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

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

Comprehensive Training Plan
for OWD

October 2014

ict Intercontinental Consultants
and Technocrats Pvt Ltd

In joint venture with
Grant Thornton
Advisory Pvt. Ltd.

In association with
ARKITECHNO
CONSULTANTS (INDIA) PVT. LTD.

Project Office: N-3/91, I.R.C. Village, Nayapalli, Bhubaneswar-751015, Odisha.
L: +91-674 - 2557204, F: +91-674 - 2553689, email: orissa@ictonline.com

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Client:

Odisha Works Department

Nirman Soudh, Keshari Nagar, Unit-V
Bhubaneswar – 751001
Tel./Fax: +91 674 2396783/0080
Email: pmuosrp@gmail.com

Consultant:

Intercontinental Consultants Pvt Ltd
in joint venture with **Grant Thornton Pvt Ltd**
and in association with **ARKITECHNO**
Consultants (India) Pvt Ltd

N-3/91, IRC Village, Bhubaneswar – 751015
Tel./Fax: +91 674 2557204/2553689
Email: Odisha@ictonline.com

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Acronyms

ACE	Assistant to Chief Engineer
ACR	Annual Confidential Report
AE	Assistant Engineer
AoR	Analysis of Rates
ASCI	Administrative Staff College of India
BBDM	Benkelman Beam Deflection Method
BIS	Bureau of Indian Standards
BoQ	Bill of Quantities
BOT	Build Operate Transfer
CE	Chief Engineer
CPM	Critical Path Method
CRRI	Central Road Research Institute
DAO	Divisional Accounts Officer
DPI	Design Planning Inspection
DPR	Detailed Project Report
E-i-C	Engineer in Chief
EE	Executive Engineer
EIA	Environment Impact Assessment
EMP	Environment Management Plan
ESCI	Engineering Staff College of India
FGD	Focused Group Discussions
FIDIC	International Federation of Consulting Engineers (Fédération Internationale Des Ingénieurs-Conseils)
GED	General Electric Division
GIS	Geographic Information System
GOI	Government of India
GOO	Government of Odisha
GPH	General Public Health
GPS	Geographic Positioning System
GSB	Granular Sub-Base
HDM	Highway Design and Management
HO	Head Office
HRD	Human Resource Development
HRM	Human Resource Management
HRMIS	Human Resource Management Information System
IAHE	Indian Academy for Highway Engineers
ICT	Information & Communication Technology
IDCO	Industrial Development Corporation of Odisha
IEC	Information, Education & Communication
iOTMS	Integrated Online Treasury Management System
IRC	Indian Roads Congress
ISAP	Institutional Structuring Action Plan
ISD	Instructional System Development
ISO	International Standards Organization
ITI	Industrial Training Institute
IT-ICT	Information Technology and Information Communication Technology

JE	Junior Engineer
KSA	Knowledge, Skills, Attitude
LAO	Land Acquisition Officer
MS	Microsoft
MDR	Major District Road
MIS	Management Information System
MLA	Member of Legislative Assembly
MLCs	Members of Legislative Council
MPR	Midterm Progress Report
NH	National Highways
N.O.C	No Objection Certificate
NABARD	National Bank for Agriculture and Rural Development
NCB	National Competitive Bidding
NICMAR	National Institute for Construction Management And Research
NDT	Non-destructive Test
NICMAR	National Institute of Construction Management and Research
NITHE	National Institute for Training of Highway Engineers
O&M	Operation and Maintenance
OFC	Optic Fibre Cable
OPWD	Odisha Public Works Department
OAS	Odisha Administrative Service
OJS	Odisha Judicial Service
OSD	Officer on Special Duty
OSHB	Odisha State Housing Board
OSRP	Odisha State Road Project
OWD	Odisha Works Department
PERT	Program (or Project) Evaluation and Review Technique
PHE	Public Health Engineering
PMU	Project Management Unit
PPP	Public Private Partnership
QC	Quality Control
R & B	Roads & Bridges
R & R	Resettlement and Rehabilitation
RACI	Responsible, Accountable, Consult, Inform
RD	Rural Development
RD & QP	Research Development & Quality Promotion
ROMDAS	Road Measurement Data Acquisition System
RSID	Road Sector Institutional Development
RTI	Right to Information
SE (P&D)	Superintending Engineer (Planning & Design)
SE	Superintending Engineer
SE (D & P)	Superintending Engineer (Design and Planning)
SH	State Highways
STAAD software	Structural Analysis And Design software
TIMS	Training Information Management System
TNA	Training Needs Analysis
TOR	Terms of Reference
WAMIS	Work & Accounts Management Information System
WB	The World Bank

E XECUTIVE S UMMARY

Executive Summary

Government of Odisha realizes the need for reforms in OWD and is preparing itself for capacity building, organizational restructuring and skill up-gradations to meet the new challenges, by implementing Road Sector Institutional Development (RSID) which has HRD and Capacity Building of OWD as one of the key activity areas.

As a first step, an **OWD HRD Policy** was prepared by the consultant and finalized jointly with OWD management in March 2013, with inputs from The World Bank. The OWD HRD Policy, based on a strategic approach to HRD, covers HRD Policy Framework, Policy Statement and Objectives, HRD and Training strategy, and Implementation related aspects etc. *to achieve a target of minimum 7 days 'need based' training to at least one third (33.3%)of staff in a training year to start with, progressively increasing in the subsequent years as required.*

Subsequently, as part of operationalization of the OWD HRD Policy, a comprehensive **Training Needs Assessment (TNA)** was carried out by ICT, both at head quarter and field level for all OWD staff and officers centered on the foreseeable OWD functions, operating challenges and skills priorities. Simultaneously Asset Management Consultants (M/s LASA) and IT-ICT Consultants (M/s CMS Technologies) also identified specific training needs of OWD staff to support implementation and sustainable operation of softwares developed under these two consultancies. However, it was realized that there were a substantial overlap in contents of various training programs, independently proposed under this three independent consultancies. Conducting training programs, as proposed by three consultancies, would have caused extra time and costs for OWD.

The aim of this report is to develop a **Comprehensive Training Plan for OWD** by eliminating duplication of contents under various programs. Collectively, the OWD HRD Policy, Training Needs Assessment and the resulting Training Plan (Comprehensive) have three key objectives:

1. Create sustainable and effective OWD capability and performance
2. Institutionalize HRD function as per OWD HRD Policy
3. Improve training delivery and quality

Staff development and staff training are parts of the bigger concept of human resource development (HRD). As part of the overall "OWD HRD Strategy", *policy action is needed on seven strategic fronts viz. Communications Strategy, Quality Strategy, Entrepreneurship Strategy, Culture Building strategy, Accountability and Ownership Strategy, Learning Strategy, and Systematic Training Strategy*.

HRD Strategies define how the human resources would be utilized through the use of an integrated array of organizational development, training, and career development efforts to achieve the objectives at the organizational as well as individual levels.

The Training Needs Assessment was carried out for identification and prioritization of training needs for different levels of staff (CE's, SE's, EE's, AE's and JE's). The feedback during TNA was that the present capacity building mechanism through training of OWD staff leaves a lot to be desired and it

is already posing formidable challenges to meet the needs of several ambitious changes foreseen. The implementation of asset management system and adoption of various softwares shall also require specific trainings at various levels for their sustainable adoption and operation. It also emerged that the priority training needs are different for different levels with CEs and SEs requiring greater emphasis on policy, planning and management aspects, while the training needs for EE's, AEs and JEs are more related to operational and supervision roles. This "Comprehensive Training Plan' document is a follow up of the "Report on Training Needs Assessment Results" and the TNA based recommendations by Asset Management and IT- ICT Consultants.

