) Traffic Studies, Condition Surveys
- 4) Maintenance Intervention Costs
- 5) New Works and Maintenance Plans

B. Projects (New and Maintenance Works) and Contract Management

- 1) Project identification
- 2) Survey and Investigations
- 3) Design (may be initially outsourced)
- 4) Procurement
- 5) PPP
- 6) Concession Agreements
- 7) Long Term Performance Based Maintenance Contracts
- 8) Project Management
- 9) Claims
- 10) Quality Control
- 11) Road safety

C. Finance

- 1) Accounts
- 2) Budget Preparation and Allocation
- 3) Financial Information System
- 4) Cost Management

D. HRM Services

- 1) Human Resource Management and HRD
- 2) Personnel and Administration
- 3) Registry (Consultants, Suppliers, Contractors)

E. Commercial Services

- 1) Toll Management
- 2) Hotels, Motels, Restaurants
- 3) Advertisement Franchises
- 4) Filling and Service Stations

In addition to the above main groupings three other groups were proposed as follows:

F. Public Relations

- 1) Complaint Handling Services
- 2) Right to Information
- 3) Replies to Queries of Elected Representatives
- 4) Road User Surveys
- 5) Official website

G. Legal Affairs

- 1) Legal
- 2) Land Acquisition
- 3) Resettlement and Rehabilitation
- 4) Environmental and Social Management

H. Management Information Systems (MIS) and IT Functions

A comprehensive MIS normally consists of a computerized road management system (for planning, programming, budgeting and preparation of road works), and a financial accounting system. Information systems are also required, for example for management of personnel records, and equipment and for the management of projects. The HRD and Training Policy developed detailed these requirements. In the near future a department in the Proposed ORDC will be responsible for the smooth running of all computer based software programs and operations. In addition to an organization wide network, specialist software, to be operated by the departments indicated, will be required and a senior official in the rank of Director will be made responsible as follows:

1 Project Management System – Director Projects

Specialist Project Management Software which can be used to planning, controlling and monitoring projects, including cash flow.

2 Financial Management System – Director Finance

Specialist Financial Software package with output designed to meet the specific needs of Managers and not just those within the Finance Department. It will provide all Managers with details of budgets and expenditure against agreed ‘budget heads’ at agreed intervals of time (i.e. weekly, fortnightly, monthly, etc.)

3 Human Resource Management System – Director Corporate Services

Specialist Human Resource Management Software package

4 Road Maintenance Management System – Director Policy and Planning: Specialist RMS Software package currently under preparation by a Consulting firm is ‘data hungry’ which means that budgets and systems must be in place for the regular collection and entry of data. Appropriate checks need to be taken to ensure the quality of data collected, especially if data collection is to be outsourced.

5 Executive Management Information System – Director of MIS

Specific software package designed to provide Executive officers with an executive summary of progress made in all areas of ORDC.

Two other units will need to be incorporated within the organization structure although in a way they are ‘not part’ of, but independent from, the RDC. They are:

1) Audit

This unit has two distinct functions. One is to undertake a Financial Audit to ensure that there are no financial irregularities and that adherence has been made with respect to financial regulations. The other is a Technical Audit to ensure compliance with technical standards and other standards as appropriate. Its other function is to ensure that the work undertaken provides value for money.

2) Vigilance

This unit, the members of which can be appointed by the RDC, have the responsibility to report any untoward activities to the Managing Director. Their basic task is to keep a watch on the activities of the RDC and to report any activity that could be construed as corrupt in any form.

6.2. Developing Mechanism for Managing Functions

In order cope with rising and complex functions of Odisha Road Sector the Management Structure of ORDC will need to be developed with due care by responding to growing and varying needs. In principle there should be a combination of Public and Private Sector combination for overall management of ORDC. Its proposed outline could be as follows:

6.3. Governing Body (Government Oversight Body)

It is anticipated that the RDC will be given 'business/operational autonomy' but will report to a Governing Body. In this way the RDC will have freedom to operate in a similar way to a commercial organization yet still be subject to Government control.

It is recommended that the Governing Body is predominantly constituted of Senior Government Officers but with representatives drawn from the private sector.

6.4. Private/Corporate Sector Participation

The representatives from the private sector could be drawn from the following organizations:

- a) Chamber of Commerce
- b) Organization representing truck operators
- c) Organization representing commercial bus operators
- d) Organization representing the private motorist

The India Transport Vision Document advised involvement of Road Users in the oversight of the national road agency. Their involvement helps the road agency to recognize that they are in the business of delivering road services to clearly defined customers and that they need to pay more attention to the needs of these customers. A broad-based board also will enable the ORDC draw on the skills and contacts represented on the board

6.5. Background

Generally functions in any organizations are developed over a long period based on both internal (e.g. Organizational Mission) and external environments (Government Policies and emerging Legislations). Identified functions in ORDC highlights the necessity to incorporate the functions listed below into the organization structure. **It should be noted that the process of establishment will not be complete immediately, but will take place over a period of time.** The section presents an overview of functions, ORDC may undertake in long run, and draws upon them to assess the requirements of Functional Departments within ORDC. Table 6.2 and Fig 6.1 presents the same.

Units Contemplated

Key Units which will become part of ORDC are as follows.

- 1) Projects Department: Construction and Maintenance Works
- 2) Finance Department: Accounts, and Internal and External Finance
- 3) Corporate Services incorporating an HRD and Training Unit and Administration Unit
- 4) Planning Unit
- 5) Technical Services Unit

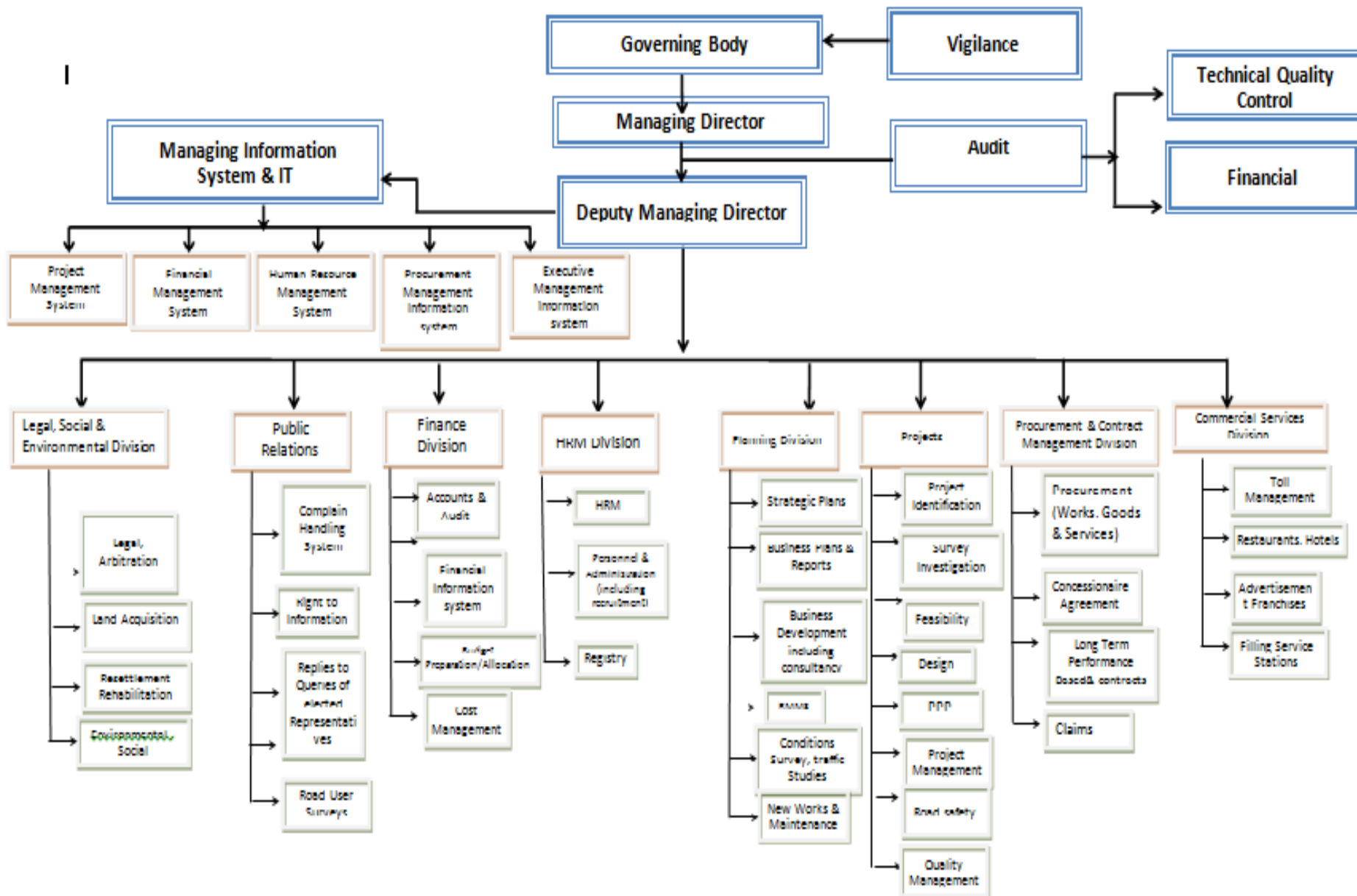
- 6) Procurement Unit
- 7) Commercial Services Unit
- 8) Public Relations Unit which embraces Right to Information, Complaint Handling Services, Road User Surveys, and Road User Information
- 9) Legal Unit embracing Legal, Land Acquisition, Resettlement and Rehabilitation, Environmental Social Management
- 10) Vigilance Unit
- 11) MIS and IT Unit which embraces the following Information Systems: Project Management, Financial Management, Human Resource Management, Road Management (RMS), Procurement Management etc.

Table 6.1 Proposed Functions of ORDC

(In relation to assigned roads and infrastructure only)

Sl. No.	Function
1	Planning Division
	1. Strategic Plans
	2. Business Plans and Reports
	3. Business Development including Consultancy
	4. RMS (Road Management System)
	5. Condition Surveys
	6. New Works and Maintenance Plans
2	Project and Contract Management Division
	1. Project Identification
	2. Survey Investigation
	3. Design
	4. Procurement (Works, Goods & Services)
	5. PPP
	6. Concessionaire Agreement
	7. Long Term Performance Based Maintenance Contracts
	8. Project Management
	9. Claims
	10. Quality Management
	11. Road Safety
3	Finance Division
	1. Account & Audit
	2. Budget Preparation and Allocation
	3. Financial Information System
	4. Cost Management
4	HRM Division

Sl. No.	Function
	1. Human Resource Management
	2. Personnel and Administration (including recruitment)
	3. Registry
5.	Commercial Services
	1. Toll Management
	2. Restaurants, Hotels
	3. Advertisement Franchises
	4. Filling & Service Stations
6.	Public Relations
	1. Complaint Handling Services
	2. Right to Information
	3. Replies to Queries of elected Representatives
	4. Road User Surveys
7.	Legal, Social & Environmental Division
	1. Legal
	2. Land Acquisition
	3. Resettlement and Rehabilitation
	4. Environmental and Social Management



7. Requirement of Legal Provisions for ORDC



Once the approval for ORDC is accorded by GOO necessary legislative provisions will have to be pursued. The existing Road Development Corporation Act has been in practice some years and has already gone through undergone changes. But there could be well some special cases where amendments may be needed to make it fitting to ORDC.

This Chapter attempts to reassess the requirements after taking into account present setting particularly relevant to Human Resource Management.

7.1. Staff for ORDC

The Act will set out the Constitution of the Corporation and the regulations concerning the appointment of Officers and other staff of the Corporation. All Officers and staff are to be appointed on deputation from the Roads and Buildings Departments of OWD. If in the future, ORDC will operate with business autonomy with clearly defined performance targets then its staff must be treated in a similar fashion. They too must work to agreed performance standards and targets with suitably defined rewards for achieving those targets.

This implies two things.

- Firstly, the staff must be on a fixed period of service and can only be repatriated to the OWD under exceptional circumstances.
- Secondly, the ORDC must be granted the power to pay incentives to staff in accordance with their standard of performance.

This must work in two ways. Staffs, who perform well, will receive, if found appropriate by GOO suitable financial rewards: staffs who consistently fail to perform will not receive any rewards and may be repatriated before the completion of their period of service.

It will also be appropriate that in due course, ORDC need empowerment to select OWD staff either on deputation from the Government or from the market. In order to attract and retain talent ORDC should be authorised to pay higher salaries at competitive rates, subject to approval of GOO.

7.2. Powers to Managing Assets of Core Road Network

Master Plan Report has outlined Core Road Network recommendations. The Proposed Act will set out Property, Assets, Liabilities and Obligations and the Power of Government to vest or entrust

specific roads to the Corporation. It will set out the Functions and Powers of the Corporation. These functions and powers are wide ranging in that apart from the functions it is necessary for ORDC to undertake survey, develop, maintain and manage the roads vested in, or entrusted to it. The Corporation can raise resources and, amongst other things, can establish hotels and restaurants.

7.3. Suggestions relating to the ORDC Act

Table 7.1 provides a summary of suggested inclusions in the proposed ORDC Act.

Table 7.1: Suggestions Relating To ORDC Act

Sl. No.	Suggestion with respect to:	Insertion
1	Governing Body	To be suitably included in the Act
2	The appointment of Directors and tenure	To be suitably included in the Act
3	Salaries to attract the best talent and with respect to promotion and pay being performance related	Rules to be framed under GOO directives.
4	Business autonomy	Describe in detail
5	Power to award all contracts	Include appropriately
6	The power of the Corporation to raise funds and have authority to negotiate with funding bodies such as banks, World Bank, Asian Development Bank etc.	Include appropriately
7	The authority of the Corporation to manage the funds as suggested under item 6 above	Include appropriately
8	The budget of the Corporation to include salaries, EPF, gratuity and ESI etc.	Include appropriately
9	Buildings for Corporation, houses for employees, and ownership thereof	Include appropriately
10	Inclusion of annual report; annual stakeholders conference and strategic plans	Insertion of required section

7.4. Way Forward

It should be noted that it is not possible to firm up on inclusions in the proposed ORDC act, until such times as approval has been given for establishment of ORDC. In particular a decision needs to be taken with respect to the recommendations that the ORDC becomes a Company under the Indian Companies Act 1956, wholly owned by the GOO.