Those Key Functional Areas/Tasks which are indicated as Priority 'A' - Essential short-term (within one year), under each of the levels in the hierarchy, CE to JE, are the focus of this "Comprehensive Training Plan" document.

The **Training Plan** *propounds two independent streams of training, viz. 'Induction Training' and 'In-service Training',* dealt with in detail in **Chapters 2 & 3** respectively.

'Induction' training is part of OWD's knowledge management process and is intended to enable the new starter to become a useful, integrated member of the team. These programs can play a critical role in the organization in terms of performance, attitudes and organizational commitment. An 'Indicative Course Content' (inclusive of lectures, group discussions, skill practice sessions, laboratory training site visits and evaluation) is presented in **Annexure B**.

The 'In-Service' training is aimed at continuous improvement in the capacities of staff members to perform their roles in an effective and efficient manner as well as to embrace emerging roles arising from adoption of new systems (asset management, computerization). The 'Key Functional Areas and Tasks' have been matched with the expectations represented by the 'Related Training Titles' and form part of **Section 3.1**. *The Training Needs Assessment carried out under three consultancies and respective training topics have been translated into 'Training profile sheets' in* **Section 3.2***, which can more or less serve as 'Terms of Reference' for delivery of the training*. Each of the 'Training Profile Sheet' is a plan in itself for the respective training delivery. Training Profile Sheets are appended to this training plan document as Annexure D and have been grouped under the same fourteen headings used for the Key Functional areas.

A list of training institutions and their profiles form part of **Chapter 4**. *The lists have been included in this document for reference only (not recommended) , for selection of required external resources*. It includes those institutions with whom OWD has had prior engagement, as well as other leading institutions with proven track record of offering training programmes in the required areas/functions*. In addition to the Indian training institutions, OWD could also consider associating with some of the leading overseas organizations*.

OWD Role and Training Delivery Strategy have been dealt with in **Chapter 5**. The Key elements are:

- *Adoption of OWD HRD Policy in letter and spirit, through a formal 'Government Order';*
- *Formation of Task Forces to address the organisational issues identified during the TNA exercise (Cultural issues, Policy & Strategies, Structural issues, Resources, Processes and*

Systems, People). If not addressed, these issues will continue to hamper progress and never allow a learning environment to develop in OWD;

- *Training Funds- Provisions need to be made in the OWD Annual Administrative Budget by creating a cost head titled "Training". The HRD Policy recommends a minimum of 3% of OWD Annual Administrative Budget to be allocated initially, progressively increasing to 5 % over the next five years. However, more than the amount in absolute terms, it is important that HRD and Training is recognised as an important activity, and becomes an integral part of the budget planning itself;*

- *OWD HRD & Training Cell - As part of the 'Organizational Restructuring', OWD HRD & Training Cell has to be put in place on priority and the proposed structure of the HRD & Training Cell as presented, is activated with the suggested dedicated team. The Cell will be located in the office of E-in-C, headed by a Superintending Engineer, and supported by a dedicated team at the head quarters as well as at Circle/Division level.*

  The key functions of the HRD & Training Cell are proposed as follows:

  - *Conducting (or getting done) TNA exercise to assess the evolving training needs, preferably once in three years*

  - *Preparing an multi-year and annual training calendar for dissemination amongst OWD staff*

  - *Identifying training institutes and external resource persons*

  - *Creating and maintaining training database*

  - *Nomination of OWD staff for training through a systematic process*

  - *Developing "OWD's Core team of Trainers" as part of the strategy for developing an internal pool of resource persons*

  - *Monitoring and Evaluation of HRD and training activities*

  - *Periodic review of HRD Policy*

- *Odisha Engineering Training and Research Institute/Academy - As part of Organizational Restructuring it is suggested that a dedicated Engineering Training and Research institute, under the aegis of OWD, should be created to cater to the overwhelming future training needs among the engineering cadre in the State of Odisha.*

The overall **"Training Plan"** described in this document is summarized below:
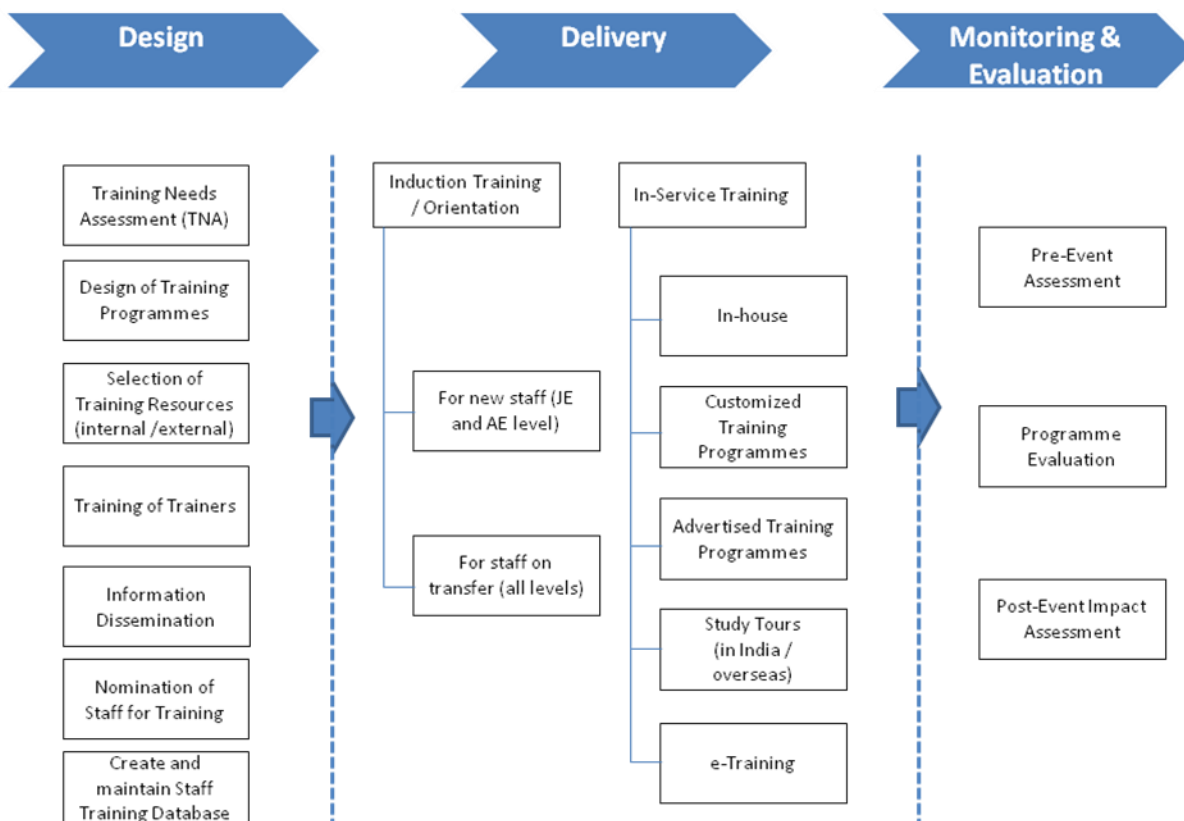
The training delivery strategies will be a combination of six variances. Given the wide range of training programmes (as per the 'Related Training Titles' enumerated in **Section 3.1**) to be administered across a large number of participants covering the entire geographical area of Odisha, and to be able to accomplish the desired output in the specified period of time, a multi-pronged delivery strategy is detailed in **Section 5.1**. Out of these 'Training of Trainers' has been elaborated further in **Section 5.2**. *Due emphasis has been laid on creating a core group of 'Trainers' to develop internal resources, to ensure standardized information flow in all Circles and aid in faster percolation down to the field level.*