8. Developing Organization Structure for ORDC

8.1. Future Organization Structure for ORDC

Considering available evidence on the ongoing operational practices by Road Development Corporations an attempt was made to develop practicable Organization Structure for ORDC. It is particularly based on attending to the institutional arrangements issues highlighted in the RSID reports. In addition examples of well-established RDCs like Gujarat, Andhra Pradesh, and Maharashtra were also examined closely to identify their suitability for Odisha. The emerging structure is the beginning of developing concept for an ideal organization to suit Odisha. After its establishment it will undergo transformations to respond to the required changes.

8.2. Timing of the Phases

The timing of all the phases are subject to the GOO decisions and actions and are given here as a guide only. The Phase 0 has been considered as preparatory phase and includes administrative actions such as:

- 1) Approval of the State Level Empowered Committee (SLEC) for ORDC establishment and enhancement
- 2) Enactment of ORDC Act and establishment of ORDC as a company

Once the above actions are complete, ORBDC/ORDC could develop itself using various development activities against time as indicated in **Table 8.1**.

8.3. Functioning of ORDC

As clearly noted from the proposed Organization Structure, ORDC should be headed by the senior and experienced officer who is appointed by the GOO. However the ORDC might wish to consider introducing the post of Joint Managing Director. The reason for this is that the Managing Director is the interface between the ORDC and GOO and will be required to spend most of his time attending meetings and representing the ORDC at the highest levels. His/her role could continue and may become even more demanding for attending strategic matters.

The Joint Managing Director will be responsible for the day to day operation and smooth running of the ORDC. It is recommended that the heads of all Divisions in ORDC be known as Directors although their rank within the ORDC may not be the same. In general it is recommended that each of these groups is headed by either a Chief Engineer or a Superintending Engineer as appropriate. However an Executive Engineer may be the appropriate appointment for head of Engineering Services since, as this group provides advice and support to other groups.

When the ORDC becomes an operation/business organization the Directors, as heads of the operational divisions, would be on the ORDC Board of Directors responsible for the day to day operation of the RDC. This board would be different from the ORDC Management Board which would be the body set up by the GOO to whom the ORDC and its staff were answerable.

It is anticipated with time that the functions associated with Asset Management System (AMS) will be taken over by forthcoming State Roads Management Authority with its jurisdiction over State of Odisha. However the ORDC will still need to retain staff that can access AMS. The ORBDC/ORDC will

Table 8.1: Development Activities of ORDC in Phases

Ref. No.	Activity
1	PHASE 1 (Year 1 to 3)
1.1	GOO Agree to Proposals of ORDC Organization Structure
1.2	PPP transferred back to ORDC
1.3	Reorganize ORDC
1.4	Establish RMS Unit
1.5	Establish RNMP Unit
1.6	Establish Corporate Services Wing
1.7	Establish Technical Services Wing
1.8	Expansion of Wings and Units to meet Workload
1.9	Amend ORDC Act granting business autonomy
1.10	Appoint Managing Director of ORDC
1.11	Appoint ORDC Ltd. Management Team
1.12	Appoint Head of Procurement Wing
1.13	Appoint Head of Commercial Services Wing
1.14	Establish Public Relations Department
1.15	Expansion of Wings and Units to meet Workload
2	PHASE 2 (Year 4 to 6)
2.1	Appoint Joint Managing Director ORDC
2.2	Establish Central MIS Wing
2.3	Establish Legal Affairs Department
2.4	Further Expansion of Wings and Units to meet Workload
3	PHASE 3 (Year 6+ to 10)
3.1	Establish State Road Management Authority

also remain responsible for the provision of condition and other data which will enable the updating of the database relevant to the Core Road Network.

A revised structure should also be prepared for the time when the State Roads Management Authority (SRMA) is established and the operation and management of the Road Fund, AMS is handed over to that authority. The changes proposed will have a considerable impact upon the ORDC and its method of working as set out in its procedures and systems. These changes will take place in a phased manner.

The organization structure has been included because it is necessary to have a structure that the ORBDC/ORDC should be working towards. Even if the 'Final Organization Structure' turns out to be different, it is still important to have an ideal organization structure that GOO would aim for.

8.4. Roles and responsibilities of Officers in ORDC

An attempt has been made to foresee the roles and responsibilities will evolve once the officers start functioning in the new ORDC. The same are presented in Table 8.2. The RDC Act will also provide some directions on their roles.

Note: Equivalence for purpose of formulation of proposal is as follows: They will be more appropriately detailed in the ORDC Act. Managing Director=E-in-C, Joint Managing Director = Chief engineer and Director = Superintendent Engineer.

Table 8.2 Key Functional Areas Roles and Responsibility of Officers

1	Planning	
	Promote and Implement Public/Private Sector Participation	MD
	Define Policy and implement systems	MD
	Periodically update Standard Bidding document	MD
	Prepare Strategic Plans (Master Plan: Roads, Master Plan: Buildings)	Deputy MD
2	Project Preparation	
	Prepare utility shifting plan (for Large works)	Director
	Notify all, concerned with utility shifting	Director
	Undertake Field surveys	
	Conduct traffic survey	EE
	Prepare road/bridge inventory & condition report	EE
	Carry out soil investigation (Task OUTSOURCED)	EE
	Conduct hydrology study, (Task OUTSOURCED)	EE
	Carry out topography survey (Task OUTSOURCED)	EE
	Conduct deflection test for pavement evaluation (in case of existing roads) (Task OUTSOURCED)	EE
	Prepare Geometric design (Task OUTSOURCED for Major works)	EE
	Mark out the right of way	EE
	Initiate Land Acquisition	
	Acquire revenue plan (with Revenue Officer) from <i>Tehsildar</i> Revenue Department	AE
	Prepare land schedule	AE
	Calculate value of buildings	AE
	Prepare utility shifting plan (for Small, Medium works)	AE
3	Project Preparation (Contd.)	
	Prepare design and final drawings of structures	
	Bridge design	SE/EE
	Culvert design	EE
	Retaining structures in case of high embankments	EE

	Drainage design	AE
	Prepare Traffic management plan (in case of existing roads)	EE
	Prepare architectural drawings	
	Conduct contour survey and rainwater drainage criteria	EE
	For buildings costing more than 10 lacs	Chief. ARCH
	Carry out survey for buildings	
	Participate in site selection committee	EE
	Conduct geo-technical investigations of site (Task OUTSOURCED)	EE
	Prepare preliminary, alternative site selection report	AE
	Assess availability of services – water, electricity and sewerage	AE
	Connectivity and parking facility at proposed site	AE
	Prepare Building Design- Multi-storeyed (seismic zone consideration)	CE
	Simple buildings	EE
	Prepare BoQ	AE
	Define Activities	AE
	Match/Prepare Specifications	AE
	Prepare Estimates	AE
	Prepare bid documents to include conditions, specifications, drawings, BoQ, contract	EE
4	Procurement Management	
	Implement NCB/State Government tendering procedure (Based on OPWD Code)	EE
	Implement e-procurement procedure	EE
5	Project Management	
	Monitor Financial Requirement for Work	CE
	Monitor Physical Progress of Work	EE
6	Construction supervision	
	Review contractor's traffic management plan	AE
	Undertake Inspection of equipment	AE
	Quality monitoring of Works	AE
	Conduct Material Tests	
	<i>Lab test – for Road: Sand content in soil; liquid limit; plastic limit;</i>	AE
	CBR Index	AE
	<i>Lab test – for Buildings: aggregate crushing value, impact value;</i>	AE
	water quality; Steel Tensile test; Concrete cube test (7 & 28 days)	AE
	<i>Field test - for Road: GSB gradation; GSB Compaction (Sand</i>	AE
	<i>Field test - for Buildings: Slump test; concrete mix density;</i>	AE

	water cement ratio	AE
7	Contract Management	
	Assess & Justify Variations (extra/substitute items), award extension of time	Joint MD
	Manage Dispute Resolution and Arbitration	Deputy MD
	Monitor Work Program and Time	EE
	Monitor & Exercise Cost Control	EE
8	Quality Management	
	Quality Assurance	EE
	Monitor & Exercise Quality Control	EE
9	Safety Management	
	Prepare safety plan and implement during Construction	EE
	Implement safety plan during Operations	EE
	Implement safety plan during Maintenance	EE
10	Financial Management & System implementation	
	Manage financial instruments and Tax aspects	Joint MD
	Implement Financial MIS –	Joint MD
	Implement financial powers (as per GOO/OPWD Code) or revised ones	Director/ Joint MD
	Apply OPWD code within powers of CE	MD
	Apply OPWD code within powers of EE	Joint MD
	Apply OPWD code within powers of SE	Joint MD
	Prepare Accounts	Joint MD
	Prepare Accounts Audit replies	Joint MD
	Apply OPWD code within powers of AE	EE
	Apply OPWD code within powers of JE	AE
11	Maintenance	
	Identify and assess pavement distress	EE
	Carry out condition survey of Bldgs. and prepare Bldg. maintenance plan	EE
	Prepare Periodic/Routine/special Maintenance plan	EE
	Prepare (fund) proposal for Maintenance Requirement	EE
12	Other Tasks	
	Undertake Performance appraisal (Reporting - Annual Confidential Report)	SE
	Prepare 'Legal' replies	Director/ Joint MD
	Undertake Performance appraisal (Reporting - Annual Confidential Report)	Joint MD
	Undertake Performance appraisal (Reporting - Annual Confidential Report)	EE

	Facilitate Inter-Departmental Coordination (utility shifting)	EE
	Carry out Public relation	AE&EE
	Resolve Public Grievances	AE&EE
	Manage Asset Records	AE
	Monitor and Report Encroachments	AE
	Issue N.O.C. (OFC cables, fuel pumps etc.)	EE
13	Information Technology	
	Apply Computer applications – M S Office, Web etc.,	Director/ Joint MD
	Implement e-Governance (email, web-site, e-nirman, e-procurement)	Director/ Joint MD
	STAAD PRO,	EE(D)
14	Human Resource Management	
	Apply Service conditions	Director/ Joint MD
	Respond to Right to Information (RTI) act	EE&SE

9. Way Forward

9.1. Background

As of now, OWD manages the road network in Odisha using a traditional PWD model – providing road related services such as design, construction, O&M using its own cadre of engineers and direct hire labour gangs. Over recent years, some States in India have recognised that this model was becoming ineffective and most of repair and maintenance works are now contracted out to private sector. Typical problems faced by PWDs included under-funding, over-staffing and untimely delivery of road rehabilitation and maintenance. While State Governments recognise these problems, it appears there is some reluctance to act because of difficulties anticipated in restructuring the respective PWDs (OWD in case of Odisha). However, with economic advancement, there is general agreement that road management will have to be modernised to meet future demands. Some of the States have already adopted this new concept of Development Corporations. They were incorporated under the companies act. This is a separate, Government-owned entity specialising solely in the management of State roads. Its main role is to manage a quality road network comprising construction and rehabilitation and maintenance works. Its major differentiation from the conventional PWD model is that all the needed services are procured through private sector participants. This means that the structure of the RDC is relatively small as compared to the PWD model. Their staffs directly manages program proposals of Government and funding agencies and contracts out major functional works like planning, project preparation and supervision, quality control, design and construction. Along with effective management of the physical assets of the road network, an RDC has the opportunity to:

- Streamline and accelerate construction of the network;
- Increase commitment to maintenance with more emphasis on PPP participation;
- Return fiscal integrity to budgetary allocations in order to meet infrastructure and maintenance needs; and
- Improve work zone and workplace safety.

9.2. Advantages of Establishing ORDC

The creation of a new, modern road management agency such as an RDC could derive following advantages – such as:

- Good office environment and facilities, equipment and working conditions;
- Attractive employment conditions;
- Excellent ICT infrastructure;
- Computerised business applications;
- Enthusiastic and experienced staff with proven performance drawn from a PWD, other Government agencies or the private sector;
- Strong commitment to training and HRD;
- A strong sense of corporate purpose concentrating solely on roads; and
- A clear mandate from the Government and assured budget for major road projects.

9.3. Limitations of ORDC

However, on the limitations side, the RDC model relies heavily upon the availability of resources and expertise in the private sector to respond competitively to a fluctuating workload. Further, RDC is not expected to take over all the responsibilities duties of OWD, the two organizations can co-exist, but with separate responsibilities. However, if RDC concept is accepted and introduced in Odisha, it will add yet another organization and require additional coordination effort on the part of all road organizations in the State. Its creation would require deputing better expertise from OWD and could qualitatively weaken OWD. On quantitative terms, OWD (with its cadre management issues) would still require extra manpower to manage upcoming reclassified roads (about +20,000 kms). However, this aspect needs detailed deliberations within OWD and GOO.

The Consultants have examined the experiences of other States in India and have highlighted the lessons, where RDC have been functional and have appraised on the major issues with pros and cons so as to assist OWD/GOO in decision making on establishment of such an organization.

9.4. Ensuring Sustainability of ORDC

Several innovations are currently emerging in India and abroad. Most of these initiatives appear as priorities in the on-going programme of most of the Road Development Corporations and Public Works Departments in India. Some of them have been implemented also. In order to make new Odisha Road Development Corporation strong and sustain its vigour a sample of developments for implementation has been outlined. They are: *State Road Authority, 2 Relevant Governance and Accountability Action Plan (GAAP) initiative,, 3 Performance Benchmarking in Organization, 4 Road Fund Placement, 5 Public Private Participation (PPP), 6 Asset Management System (AMS) and 7. Performance Based Maintenance Contracting.*

These institutional reforms have been discussed in the RSID reports and would be implemented after endorsement of OWD and government of Odisha. Overall, establishment of ORDC will mark beginning of new era in the development of Odisha Road Sector.



Concept Note on Transforming Odisha Bridge Construction Corporation (OBCC) into Odisha Roads Development Corporation (ORDC)

1. Background

1.1. General

During last 15 years, Odisha has achieved high socio-economic growth and urbanization resulting in high passenger and freight movement. This has accelerated vehicle use (CAGR of +14% during last 5 years) resulting in traffic congestion and other constraints. In spite of its best efforts and due recognition, the State has been able to only partially cope with the emerging demands on State roads and has remained strained owing to limitations in funds, trained human resources, executional/contractor capacities, scientific planning etc. besides limitations in process of decision making. Besides the above, land acquisition, environmental issues and material management has also been a cause of concern in the road development process. In nutshell, road development and management in the state is facing shortcomings in respect of the following:

- Organizational constraints in terms of system, processes, and competencies to assess/meet various demands in planning, design, execution and maintenance management of the works/projects. This includes limitations in delegation of authorities and bureaucratic decision making processes.
- Funding arrangements to meet the road development and maintenance requirements
- Coherent road policy and strategy (short and long term) considering State's development aims and priorities
- Weak information management
- Limitations in transparency, accountability, service delivery, monitoring and performance measurement

1.2. Forecasted Scenario

The vision requirements and forecasts due to rise in urban population, growth in agricultural, services and industrial sector and consequent increase in vehicular demand, indicate increasing demand for high quality roads with adequate capacity. With business as usual scenario, about 8,000 km of the major road network would become capacity constrained (volume/capacity ratio of >0.5) by the year 2018. The existing constraints (executional capacity, financial capacity and HR) on objectively-necessary new works and maintenance could lead to congestion, poor road conditions, increase in road accidents, higher vehicle operating costs and constrained socio-economic development.