*When dealing with the cost of training in **Chapter 6**, the following postulates have been considered when planning for 'Priority A' training programmes within the first year.*

- *At least half of the existing Chief Engineers should undergo first rounds of training*

- *At least 15 Superintending Engineers (one each from 12 R & B Divisions and 3 NH circles) should form part of the first group to be trained*

- *Executive Engineers representing all R&B Divisions, and NH Divisions should undergo training in the first year.*

- *At least 2 Assistant Engineers per field circle should undergo training*

- *At least one Junior Engineer from each of the field divisions should participate in the various trainings.*

To achieve the above, *OWD would need to commit about 4.5 thousand man-days of staff for participation in training programmes*, which represents about 1 man-day (assuming about 5 thousand staff, rest about 3 thousand are daily wage). However, this does not include trainings for administrative staff, data entry operators etc. This clearly underlines the fact that training of staff, if planned and implemented in a systematic manner, shall not hamper the day to day functioning of the organization, contrary to the perceptive argument that 'if everyone is sent for training then who will be left to do the work'.

Proposed Training Plan (Minimum) & Budget for Year One

Sl. No.	*Levels*	*Proposed Training Man-days*	*Percentage of total Man-days*	*Year One Cost* INR
1.	Chief Engineers	300	6.2 %	16,91,400
2.	Superintending Engineers	865	6.4 %	46,22,000
3.	Executive Engineers	1089	3.5 %	108,08,000
4.	Assistant Engineers	1031	0.8 %	37,79,500
5.	Junior Engineers	1350	0.8 %	47,10,500
6.	Study Tours	17		28,00,000
	Total	**4652**	**1.35 %**	**2,84,11,400**
	Training Management cost			42,00,000
	Grand Total			**3,26,11,400**
			say	**3.26 crores**

Further, as summarized in the table above*, the indicative cost of the training programs proposed during the first year amounts to INR 2.84 crores, to which the management of OWD needs to commit itself to allocating and spending. Even if we add training management costs of say approx. INR 0. 42 Crores per annum, the total cost of INR 3.26 Crores*, it is worth mentioning that this sum is only 1.63%, of the OWD Annual Administrative Budget, and well within the figure of 2 percent proposed for HRD and training initially.

The phasing of this budget will depend upon the Training/Event calendar to be evolved by the HRD & Training Cell and *once the MoU's have been signed between OWD and Training Agencies*. However, in principle *it is recommended that the training programmes should be uniformly scheduled throughout the year, so that the budget utilization is broadly uniform across the four quarters of each year*.

As a possible alternative to implementation of the Training Plan by OWD, it is also proposed in the concluding chapter, that implementation of the HRD function be out sourced to a team of HRD professionals/Agency for about 2 years. This implementation team/Agency will be entrusted with executing the HRD functions during 'first six months"; it is expected that after OWD's Organizational Restructuring, the OWD HRD & Training Cell will be in place by such time and during 'next 12 months" the capacity building of those entrusted with the Cell functions can take place. During 'next

6 months' this implementation team/Agency will take a back seat and will only act as a 'help desk', with officials in the HRD & Training Cell performing the required functions.

In case of an unlikely scenario, where a separate budget for OWD HRD and Training Cell, is not immediately available, the funding for the implementation of training plan along with the fee for the implementation team/Agency can be sourced through the budget allocated towards 'ISAP' under the current project funds for the initial period, so that the same is not delayed. Alternatively, OWD can also explore the possibilities of support in the form of 'Technical Aid' from other international organisations, such as JBIC, GIZ, DFID etc.

C H A P T E R **1**

I N T R O D U C T I O N

1   Introduction

Government of Odisha has realized the need for reforms in OWD 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.

The Road Sector Reforms Plan – ISAP, formalized for a ten year period in 2008, covered major reform objectives of Institutional Strengthening and Capacity Building of OWD. In order to implement ISAP for the Road Sector in general and the OWD in particular, OWD initiated actions to procure the services of a consultant for implementing Road Sector Institutional Development (RSID) which has **OWD HRD and Capacity Building** as one of the six key activity areas.

The scope of work defined vide the ToR, includes:

- Preparing and facilitating HRD policy for OWD;

- Conducting a comprehensive Training Needs Assessment (TNA) exercise for all OWD staff;

- Identifying/defining an integrated set of 'core technical and management skills and knowledge' for OWD technical staff;

- Developing multi-year 'rolling' Staff Training program;

- Evolving an evaluation system to manage training quality; and

- Facilitating establishment of Training/HRD functions capacity within OWD to sustain the delivery and management of all new staff training and HRD activities.

As a first step, an **OWD HRD Policy** was prepared by the consultant and finalized jointly with OWD management in March 2013, with inputs from The World Bank. The OWD HRD Policy covers HRD Policy Framework, Policy Statement and Objectives, HRD and Training strategy, and Implementation related aspects, including establishment of an HRD & Training Cell, coverage targets, budget allocations, and guidelines for nomination of staff for capacity building programmes (including overseas programmes, resource selection and remuneration, TA/DA for nominated staff, knowledge sharing etc. The OWD HRD Policy also recognizes the need for identification and development of internal resource persons for HRD role. A mechanism for continuous Monitoring and Evaluation is also outlined. The complete OWD HRD Policy report is available as a separate document. However, for ready reference and setting the context for this report, the salient features of the OWD HRD Policy are summarized at Section 1.1 of this report.

Subsequently, as part of operationalization of the OWD HRD Policy, a comprehensive **Training Needs Assessment (TNA)** was carried out, both at head quarter and field level for all OWD staff and officers centered on the foreseeable OWD functions, operating challenges and skills priorities. The key objective of the TNA exercise was identification and prioritization of an integrated set of "core technical and management skills and knowledge" required in the OWD technical staff for future effectiveness. The TNA Report is also available as separate document ("**Report on Training Needs Assessment Results** ") and key aspects summarized in Section 1.3 of this report for ready reference.

Having completed the OWD HRD Policy and Training Needs Assessment, this report is aimed at developing a Training Plan for OWD, keeping in mind the broad objectives set out in the OWD HRD Policy and the prioritized capacity building needs for the main staff categories and levels (both at head quarter and field) as per the TNA.

Collectively, the OWD HRD Policy, Training Needs Assessment and TNS-based Training Plan serve three key objectives:

1. Create sustainable and effective OWD capability and performance
2. Institutionalize HRD function as per OWD HRD Policy
3. Improve training delivery and quality

1.1 OWD's Human Resource Development Policy

1.1.1 OWD HRD Policy Framework

HRD vision emanating from the 'OWD Vision' statement is to develop world-class human resources in the 'infrastructure sector' through continuous training and learning to make OWD a flexible, stakeholder centric and a learning organization.

OWD can facilitate this process of holistic development of employees _only_ by way of planning for it, by allocating organizational resources for the purpose, and by exemplifying an HRD philosophy that values human beings and promotes their development.

1.1.2 OWD HRD Policy Statement

Human resource development in OWD shall be a process by which the staff of OWD are helped, in a continuous and planned way, to:

- Acquire or sharpen capabilities required to perform various functions associated with their present or expected future roles.
- Develop their general capabilities as individuals to discover and exploit their own inner potentials for their own and/or organizational development purpose.
- Develop an organizational culture in which supervisor-subordinate relationships, teamwork, and collaborations among sub-units are strong and contribute to the professional well being, motivation, and pride of employees.