1.3. GOO Initiatives

GOO has initiated the flagship programme 'State Highway Development Project' with an aim to convert all State Highways to Two Lane standards. In addition, it has recently announced construction of "Biju Patnaik Expressway" at an estimated cost of Rs 3,200 crores over the next 5 years. Besides, it is contemplating to develop a number of bypasses, Bridges, ROBs etc. to meet the growing demand. However, the gap in funding for objective requirements of road development, network maintenance and connectivity is likely to become critical in coming years. Therefore, GOO

has initiated activities to undertake development of State Roads and Railway Over Bridges through PPP mode. In this endeavor, bidding process for two highway projects namely "Four-laning of Sambalpur-Rourkela Road" and "Two-lane with Paved Shoulder of Joda-Bamberi section of Expressway-II" were initiated by the department during 2012. The estimated project cost for these two roads was Rs. 1,400 Crore. The GOI has also agreed in principle to support the viability gap funding to an extent of Rs. 258 Cr, if required, for the four-laning of Sambalpur-Rourkela Road. The pre-construction activities such as land acquisition, forest clearance and R&R issues have been taken up by OWD in close liaison with the concerned line departments. Besides these developments, project preparation activity with feasibility study for eight more roads and 20 ROBs, with a preliminary cost estimate of Rs 800 Crores, has been initiated. The list of projects, proposed to be taken under PPP with their estimated cost (total about 4000 crores) is given below:

1. Four-laning of Sambalpur-Rourkela Road	165 Km	Rs. 1,293 Cr
2. Joda-Bamberi Road	18 Km	Rs. 110 Cr
3. Sukati-Dubna Road	56 Km	Rs. 200 Cr
4. Jamjhai-Dhamra Road	60 Km	Rs. 150 Cr
5. Satkutia-Patna Road	67 Km	Rs. 150 Cr
6. Bisoi-Rairangpur	30 Km	Rs. 75 Cr
7. Capital Region Ring Road (4 lane)	70 Km	Rs. 350 Cr
8. High Level Bridge over River IB	33 Km	Rs. 300 Cr
9. Sohela-Nuapada Road	102 Km	Rs. 300 Cr
10. Khalikote-Boirani-Aska	58 Km	Rs. 150 Cr
11. Railway Over Bridges in PPP Annuity mode	20 Nos.	Rs. 800 Cr

However, the PPP scenario is still emerging in the state and would require policy and structural support and encouragement. The above scenario clearly demands institutional intervention to overcome current shortcomings and future challenges faced by the Road Sector.

1.4. Key Road Sector Challenges

Besides the need to meet the above requirements, there are a number of challenges posed by emerging developments. With growth, various challenges being faced by road sector are:

- **Vision Requirements:** "To provide and maintain a quality road network which is safe, sustainable and adequate for efficient transportation of goods and people meeting the socio-economic development needs of the State". Similarly, the Road Sector Vision 2021 of GOI envisage: Up-gradation of all SHs and at least 40% of MDRs to two lane with paved shoulder standards by 2021; Provision of two lane roads with adequate capacity to all major centers of tourism, industry and mines; and All weather road connectivity to all habitations irrespective of the population.
- **Need for Scientific Planning & Strategic Policy**
- **Road Network Development:** With multiple authorities engaged in administration and development of roads in the state, achieving an optimal road network (length, hierarchy, standards etc.) needs to be managed.
- **Scientific Road Maintenance with** high data collection needs and funds for maintenance
- **Axle Load Regulation for improved pavement design,** reduced road deterioration and assessing maintenance budget requirements

- **Improved management of Road Accidents and Safety**
- Adequate Human Resources with Improved competencies including project management, Contracts & Administration Management
- **Road Sector Financing:** Need for scientific investment decisions, mechanism to have adequate road maintenance funds, encouragement to PPP by leveraging available finances for new works.
- **Land Acquisition and ROW Management**
- **To minimize negative environmental and social impacts of road development**
- **Monitoring & Evaluation challenges**

To support the development targets and capacity of the major road network, Odisha shall require an investment of Rs. 24,000 Crores over the next 5 years¹¹ i.e. a progressive increase in plan budget by +35% per year or shall have to undertake loans or use PPP to leverage available finances to mobilize the required investments. Accordingly, organizational capacities would have to be improved and matched.

2. Possible Options to meet Road Sector Challenges

Before proposing any changes, the present institutional mechanism for their directional, executional and ground level functions etc. was undertaken. Considerable limitations in the following issues were observed:

- Capacity to cope with accelerated road network development needs
- Limitations in available finances for new works;
- Bureaucratic procedures limiting the speed of decision making;
- Human resources

Besides these a review was also undertaken of :

- World-wide experiences on evolution of road sector organizations (indicating emerging **divergence between client functions and supplier functions**) and
- Available experiences from other state governments (Madhya Pradesh, Maharashtra, Andhra Pradesh, Tamilnadu etc.)

Based on analysis of present institutional capacities (function wise), emerging road sector challenges, associated institutional needs, experiences elsewhere coupled with one to one discussions with stakeholders, **following propositions have been explored to meet these challenges:**

5. Formation of Odisha Road Development Corporation (ORDC)
6. Re-engineering of Odisha Bridge Construction Corporation (OBCC) to ORDC

One of the emerging solutions perceived by strategic planners is to establish an autonomous organization dedicated to road construction and maintenance. With the background information and positive experiences of states like Maharashtra and Madhya Pradesh, development of an AUTONOMOUS ROAD SECTOR CORPORATION has been considered as one of the viable solutions to overcome expressed limitations in the key areas, to a substantial extent. However, in past, Odisha has developed a similar autonomous corporation (Odisha Bridge Construction Corporation – which

¹¹ Completion Report on Road Network Master Plan 2013-33, Submitted by RSID Consultants to OWD, GOO
Final Report on Strengthening of the Institutional Framework/Structures

at present is working under imitations) and experience of that has also been analysed and amalgamated in the proposal so as to not to commit similar errors again.

Based on discussions and validation with OWD and OBCC officials an assessment of strengths and weaknesses of OBCC was undertaken and efforts were made to explore possibilities of strengthening/improvements. Based on preliminary observations, following emerged:

Positives

- Existing “Registered’ Corporation, which can be used as a SPV (Special Purpose Vehicle)/ Corporation by adding certain functional improvements (not much need to create a new entity and seek approval of Government of Odisha)
- Basic infra and HR availability to undertake revised mandate
- Business orientation - formed to function as an self-sustaining autonomous entity
- Ageing non-technical manpower : Coupled with Voluntary Retirement Scheme (VRS), this should facilitate infusion of competent human resources in near future, as the reformed organization matures.

Possible risks in making use of OBCC for similar functions (corporation)

- Cultural - reactive culture and preference to relationship over work
- Highly limited competencies in corporate planning, professional project and contract management etc.
- Low work efficiency – both due to low work load and unwarranted recruitment due to political interference
- High inertia for change

In view of such a need, possible options are:

- Development of a new Odisha Road Development Corporation- (through a Government Resolution or Act - a time consuming process) and leaving OBCC as it is;
- Transformation of Odisha Bridge Construction Corporation (OBCC) Limited to Odisha Road Development Corporation (ORDC) Limited

The major consideration is that if the OBCC is not transformed into a new entity (like ORDC), what could be the best potential (alternate) use of OBCC. The analysis indicates that though the **current** strengths and limitations of OBCC may not sound ripe enough and fully justify its transformation, the available ways and means to make best use of its administrative positives (registered Corporation, closeness to required mandate, functional autonomy), availability of manpower etc. needs to be exploited and made best use of. Else, GOO shall have to continue to unnecessarily carry forward the financial burden of OBCC and continue to incur wasteful expenditures without much tangible outputs (except toll) besides developing an organization with duplication/overlaps of responsibilities (undesirable from institutional considerations). It shall therefore be apt for GOO to consider formation of ORDC by transforming OBCC.

3. Mandate of ORDC

OBCC was incorporated on Jan 01, 1983 under the Companies Act 1956 as a government company, implying that it is a company of Government of Odisha within the meaning of section 617 of the Companies Act, 1956 and is a public sector undertaking of GOO. The defined mandate of OBCC had

focused on roads, bridges, hydro-geological testing, toll collection etc. In view of the constraints and experiences from other RDCs, the proposed mandate of ORDC (Transformed OBCC) should be:

- To develop, maintain and manage:
 - ❖ Roads, Bridges, Flyovers, Bypasses etc.
 - ❖ Public and Private Buildings (Offices, Schools, Hospitals etc.)
 - ❖ Transportation hubs and parking utilities
 - ❖ Tourism Infrastructure
- Toll Management (focusing on improved toll collection, Toll Plaza/Check-posts improvements)
- To provide civil engineering consultancy: This should primarily include preparation of detailed project reports (DPRs), structural design, project management, construction supervision, third party quality assurance etc. for roads and civil infrastructure projects
- To develop/implement roads and other civil infrastructure projects on PPP basis
- Survey and investigations (soils, sub-soils)
- Testing of soils and materials
- Field piloting of innovative construction materials, technology etc.
- To evolve and implement innovative financing mechanisms including land pooling and its commercial development (with connectivity to road corridor), during development of strategic road corridors

In line with the mandate, the ORDC should be able to undertake the following:

- Construction and maintenance of Roads, bridges, bypasses and ROBs on PPP basis
- Maintenance of existing roads (Departmental charge basis)
- Construction and maintenance of Buildings of GOO Departments (Departmental Charge basis)
- Integrated Toll collection on existing roads (using electronic means as far as possible)
- Construction supervision and Quality Management (fee basis - as paid to consultants)
- Any other infrastructure works as deposit works (Departmental Charge basis)
- Project development fee - generating own projects and submission to GOO for approval – on fee payment basis
- Integrated Road Development Works of Department of Housing and Urban Development, GOO (Departmental charges basis)
- Participation in bidding process both at national and state level as an individual or as a Consortium with an approved consultant/contractor

4. Funding (Financial Management)

As per Companies Act, 1956, Corporations should be self-sustaining. Based on experiences of successful RDCs, it can have following revenue streams:

- Budgetary support for development and maintenance of assigned roads apart from funds under BOT & externally funded projects (as provided to them).
- Premium from BOT Projects (selected SHs)
- Interest on Fixed Deposits

- Departmental Charges (may be limited to a maximum of 10%) to execute projects from other agencies (Deposit works of Offices, Schools, Hospitals, Urban roads, Integrated Border Check Posts, Transportation hubs, Tourism infrastructure etc.)
- Retention of Performance Security (very strict in implementation) of defaulting bidders/contractors
- Fee from consultancy, project development etc.
- Premium from land development along/by the side of strategic road corridors.

However, to revive and improve initial viability of the Corporation, GOO may allocate adequate number of infrastructure projects (especially bridge construction and maintenance) to the Corporation and provide required support to ensure time bound project completion. Preliminary estimates indicate that allocation of works worth INR 400 crores per year to the Corporation should make it financially sustainable.

Secondly, its paid up capital may be raised to about INR 100 Crores so that it could have some funds for undertaking project development and for land acquisition for upcoming projects etc.

Thirdly, GOO needs to permit introduction of a Voluntary Retirement Scheme (VRS) to optimize the human resources and improve the culture of the organization. GOO should bear the cost of VRS (which could be a maximum of about 30 crores for about 150 employees).

5. Structure

The day-to-day operations are proposed to be undertaken by a Managing Director, who would be strategically guided by the resolutions of "Board of Directors". The Board of Directors shall have the authority to approve all rules, procedures and authority/powers (administrative, technical and financial) at various levels. However, Board shall authorize the Managing Director to oversee the implementation of all such resolutions of the Board. In nutshell, all powers shall be exercised by MD, as long as the same are as per resolutions of Board of Directors of ORDC.

The Board of Directors shall comprise of the following:

1. Chief Secretary or his nominee	Chairman
2. Additional Chief Secretary cum Development Commissioner	Director
3. Secretary, Finance	Director
4. Secretary (Works)	Director
5. Chairman cum Managing Director	Member - Secretary

The organizational structure of existing OBCC requires drastic restructuring. Although, much of its functions are technical, yet it is heavily staffed with non-technical professionals. It has a staff strength of 205, but the number of technical professionals are only 10. Considering the limitations in work-load and its unknown continuity, it is suggested that ORDC should at least initially follow the underlying operational principles of MPRDC (which manages a portfolio of +40,000 crores with a staff strength of 167) and MSRDC, where the structure is **lean and outsourcing is a norm**. Learning from experiences of successful road sector corporations, a lean administrative structure with in-house offices for Administration (manager level), Company Secretary (initially on part-time basis)

and Financial Advisor (Deputy General Manager level) is recommended. Besides these, there should be a Chief Engineer (Joint Managing Director cum Chief General Manager) and 2-3 Superintending Engineer (Projects – Designated as General manager and a 4-5 Executive Engineers or equivalent (Designated as Deputy General Managers) and 8-10 AEE/DEE or equivalent (designated as Managers). These should be supported by limited administrative and accounts professionals (from existing non-technical professionals) but such services should be outsourced in future, once existing staff gets retired (normal, voluntary or compulsory).