The objectives of the HRD policy are to:

- Make learning one of the fundamental values of the staff in OWD
- Make performance improvement an essential requirement in every sphere of work within OWD.
- Ensure value addition through HRD strategy to the overall business process
- Institutionalize learning opportunities that supplement work experience
- Integrate organizational and individual developmental needs

- Enable employees to keep abreast with the latest knowledge and skills and enable them to undertake current and future responsibilities in a more effective manner.

- Provide linkages of training activity with overall HRM function

The HRD Policy covers all regular employees of OWD and affiliate organizations.

1.1.3 Strategic Approach to Human Resource Development

To adopt and implement the new HRD policy, it would require a paradigm shift in the approach, encompassing:

- shift in value from tangible assets (property, plant and equipment) to intangible assets (brands, intellectual property, people)

- Recognition of the need to hire staff with abilities such as flexibility, adaptability, leadership potential and learning agility, i.e. 'hire for attributes and then train for the skills'

- shifting of responsibility for learning from the organisation to the individual, by redefining the role of managers and staff development officers to take on the role of mentor, resource provider and facilitator rather than that of direct trainers.

In order to evolve as a "knowledge-based organisation" equipped to deal with the constantly changing environment, the Policy makers and top management at OWD, need to focus on the following:

- Identification of critical activities of strategic importance

- Identification of positions to match the activities

- Creation of new descriptions for strategic positions including identification of critical skills for these positions

- Regular round table meetings with groups to elicit feedback about services and to allow all staff to interact with them in an informal setting

- Creation of job descriptions as well defined as possible

- Implementation of flexibility in the deployment of staff across functions and locations

- Recruitment, induction and training of appropriate staff

- Introduction of a new Review system

- Specific training in using the Review system for all staff as well as a separate one for supervisors

- Workshops on change management and service for all staff

- Planning and implementation of a staff development and training program for all staff.

- Annual Planning Day where all staff participate as a follow-up to the Annual Change management workshop.

- Integration of recruitment, induction, communication, training, performance reviews, and recognition

Staff development and staff training are parts of the bigger concept of human resource development (HRD). Training is just one possible way to organise and implement learning processes in organisations, whereas HRD encompasses the broad set of activities that improve the performance of the individual and teams, hence the organisation as a whole.

Training and development have to be viewed as *lifelong activity*, rather than the front end acquisition of qualifications. As a result, the focus of concern must shift from what the trainer does, to what the learner requires.

As part of the overall "OWD - Human Resource Development Strategy", policy action is needed on seven strategic fronts and plans developed thereof, viz.

- **Communications Strategy:** In today's changing scenario, it is essential to educate and train employees about every 'change'.

- **Quality Strategy:** Quality needs to be fostered in the employees through training and development to bring in Total Quality Management.

- **Entrepreneurship Strategy:** Every employee needs to be an independent entrepreneur, who can generate ideas and bring them to reality by using the existing resources and support the organization to create innovative and creative services.

- **Culture Building strategy:** Organization's valuing its employees have a sustainable competitive edge because employees are highly charged, motivated and committed.

- **Accountability And Ownership Strategy:** Employee's accountability and ownership leads to higher productivity.

- **Learning Strategy:** Continuous development and learning environments promote self development of employees, of self and by self.

- **Systematic Training Strategy:** The planning and organization of formal on-job training and off-job training leads to improving vital employee characteristics, build and sustain appropriate work culture and brings in more professionalism in their action.

HRD Strategies are a plan that defines how the human resources would be utilized through the use of an integrated array of organizational development, training, and career development efforts to achieve individual, organizational objectives.

Accordingly, the Systematic Training Strategy for OWD establishes a logical relationship between the sequential stages in the process of training need analysis (TNA), formulation and delivery of training, and evaluation.

The steps involved in System Model of training implementation are as follows:

1. *Analyze and identify the training needs* i.e. to analyze the department, job, employees requirement, who needs training, what do they need to learn, estimating training cost, etc The next step is to develop a performance measure on the basis of which actual performance would be evaluated.

2. ***Design*** and provide training to meet identified needs. This step requires developing objectives of training, identifying the learning steps, sequencing and structuring the contents.

3. ***Develop*** – This phase requires listing the activities in the training program that will assist the participants to learn, selecting delivery method, examining the training material, validating information to be imparted to make sure it accomplishes all the goals & objectives.

4. ***Implementing*** is the hardest part of the system because one wrong step can lead to the failure of whole training program.

5. ***Evaluating*** each phase so as to make sure it has achieved its aim in terms of subsequent work performance. Making necessary amendments to any of the previous stages in order to remedy or improve the practices.

1.1.4 OWD HRD Policy implementation

- **Establishment of an HRD & Training Cell for Management & Monitoring:** The management & monitoring of the 'HRD Policy' shall be done by the HRD & Training Cell headed by a Chief Engineer in the office of Engineer-in-Chief. The Chief Engineer will be supported by team of officers, both with-in the Cell as well as at the Circle/Division levels.

  Training Needs Analysis, in a systematic manner, shall be conducted once a year by the Training Cell with or without the assistance from external professionals. Circle heads and CE's will communicate the training needs of the staff in their respective units to the Training Cell before 31st of December each year.

  The identified Training needs has been prioritized as under and should be addressed accordingly:

Priority-A	Essential short-term (within one year)
Priority-B	Essential long-term (within two years)
Priority-C	Desirable short-term (within three years)
Priority-D	Non – essential

  The key responsibilities of the HRD & Training Cell shall be as follows:

  - **Design Course Templates** (with or without associating external professionals) for *Induction training*, *Personal Skills* training like *Management Development Programmes*, *Basic Information Technology*, etc. for bringing about uniformity across OWD.

  - Prepare an 'event calendar' based on the various HRD strategies described above. Specifically, a 'Training calendar' containing programme title, learning objectives, target participants, broad course contents, duration/dates, batch size, venue, programme coordinator etc. will be issued by March 1st of preceding year and placed on OWD website, and also communicated electronically to heads of all units up-to the level of Executive Engineer.

  - Arrange the delivery of training envisaged under HR policy for career growth. The selection of participants for such courses shall be based on seniority/those who are in the promotion zone. It will be based on requirements (type of training verses succession planning) in the HRD Policy.

- Manage nomination of participants for the training and other events, following a systematic process of information dissemination, initiating and completing nomination process well in advance through designated competent authorities, so as to:

  o To ensure that staff is nominated to training in areas, which are relevant to their current/future responsibilities (and tasks) or specifically related to the identified personal "developmental" needs.

  o To encourage equal opportunities to all staff irrespective of cadre, caste and gender.

  o To achieve the target of 'Seven-training-days' per employee per training year (average).

- **Coverage Target:** OWD shall endeavour to provide a minimum of 7 days 'need based' training to at least one third (33.3%) of staff in a training year to start with and this percentage shall increase progressively in subsequent years depending on the requirement.

- **HRD Budget:** Adequate funds for activities under each of the seven strategies (3.1 to 3.7) shall be allocated. A minimum of 2% of OWD Annual Establishment Budget should be provided initially, progressively increasing to a level of 5 % over the next few years.

- **Resource Selection Criteria:** All efforts should be made to maximize the use and development of OWD's internal resources. To create an internal pool of resource persons, it is suggested to conduct "Training of Trainers" programmes for staff interested in training/coaching function apart from their core responsibility. The programme must include topics like principles of adult Learning, Presentation Skills, Communication Skills, etc.

  To supplement the internal resources, there will be need for engagement of external Agencies/Institutions and Resource Persons, on the following basis.

  - **Agency/Institution**

    The selection of agency/institution should broadly be based on the, experience in managing similar type of training, quality and quantity of resource persons, location of the institution, past training history, financial status, fee structure, infrastructure, facilities available etc. HRD & Training Cell shall empanel such institutes and review the list every three years.

  - **Resource Persons**

    The broad parameters to be employed in identification of resource persons to implement each of the seven strategies shall include educational background, experience in the core area, total years of experience, types of programmes delivered, organizations served/being served as a resource person, level of participants trained, present location, training equipment (audio-visuals) used, familiarity with specific training methodologies, professional fees, project works carried out (if any), details of publications (if any) etc. HRD & Training Cell shall empanel such resource persons and review the list every three years.

- **Monitoring and Evaluation:** The objective of evaluation shall be to 'improve', building on present strengths and removing shortcomings for further improvement so as to measure the impact on job behaviour. Evaluation shall be done at three levels.

- **Pre-event evaluation** aimed at detecting and re-focusing the programme-design before the commencement of the programme to make it most suited for the participants. Programme provider shall review the design, content etc. in the light of the feedback obtained from the participants.

- **Programme evaluation** through participant feedback at the end of the programme, in the prescribed format covering course objectives, resource persons' performance, programme material, plus logistics, for undertaking modifications/improvements in future programmes.

    The feedback data will serve as a basis for payment of the Resource Persons as well as Implementing Agencies and will be archived for future use.

- **Impact Assessment:** by measuring the change in job behaviour of the employee based on the learning from the programme, using pre-defined indicators.

- **Knowledge Sharing:** Participants will submit a written report on 'lessons learnt' to the HRD & Training Cell, through their reporting officers, with-in one week of returning from the programme. Besides submitting a report, staff shall be required to share the salient features of their learning with their colleagues by way of a short duration presentation. HRD & Training Cell and the Circle level Training Officer will provide necessary assistance in organizing the presentation session.

- **Training Database:** Training database will be maintained and managed at the Head Quarter level with access to Circle level official. Training code directory, listing out codes for various training courses/programmes shall be evolved, maintained and circulated by the Training Cell. The information related to training (Training Information Management System -TIMS) activities shall be maintained as a part of HRMIS.

- **Training Academy:** HRD function executed by OWD's HRD & training Cell must be undertaken both internally and externally till the time OWD is able to develop an 'Engineers Academy' with permanent management positions to oversee day-to-day running of such an Academy. In the interim, the action plan must be to enter into understanding with external institutes to deliver 'need based' programmes. [e.g. MoU's can be signed with Xavier Institute of Management (Bhubaneswar), Indian Academy of Highway Engineers (NOIDA), and National Institute of Construction Management and Research (Pune), to name a few].

- **Deviations:** Engineer-in-Chief Cum Secretary shall have the power to relax or waive off any of the guidelines in the HRD Policy, in deserving cases. The reasons/justifications shall be recorded.

- **HRD Policy review:** The HRD Policy shall be reviewed every five years, by a committee approved by Engineer-in-Chief cum Secretary, consisting of Engineer-in-Chief (Civil) as the chairperson, one CE, SE (HRD & Training Cell), one field SE, SE-Administration and Executive Engineer (HRD & Training Cell), to keep it in line with the latest trends in the area of Training & Development. The HRD Policy approved by Engineer-in-Chief cum Secretary shall be circulated as well as disseminated using OWD Web page.

    Engineer-in-Chief cum Secretary reserves the right to modify, cancel, add or amend any of the provisions in the HRD Policy, at any time. Engineer-in-Chief cum Secretary may also review/issue administrative guidelines from time to time regulating the HRD Policy.

1.2   Training in OWD

Training is the transfer of knowledge, skills, and competencies as a result of imparting vocational or practical skills and knowledge that relate to specific functional competencies. Training has specific goals of improving one's capability, capacity, and performance. In addition to the basic training required for a trade, occupation or profession, observers recognize the need to continue training beyond initial qualifications: to maintain, upgrade and update skills throughout working life. People within many professions and occupations may refer to this sort of training as professional development.

Depending on the nature of job, training varies. Sometimes the senior employees guide juniors in their daily office works where basically they share their experience in problem solving. This is an informal method of training, more like coaching, which does not follow a structured schedule, just as and when required juniors approach the seniors for help.

Formal training is needed to prepare staff for doing a specific job or to enhance the skill, knowledge, and behaviour of the employees. If a person is available in the organization who is competent enough for training then an in-house training could be arranged otherwise organizations need to hire an expertise from outside the organization.

Training is about knowing where you are (no matter how good or bad the current situation looks) at present, and where you will be after some time. Training is about the acquisition of knowledge, skills, and abilities (KSA) through professional development.

To be able to evolve an effective training plan, the following 5 W's need to be specified:

- Why is training needed? (Results of TNA, type of competencies to be obtained) – defines learning objectives
- Who is to be trained (participants)?
- What type of training would fit? (Training delivery strategy)
- How long and when is the training to take place? (Details - how much of the time allocated, availability of participants)
- Where does it take place? (Who is responsible for the delivery)

As the 'first measure' requires a TNA to be conducted, the same has been carried out by all three consultancies: RSID Consultants, AMS Consultants and IT-ICT consultants. The results of TNA conducted by RSID consultants are presented in the document titled "Report on Training Needs Assessment Results". The assessment process undertaken by RSID consultants is briefly explained in the following section.

1.3   Training Needs Assessment (TNA)- Process

Conducting a comprehensive TNA exercise involved studying the functions, tasks and subtasks currently being performed in OWD at various levels, both at head office and field level. To link the training needs with the present day plus future tasks required identification of an integrated set of 'core technical plus management skills and knowledge' areas. This required analysing the OWD 'Job

Description', which was limited to Chapter 2 of the present OPWD Code. In the absence of a structured 'OWD Job Description' document, efforts were made to evolve a RACI [Responsible, Accountable, Consult, Inform] matrix for task analysis. The RACI matrix has been used as a formal tool for establishing the role for each stakeholder involved in the hierarchy of OWD. The results are available in Section 4.2 of "Report on Training Needs Assessment Results".

The primary focus of training needs assessment of RSID consultants was to determine the gaps in competencies of OWD staff and their functional responsibilities. However, the aim was to determine competency gaps, likely to arise, in adoption of AMS and IT-ICT technology and software. The primary focus of training needs assessment was to determine the gaps in competencies of OWD staff and their functional responsibilities. A competency upgradation need exists, when there is a gap between what is required of a person (to perform competently) and what the officials possesses. The expectation of knowledge, skills and abilities of officials at different levels was different so their training needs were also different.

The purpose of conducting the training needs assessment was to validate the hypothetical judgment with actual training needs to ensure that the solution addresses '*the most*' needed subjects and effectively focuses the appropriate resources, time and effort toward targeted solutions. Some of the needs identified require non–training solutions (e.g., financial aspects, institutional strengthening, providing the right tools etc.). The results of training needs analysis have highlighted the Key Function/Task wise needs which have helped in the preparation of training modules and facilitated in the development of various Training Programs.

Following four activities were undertaken by RSID consultants, while conducting the TNA:

1. *One-to-one interviews* - consultation with OWD officials on defining deficiencies, gaps in the staff capabilities.

   A number of one-to-one meetings were held with OWD officers. During these interviews with the top-level management, using participatory approach, the consultant undertook the organizational review and assimilated a variety of core issues. These included both trainable and non-trainable issues. Both need to be taken cognisance of.

2. *Competency Survey* – based on a structured questionnaire, which was developed, tested, circulated, and responses collected.