The major work of the ORDC shall be undertaken by outsourcing using following sources:

- a. Consultants in various fields (individuals, institutions) – for DPR, Design, Project Management etc.
 - b. Contractors (in various fields) – class wise and work wise panel shall be developed along with their “readiness” and “timeliness” records of completion of various projects
 - c. Twinning arrangements with various Government/ semi-Government and government supported autonomous organizations (like IIT, IIM, Corporations) etc.
 - d. Non-core, non-critical services like data entry operators, house-keeping services, vehicles etc.
- With these, following wings and professionals have been suggested **for its operation for first two years (to be recruited as per the works load):**

Table C-1: Suggested positions for proposed ORDC in the Short Term*

Sl No.	Designation	Number	Reporting to	Rank/ Equivalent	Sanctioned for OBCC	Remarks
1.	Chairman cum Managing Director	1	Board of Directors	EIC	1	
2.	Joint Managing Director	1	Chief Managing Director	CE		Procurement, Project Mgt.
3.	Chief General Manager	2	Joint Managing Director	SE	1	Project Mgt., Business Planning, Procurement, Contracts
4.	General Managers	7	Chief General Manager	EE (civil)	10	Design (1), Procurement (1), Toll Mgt (1), Quality Mgt (1) Construction Management (3)
5.	Deputy General Manager	16	General Manager	AEE/DEE	33	Design (1), Procurement (1), Contracts (1), civil construction mgt. (6), Toll (3), Quality mgt (3) Electrical (1) for Idgs...

SI No.	Designation	Number	Reporting to	Rank/Equivalent	Sanctioned for OBCC	Remarks
6.	Assistant Manager	10	Deputy General Manager	AE/JE		Civil Construction (6), HO works (4)
7.	Financial Advisor	1	Joint MD	Dy. Sec.		
8.	Company Secretary	1	CMD	EE equivalent		Market (initially part-time)
9.	HRM/Administrative Officer	1	Chief General Manager	EE equivalent		Market
10.	Land Acquisition officer	1	Chief General Manager	Dy. Sec.		Revenue
11.	Deputy General Manager (IT)	1	Chief General Manager			Market
12.	Accounts (DAO)	4	Respective Ees	JE level		One HO, Three Field
13.	Administrative staff	30	Different Officers		Head office: Finance (2), LAO (1), HRM (1), GM (2), DGM (6), Pool (12), Field Offices (6)	PA/typist to MD (2), all other in pool: Typist, data entry operators, clerks, assistants etc. (including 2 for leave vacancy).
14.	Support staff	10				6 in HO including 1 for reprography, 3 in field offices

**** All the above positions can be recruited from the market/ private sector or through deputation from GOO.***

The above structure is an optimized one, little on leaner side so to extract full potential of its human resources and is based on a maximum of 6 field offices. On one hand, it provides the required human resources and capabilities to the Corporation to plan and manage the anticipated works (initially expected to be a minimum of INR 350 crores per annum, with 6-10% departmental charges, thus providing a revenue of about 30 crores per annum)) and on the other hand, it would keep the “fixed” establishment cost low. It is expected that Corporation would extensively engage in outsourcing of works and services and it may not need further expansion within 2 years. However, as and when, Corporation is able to have a **sustained high work load** in specific geographical locations,

it can modify its structure and increase its field presence (including creation of extra field offices, headed by General Managers) with the approval of “Board of Directors”.

6. Operation:

The operation of proposed ORDC should provide GOO agencies an avenue for efficient delivery and project execution over and above their procedures. The major purpose of having project execution thru ORDC should be quality, efficient project/contract management, time bound execution, technical expertise and avoidance of bureaucratic procedures. This shall especially be applicable to civil sector organizations like Department of Works, Rural Development etc., who are already undertaking a number of works and are already engaged in procurement of civil works (tendering, evaluation, negotiation, award, contract management etc.). However, to meet GOO expectations and for being an efficient, effective and economic organization, ORDC shall have to evolve systems and processes to support the following:

- Transparent empanelment of contractors and consultants for specific works; This should include selection of capable construction agencies having adequate and advance machinery and equipment. For consultants, it could be their available professionals and their experience (works undertaken during last 5 years) etc.
- Transparent bidding and allocation of works to the contractors and consultants
- Lean, efficient and flexible structure (limited overheads) coupled with outsourcing to keep cost under control;
- Efficient decision-making (**Adequate delegation of powers at various levels**, efficient and time bound procurement processes: tendering, evaluation of bids and award of contracts, payments). The “timelines” for various decision-making processes shall have to be evolved based on experiences.
- Strong performance monitoring of contractors and consultants and service providers
- Imbibing systems **to periodically assess its own readiness** to undertake projects and deposit works so as to “adhere to commitments” and provide “reliability” to work awarding agencies
- Delegation of powers to CMD (with prior approval of Board) to recruit and hire **competent professionals from private sector (market) or GOO on specific terms and conditions**, which could include “contract employment on fixed pay basis”, “time based deputation”, “one level higher pays for GOO employees”, “performance linked bonus” etc.
- Positive HRM policies (recruitment and selection, career advancement, incentives and rewards, human resource development)
- Effective Human Resource Management systems/practices (manpower planning; performance management system; motivation; performance based incentives, rewards and retrenchment etc.).
- Encouragement to “Competency enhancement” in “required” areas (Ex. project management, contract management, project development, financial analysis of projects...) etc.
- Positive work environment including office and IT infrastructure, provision of required transportation facilities/vehicles etc.
- Development and adoption of an appropriate “Change Management Strategy” and its implementation to inculcate a “Corporate Culture” within the transformed ORDC

7. Inclusion of Success Factors from Other Corporations

A. Outsourcing

It can outsource all technical (design, costing, construction & maintenance) works to consultants and contractors and manages all technical activities through them. Even, the maintenance of the road network can be carried out through Operation, Maintenance & Transfer (OMT) arrangement using long-term performance based maintenance contracts. The risks associated with a project can be rightly apportioned. All matters related to Land Acquisition, environment & forest clearances, Tree cutting, shifting of utilities etc., should be directly managed by Corporation officials, particularly at field level. .

B. Rapid Decisions

The Corporation must develop both the capacity and systems to undertake accelerated decision making.

A typical example of improved decision-making is illustrated below:



With the defined timelines (to be developed for various unit activities), the process from bid submission to issue of letter of acceptance could be completed within 6 to 8 days. Thus, the decision making would have to be streamlined. For example, any bid below INR 10 crores can be approved by Managing Director, whereas above this amount, it can be approved by a Tender Committee, which could have members from Works and Finance Department. Further, bids above INR 20 crores may be approved by the Board. The process must be insulated from political involvement. To quote another example of rapid decision making, systems would have to be developed to pay the bills/ receipts submitted by the Contractors/ Consultants within 2-3 working days, thus improving their reliability of the Corporation.

As per a pre-defined procedure, the Corporation shall invite and undertake empanelment (on a nominal fee) of consultants (individuals, firms, government/quasi-government and autonomous organization), contractors etc. with details of their past experience (works undertaken and their performance records during last 5 and 10 years), capabilities (financial, resources, equipment, machinery etc.), present geographical presence and available professionals (both full time or on contract) etc. Based on this, a database shall be developed using specific words defining expected “key requirements”. The credentials of the empanelled agencies/individuals may be verified by the Corporation. The empanelment shall be reviewed and updated every two years. The empanelment would reduce the “pre-qualification” stage and **thus save time** in selection of consultants/contractors.

C. Transparency

All procedures of Corporation should be transparent, including the procurement process. The Corporation should take lead from GAAP (Governance and Accountability Action Plan) of GOO and introduce use of IT into its working (e-procurement, electronic measurement book, e-payments, consultant and contractor registration data, all project data including monitored data, balance sheet

etc.). This would enable the Corporation to gain the trust of consultants, contractors, concessionaires, public and even politicians.