   The aim of the competency survey was to contribute towards *assessing and prioritizing the training needs* at various levels. The objective of this exercise was to map the present and required competency of staff. 'Key Functional Areas' were listed, which covered almost all the tasks performed by staff in OWD. Respondents were requested to complete the format comprising two sections. 'Section A' focused on four competency measures - Awareness, Exposure, Basic Knowledge, and Ability to Work. It also assessed the 'usage aspect' under Section B, i.e.

   – of having worked in the key functional area in the past,

   – working in a specific area at present, and

   – the possibility of working in the key functional area in future.

3. *Response Analysis* - Analyzing the responses to determine specific training needs of each target group

Since it is not feasible to provide training to all personnel in all functional areas en-mass, it is necessary to prioritise the training needs for each level. Accordingly, prioritization of training needs was based on two aspects, namely

- present level of competency in each functional area/task, and
- likelihood of the personnel being required to perform the function/task in the near future.

The analysis of the responses to the survey was carried out through a four step process, to achieve the objective of prioritization of training needs

Step 1   Response Assimilation
Step 2   Prioritization based on competency score
Step 3   Prioritization based on possibility of working in future
Step 4   Overall prioritization under following categories:
Priority-A   Essential short-term (within one year)
Priority-B   Essential long-term (within two years)
Priority-C   Desirable short-term (within three years)
Priority-D   Non - essential

4. *Focused Group Discussions – for validation of the data*

In addition to the above competency survey, detailed discussions were held with key staff at the head quarters as well as at field locations, for obtaining qualitative feedback on the capacity building/training as it is presently administered in OWD and how it can be enhanced in future. The important findings of this exercise are summarised below.

The term capacity building is perceived in different ways within the OWD, and in most cases, it does not fully address the technical competence and organizational issues, these being often ignored or underestimated. Major factor, leading to short-comings/systemic failures are found to be

- lack of understanding of institutional reform processes and capacity building.
- The need for human resources development to help develop new institutional structures is often underestimated.

The requirement for specialization and skill development of officers of OWD in core processes of HRM, planning, design, preparation of DPR, project development and financial appraisal for BOT projects, social and environment concerns, traffic studies, contract management, etc. have to receive regular attention. However, that has not been the case in the past.

Project management, Quality assurance, contract administration, dispute resolution, public/private partnership approaches, social and environment aspects, safety are a few of the core areas where efforts need to be made to enhance the competence of staff in OWD across all levels. The observations made during the above group discussions are broadly in line with the findings of the competency survey.

Training needs differ at different levels in the hierarchy of OWD. The TNA exercise carried out has helped in identifying and prioritizing the training needs at each level.

The Priority A training needs identified for different levels (CE's, SE's, EE's, AE's and JE's) are summarised in the table below. It comes out clearly that the priority training needs are different for

different levels with CEs and SEs requiring greater emphasis on policy, planning and management aspects, while the training needs for EE's, AEs and JEs are more related to operational and supervision roles.

This is broadly validated by the findings of the competency survey and its subsequent analysis as presented in the **Table A** below

Table A: Priority 'A' Training Needs

No.	CEs	SEs	EEs	AEs	JEs
1.	Strategic Planning (Master Plan: Roads, Buildings, etc)	Strategic Planning (Master Plan: Roads, Buildings, etc)	Public/Private Sector Participation	Pavement design	Field surveys - Roads
2.	Public/Private Sector Participation	Public/Private Sector Participation	Quality Policy and systems	Storm water drainage design	Land acquisition
3.	Prioritization of Investments	Quality Policy and systems	Rehabilitation & Resettlement issues, social assessment	Bridge design	Rehabilitation & Resettlement issues, social assessment
4.	Quality Policy and systems	FIDIC Contracts	Environmental assessment	Culvert design	Quality Control
5.	BOT/PPP Contracts	BOT/PPP Contracts	FIDIC Contracts	Building design – Multi-storeyed	Safety During Construction
6.	Staffing & assigning responsibilities	Staffing & assigning responsibilities	BOT/PPP Contracts	Rehabilitation & Resettlement issues, social assessment	Computer applications – M S Office, Web etc.
7.	Work Program and Time Management	Review of Construction Management Plan	Construction Procedure and Methodology	Environmental assessment	Computer applications – Auto CAD, MX Roads, STAAD
8.	Cost Control	Assessment of Quality of Works	Work Program and Time Management	Dispute Resolution and Arbitration	Project Management – Prima Vera, M S Projects
9.	Dispute Resolution and Arbitration	Work Program and Time Management	Cost Control	Quality Control	
10.	Application of OWD code	Cost Control			e-Governance
11.	Performance appraisal	Dispute Resolution and Arbitration	Dispute Resolution and Arbitration	Computer applications – M S Office, Web etc.	Management Information System (HRMIS)
12.	e-Governance	Quality Assurance	Quality Assurance	Computer applications – Auto CAD, MX Roads, STAAD	Undertaking road safety audits
13.	Management Information System (HRMIS)	Quality Control	Quality Control	Project Management – Prima Vera, M S Projects	Undertaking road condition surveys

No.	CEs	SEs	EEs	AEs	JEs
14.	HR Management skills	Quality Auditing	Quality Auditing	e-Governance	Undertaking public satisfaction surveys
15.	Decision-making	Application of OWD code	Application of OWD code	Management Information System (HRMIS)	
16.	Motivation	Project Management – Prima Vera, M S Projects	Proposal preparation for Maintenance Requirement	Undertaking road safety audits	
17.		e-Governance	Computer applications – M S Office, Web etc.	Undertaking road condition surveys	
18.		Management Information System (HRMIS)	Computer applications – Auto CAD, MX Roads, STAAD	Undertaking public satisfaction surveys	
19.		HR Management skills	Project Management – Prima Vera, M S Projects		
20.		Decision-making	e-Governance		
21.		Right to Information (RTI)	Management Information System (HRMIS)		
22.		Motivation			

1.4   TNA to Training Plan

This "Comprehensive Training Plan' document is a comprehensive document based on "Report on Training Needs Assessment Results" of RSID Consultants, Training Plan Report of AMS consultants and Training Plan Report of IT ICT consultants. The competency gaps identified with respect to key functional areas and especially those which can be categorised as 'Essential short-term' for the various levels are enumerated in the "Report on Training Needs Assessment Results" as Tables L to P *(ref. Annexure A) of RSID consultants.* Those Key Functional Areas/Tasks which are indicated as Priority 'A' - Essential short-term (within one year), under each of the levels in the hierarchy, CE to JE, are the focus of this "Proposed TNA-Based programs – Training Plan' document.

The proposed 'Training Plan' provides details of target participants, their estimated numbers, course duration, possible resource organisations, tentative schedule and indicative costs. The Comprehensive Training Plan document outlines: "who" will deliver the training, "when" and "where" OWD participants need to go to receive the structured component of the training. The Training Plan is a dynamic document, designed to be flexible enough to meet all the needs and allows modifications, as and when needed, but reviewed every twelve months during the course of its implementation. The plan needs to be reviewed by the proposed OWD HRD and Training Cell during each quarter and corrective actions need to be incorporated, as required. Presentation of information in this 'Training Plan' document converges from the 'Whole' to the 'Specific".

The present capacity building mechanism through training of OWD staff leaves a lot to be desired and it is already posing formidable challenges to meet the needs of several ambitious changes foreseen. Training and skill enhancement has to be a continuous and well planned/systematic exercise. Therefore, the Training Plan includes provision of periodic training of all staff at various levels, so that they stay abreast with the latest know-how and state-of-art technologies.

Repeated concerns were voiced at all levels of management about the lack of and the need for 'Induction Training' apart from the 'In-service' training. Both these concerns have been addressed in this Training Plan document.

Successful implementation of the training plan will require a strong OWD commitment. The management must identify a strong champion/torch bearer of HRD activities for carrying forward the capacity building agenda and designed activities. OWD should provide ample support to HRD/Training activities by providing adequate funding support, resources to pursue the program so as to meet training and capacity building needs for the reformed OWD.

Adequate training, equipment, knowledge infrastructure and policy support should be provided for pursuing the reforms program as envisaged under the ISAP. This "Comprehensive Training Plan" document covers both types of training, i.e. *Induction* training, as well *In-Service* training. These are detailed out explicitly in the following chapters.

C HAPTER **2**

I NDUCTION T RAINING

2   Induction Training

At the entry level, the AE's and JE's have to be given a comprehensive orientation course on various responsibilities/duties expected in the organization. Induction training is a type of training given as an initial preparation upon taking up a post. Induction training is part of an organisation's knowledge management process and is intended to enable the new starter to become a useful, integrated member of the team, rather than being "thrown in at the deep end" without understanding how to do their job, or how their role fits in with the rest of the team at OWD. These programs can play a critical role in the organization in terms of performance, attitudes and organizational commitment.

Induction training often contains information dealing with the layout of the OWD's operations. An attempt has also to be made to introduce the individual to key employees and give a feel of the culture of the organisation. It is a critical time for the employer to gain commitment from the employee, and the latter to understand the expectations and targets. Induction training therefore serves the purpose of familiarizing the new employee with the functioning of the organisation, ensuring that the specific role and responsibilities are well understood by the employee, and also provides an opportunity to him/her to interact with other staff.

This training has to be done systematically and the responsibility has to be assigned to a core team of trainers. If carefully done, it saves time and cost (in terms of faulty construction or poor services, etc.). As a priority the induction training must also cover any legal and compliance requirements of working in OWD. To help new staff get to work initially after joining OWD, a brief programme of this training has to be delivered as a way to help integrate the new employees, both as a productive part of the organization, and socially among other staff members.

An *'Indicative Course Content'* (inclusive of lectures, group discussions, skill practice sessions, laboratory training, site visits and evaluation) is presented in **Annexure B**. The listing is more of a guide to the curriculum developers with a recommendation that the total time assigned should be divided into class room lectures (about 30%), monitored presentations by participants and group discussions (30%) and about 40% on project site visits/labs to understand the practical applications of the knowledge.

Induction Training for Junior Engineers and Assistant Engineers should have different contents and the necessary modifications should be made and the duration can vary accordingly, as decided by the training team. For junior engineers, more emphasis may be laid on practice sessions.

It is recommended that staff undergoing transfers should also be provided an organized 'Orientation Programme' so as to facilitate smoother 'take-over', with an added advantage of local knowledge transfer, which is most relevant in work management.   Retired OWD officials, who have the inclination to train others, should be engaged to pass on their experiential wisdom, specially to the new inductees. Their services should be utilised while conducting 'Induction courses' or 'Orientation Programmes'.

C H A P T E R **3**

I N − S E R V I C E T R A I N I N G

3   In-Service Training

3.1   Function/Task Related Training

'Demand-based' training development and planning begins with translating the 'Key Functional Areas and Tasks' into defined training titles. The 'Key Functional Areas and Tasks', evolved and presented in Section 4.2 of "Report on Training Needs Assessment Results", are matched with the *expectations* represented by the 'Related Training Titles'. These titles best pronounce the subjects on which training is to be provided, and are presented in the **Table B**. This listing represents the comprehensive requirements of OWD for their current and immediate future needs.

Table B: Training Titles

Sl. No.	Key Functional Areas and Tasks	Related Training Titles
1	**Policy and Planning**	
	Prepare Strategic Plans (Master Plan: Roads, Master Plan: Buildings)	• Transportation Master planning for Road network in State, District and Cities
		• Master planning for Green Buildings: Concept
		• Understanding Transport Economics
		• Planning, design and operational concepts of Highways
		• Construction of roads - planning, norms, and institutional issues
		• Understanding corridor management concepts
		• Urban roads: special needs and characteristics
		• Concept of Asset management
	• Identify funding mechanism	• Tolling as a financial option and understanding Toll operations
		• Cost benefit analysis (CBA) of road projects
	Promote and Implement Public/Private Sector Participation	• Public private partnerships (PPP) in the roads sector
	Budgeting Process (Preparation, Control and Outcome) • Prepare annual budget • Carry out prioritization of investments • Carry out phasing of investments	• How to prepare budgets based on Odisha Govt guidelines and Monitoring of Departmental revenue
	Define Policy and implement systems	
	• Prepare 'Quality of Work' policy	• Understanding elements and Developing OWD Quality Policy
	• Prepare asset maintenance plan and strategy (Roads, Buildings)	• How to prepare an Asset Maintenance plan
2	**Project Preparation**	
	Carry out Field surveys	
	• Conduct traffic survey	• How to carry out Axle load survey, **O**rigin **D**estination (OD) Survey
	• Prepare road/bridge inventory & condition report	• How to carry out Road inspection
		• How to carry out Bridge inspection

Sl. No.	Key Functional Areas and Tasks	Related Training Titles
		• Rehabilitation and strengthening of bridges, bridge management system (BMS).
	• Carry out soil investigation	• Soil and Geo-technical investigations for road projects
		• Landslide investigations – Soil, Geotechnical
	• Conduct hydrology study	• Importance of hydrology for sustainable roads
	• Carry out topography survey	• Topographical surveys using total station equipment
	• Conduct deflection test for pavement evaluation (in case of existing roads) (Task OUTSOURCED)	• Deflection testing of pavements
	Prepare Geometric design	• Geometric design of roads of different categories – national/international practices
	Prepare Pavement design	• Design of flexible pavements (IRC37:2012)
		• Design of Rigid pavements
		• Design of Road Foundations
	Prepare design and final drawings of structures • Bridge design, Culvert design	• Design of interchanges
		• Bridge standards - design of bridge foundations, substructures, superstructures and how to design culverts
	• Drainage design	• Road drainage design for sustainable roads
	• Retaining structures in case of high embankments	• Soil reinforcement structures – design and construction
	Prepare Traffic management plan	• Developing a Traffic Management Plan
		• Understanding and application of Traffic Engineering design concepts
	Mark out the right of way • Prepare Right of Way – encroachment and land acquisition strategy	• Land acquisition and resettlement and rehabilitation policies for roads
	Prepare architectural plans and drawings	• Design of Green Buildings for Hospitals and Schools
	• Conduct bearing capacity soil test	• Bearing capacity testing of soils
	Prepare Building design – Multi-storeyed (seismic zone consideration)	• High Rise Buildings - Planning, Construction & Maintenance
	Prepare BoQ • Define Activities • Match/Prepare Specifications Prepare Estimates	Specifications for road and bridge works, Elements of Standard Data Book (MORTH) Preparation of 'Feasibility reports (FR)' and 'Detailed project reports (DPRs)' for road/building projects.
	Knowledge of updated codes (e.g. NCB, IRC, BIS)	• Features of Road legislation
		• National Building Code of India 2005
3	**Environmental and Social Management**	
	Conduct impact assessments studies	
	• social impact assessment	• Understanding social impact assessment (SIA)
	• environmental impact assessment	• Understanding environmental impact assessment (EIA)
	Prepare rehab resettlement plan (R/R)	• Preparing a 'Resettlement and Rehabilitation Plan"
	Prepare environment management plan (EMP)	• Preparing an 'Environment management plan'.