On assignment of any work, the Corporation must quickly complete the process of award of work in a transparent manner. For the purpose, it can tender the assigned work to its empanelled (having required eligibility) consultants and contractors. These consultants and contractors can quickly respond (with much lesser time than normal procurement timelines) and the bids can be processed and works can be awarded with much less time. The contract cell should also develop a set of contracts duly weighted by legal experts), which with minor modifications can be signed. As the time progresses, the successful contractors/consultants would have both reduced technical and financial “capacity” and “readiness” and this should be considered while inviting their bids. Another alternative system employed by some organizations is a roster system, where empanelled contractor/consultants are requested to undertake works (based on “normative/”average” rates received in past few bids). If the contractor is unwilling to undertake these works, the Corporation offers the work to the next on the roster. The roster method had worked well, when works are of similar nature and at some specific locations. However, considering the varied works and their geographical spread, this method may not be appropriate.

D. Leadership

Leadership is a key factor in the success of Corporations. Based on experience, it should be noted that the role and dynamism of the senior officials of Corporation and their network in administration of Odisha (GOO) would play a major role in the successful operation of Corporation. Experiences from other Corporations suggest that till systems and processes are established, leadership is one of the most influencing factor in the performance, image building and thus the success of Corporations. The factor is much more important during initial years of establishment of a Corporation and should be provided due consideration.

E. Human Resources

Corporation should be managed in a manner to develop a dedicated and hard-working team, which should respond to urgent situations in a quick and appropriate manner. It should be noted that this shall require **selection of right human resources**, supporting HR policies and Rules, efficient performance management (PM) system and awareness of engaged officials that they must perform to continue to work in the Corporation. For the purpose, they may be hired from market or selected on deputation with some pay incentives (one grade up). Further, the annual PM system should decide on incentivizing performing officials and sending back/retrenching/terminating the services of non-performing officials. It is anticipated that a number of good officials from OWD could be interested in working for the Corporation, but their attitude and willingness to adapt to the new work culture and work environment, must be assessed prior to their indication.

The human resources can be engaged/hired on contract basis from the open market or on deputation from similar GOO/Quasi-government/autonomous departments. The criteria for selection of senior professionals should include leadership, dynamism, experience in project management, contract management, construction management, quality management (as per respective positions), past “performance records” of delivery, ethical behavior etc. The positions of Company Secretary, Human Resource Manager and similar positions should be hired directly from market. For legal support, a panel of legal experts along with their past records, fees etc. may be maintained by the Corporation. Such empanelment should be updated every two years based on the

performance.

F. Other Success Factors:

This may include:

- Deployment of supervision and quality control consultants with international expertise;
- Adequate budget provision by the State Government for annuity and VGF payments;
- Timely payments along with bonus on due date;
- Political commitment and support;
- Treatment of concessionaires as development partners etc.

8. Required Changes within OBCC to Transform to ORDC

With these, certain changes are needed to be pursued on priority:

- Communication of Change of name and mandate to Registrar of Companies and its approval
- Revised mandate to include development, construction and maintenance of civil infrastructure projects and to provide civil engineering consultancy etc. **(as specified earlier)**
- Reconstitution of Board of Directors of ORDC and its communication to Registrar of Companies
- Empowerment of decision making within ORDC (defining authority, responsibility and delegation of powers at various levels) by a Resolution of Board of Directors
- Development of operational manuals;
- Focus on exploiting and expanding PPP and leveraging of funds (including GOO funds)
- To adopt corporate practices (strategic planning, operational plans and business planning) and its dissemination amongst staff
- To improved organizational competencies especially in the areas of project and contract management, financial analysis, change management etc.
- Process and system improvements to support performance (efficiency and effectiveness), transparency and accountability
- Need to develop systems for performance monitoring of the organization (documentation, balance sheets etc.) as well as of contractors, consultants etc. and essential use of feedback
- Initial financial support by GOO (increase in paid up capital, entrusting specific works)
- Outsourcing of non-core, non-critical operations
- Change management to imbibe a positive, dynamic and business oriented (market responsive) culture
- Introduction of VRS/CRS to optimize Human resources

9. Supporting Actions for Transformation

As indicated under analysis of existing OBCC (section 3), the transformation of OBCC into ORDC would face some serious challenges. To overcome this and to streamline future systems and processes of ORDC including processes of empanelment, entering into twinning arrangements etc., GOO may hire a consulting agency. The major tasks under consultancy t could include

- Refinement of mandate, objectives and structural alignment (re-structuring of OBCC) of ORDC

- Development of vision, mission, strategies and a short term Business Plan (for at least 3-4 years)
- Development of systems and processes for efficient decision making, transparency and accountability including Improved “Performance Management” and “Competency Improvement” system for its HR
- Development of an Operational Manual (operational guidelines)
- Development of a Voluntary Retirement Scheme (based on HR plan of reengineered ORDC, Analysis of existing and their behavioural analysis, financial cost etc.)
- Development of Transformational and Change management strategy and implementation of Change management strategy within re-engineered ORDC
- Development of guidelines on empanelment and use of consultants, contractors etc.
- Development of Formats for institutional MOUs
- Competency building on corporate purpose, project Management, Contract management, Negotiation Skills, materials management, Project Financial Analysis etc.
- Systems to modernize toll plazas

The consultancy may be engaged for a period of about 12 months. The required expertise under the consultancy should include:

- **Org Development Expert** (8 m and Team Lead) : Defining vision, mission, mandate and strategies to meet its corporate objectives; overall assessment and support in transformation to a corporate entity, structural improvement strategy, defining responsibility and authority delegation, development of strategic and operational plans with business orientation, development of existing manpower management strategies (VRS, CRS) and supporting its implementation etc.
- **Benchmarking and Process Improvement Expert** (2.0 months), - to improve efficiency, effectiveness and economy of operations and to develop guidelines for the required decision making (like a Decision Support System - DSS)
- **Financial expert** (2.0 m): focus on ” Business Planning , Financial Management Systems
- **Change Management expert** (3.5 m) – Development of Change Management Strategy, capacity building of change professionals, guiding implementation of change management strategy
- **Procurement expert** (2 m),
- **HRM Expert** (4 months) : Development of corporatized HR policies (recruitment, transfer, deputation, resignation/termination/retirement), suggesting systems of recruitment, career advancement and performance management, developing criteria and formats for measuring performance and then supporting its implementation; devising systems for incentivisation, rewards and retrenchment/termination etc.
- **HRD expert** (2.0 m) – Development of HRD Policy, Development of HRD framework and plan, initial training management, evolving ways to support change management to a dynamic, corporate culture etc.
- **Legal Expert** (1.5 month): Support to framing of authority, delegation, job redefinition, HR Policies and Rules etc. in line with Corporate business environment
- **Documentation Expert** (1.0 month),
- **Toll Expert** (1.0 month),

- **IT expert (1 m):** AS IS Study, System Development, Networking guidance, software support etc.
- **Ad-hoc expert (2.0 months)**
- i.e. about 30 person-months.

All the above experts would also provide support in transformation of OBCC into ORDC and its change management by way of hand-holding, capacity building on specific issues, decision making, business orientation etc. to the existing OBCC to transform into ORDC. They would also specify ‘competency requirements’ for various positions of transformed ORDC and recruitment guidelines (for approval of the Board) so that negative experiences of OBCC don’t get repeated and performing incumbents remain dedicated, motivated, and enjoy an improved and secured (job safety) work environment.