Sl. No.	Key Functional Areas and Tasks	Related Training Titles
4	**Procurement Management**	
	Implement FIDIC guidelines	• Contract administration and procurement procedures- FIDIC conditions
	Implement BOT/PPP Contracts	• Types of Contract.
	Implement NCB/State Government tendering procedure (Based on OWD Code)	• Understanding EPC models, case studies.
	Implement e-procurement procedure	• Good Procurement Practices - e-procurement procedure model
5	**Project Management**	
	Prepare Work Program Allocate Staff & Define responsibilities	• Concepts of project management
	Review, Prepare Report of Physical & Financial Progress	• Monitoring and reporting physical & financial progress
6	**Construction supervision**	
	Review contractor's construction Management Plan	• Understanding requirements of Construction Supervision (Project Implementation)
	Quality monitoring of Works	• Non Destructive Testing Methods for Materials & Structures
	Conduct Material Tests	• Quality control tests in field and laboratories
7	**Contract Management**	
	Monitor Work Program and Time	• Understanding Contract Management Process
	• Monitor & Exercise Cost Control	•
	• Assess & Justify Variations (extra/ substitute items), award extension of time	
	• Manage Dispute Resolution and Arbitration	
8	**Quality Management**	
	• Implement Quality Assurance	• Quality Assurance Systems and TQM for Highway/Building Projects
	• Monitor & Exercise Quality Control	
	• Carry out Quality Audit	• Managing Project Quality
9	**Safety Management**	• Planning Road Safety norms, designing for road safety and elements of road safety audit
	• Prepare safety plan and implement during Construction	
	• Implement safety plan during Operations	
	• Implement safety plan during Maintenance	
10	**Financial Management & System implementation**	
	Manage financial instruments and Tax aspects	• Understanding commercial banking operations for contract management
		• Understanding statutory require under IT Act (TDS) and Service Tax.
	Implement Financial MIS – iOTMS and	• Understanding Financial MIS – IOTMS and

Sl. No.	Key Functional Areas and Tasks	Related Training Titles
	WAMIS	WAMIS
	Apply OWD code	• How to apply the revised OWD Code
	Prepare Accounts	• Financial Accounting and Management in OPWD
	Prepare Accounts Audit replies	• Financial Audit and responses
11	**Maintenance**	
	Prepare Periodic/Routine/special Maintenance plan • Identify and assess pavement distress	• Maintenance of roads/pavements • Maintenance Management System for Highways/Road, pavement evaluation techniques, HDM-4.
	Carry out condition survey of Bldgs. and prepare Bldg maintenance plan	• Modern Techniques in Structural Conservation of Heritage Buildings • Leakages and Water Proofing Treatment in Buildings
12	**Other Tasks**	
	Prepare Disaster Readiness Plan	• Disaster Management in Highway Sector and retrofitting
	Prepare and Manage Documentation (MPR, APR, Utilization Certificate, etc.)	• How to set up an effective Documentation filing system
	Carry out Performance appraisal	
	Plan and Manage Training	• Understanding Human Resource Development and Training
	Manage Asset Records	• How to enter asset data, generate reports and manage asset e-register
	Respond to Right to Information (RTI) act	• How to prepare response to requests under Right to Information act
13	**Information Technology**	
	Apply Computer applications – M S Office, Web etc. ,	• Operation of MS Office including MS Word and MS Excel, internet explorer, send e-mails and carry out electronic data transfer
	Apply Computer applications –MX Roads,	• Operation of MX Roads software
	STAAD PRO,	• Operation of STAAD PRO software
	Auto CAD	• Operation of Auto CAD software
	Apply GIS application for planning	• Using GIS and GPS in road sector
	Apply Project Management Software – MS Project, Primavera,	• Operation of Primavera/MS Project software for project management
	Implement Management Information System (HRMIS)	• Understanding HRMIS
14	**Human Resource Management**	
	• Apply Monitoring skills • Implement Decision-making • Apply Motivational tools • Improving Written and Oral Communication skills • Apply HR Management skills	• Executive Management Development Programme • Understanding Leadership and Management • Process of Change Management • Communication Skills • How to apply Human Resource Management Skills

3.2   Training Profiles

Overall Training needs assessment by all three consultancies and the identified list of training topics tabulated above have been translated into 'Training profile sheets' which serve as 'Terms of Reference' for those who are to deliver the training. For each topic a further description has been made using a standard training profile format. Each of these 'Training Profile Sheets' is a plan in itself for the respective training delivery.

At this early training planning stage, one needs to be open minded and flexible on items like duration, methods etc. However, clear titles, precise training objectives and a short description of the key concept in key words, or indicative course contents, has been provided to avoid confusion when the modules are to be produced by training providers. Wherever *'Case Studies'* have been suggested, it is expected that the training providers will assimilate *'best practices'* globally and use them as a method of demonstration to the participants. The Training Cost *(Indicative approximation)* mentioned in each profile sheet is based on calculations presented in **Annexure C**.

These Training Profile Sheets are appended to this training plan document as **Annexure D** and have been grouped under the same fourteen headings used for the Key Functional areas, viz.

I.   Policy and Planning

II.   Project Preparation

III.   Environmental and Social Management

IV.   Procurement Management

V.   Project Management

VI.   Construction supervision

VII.   Contract Management

VIII. Quality Management

IX.   Safety Management

X.   Financial Management & System implementation

XI.   Maintenance

XII.   Miscellaneous Tasks

XIII. Information Technology

XIV.   Human Resource Management

C H A P T E R **4**

T R A I N I N G R E S O U R C E S

4   Training Resources

To be able to implement the 'Training Plan', OWD's Training (Cell) Coordination Team will have to depend on a variety of resources for its training delivery strategy to be effective. This shall include:

A. *Resource Institutes* – an institute profile, listing a variety of training providers, have been included in this document and are presented in one of the following chapters.

    Resource Selection Criteria

    The selection of agency/institution should broadly be based on the experience in managing similar type of training, quality and quantity of resource persons, location of the institution, past training history, infrastructure, facilities available, financial status, fee structure etc. HRD & Training Cell will call for empanelment of such institutes and review the list every three years.

    There are a number of Central/State Government Training Organizations providing training without any training fee. However, before selection, they should be assessed from the perspective of quality of trainings delivered by them. The "zero" training fee, though considered attractive must be weighed against the direct costs (travel, per diem etc.) and "time" (indirect cost) of OWD officials.

B. *Resource persons*

    a. *Retired External freelancers: T*hose retired OWD officials, who have the inclination and capability (both knowledge and communication skills) to train others, should be engaged to transfer their experiential wisdom, especially to the new inductees. Their services should be utilised while conducting 'Induction courses' or 'Orientation Programmes'

    b. *OWD engineers: T*hese resource persons are the working engineers in OWD, as indicated in the previous section, who shall form the core team of OWD Trainers

    c. *Faculty/Resource persons from Institutes*

    Resource Selection Criteria

    The broad parameters to be employed in identification of resource persons to implement training programmes shall include educational background, experience in the core area, total years of experience, types of programmes delivered, organizations served/being served as a resource person, level of participants trained, present location, training equipment (audio-visuals) used, familiarity with specific training methodologies, professional fees, project works carried out (if any), details of publications (if any) etc. HRD &Training Cell will call for empanelment of such resource persons and review the list every alternate year.

    In addition, efforts should be made by the training providers to maximise the use of internal resource persons from OWD.

4.1   Training Institutions

Listed below are a few possible institutions for skill enhancement in OWD with whom memorandum of understanding (MoU) can be drawn for providing training to OWD staff. The list includes those institutions with whom OWD has had prior engagement, as well as other leading institutions with proven track record of offering training programmes in the required areas/functions:

1. Indian Academy of Highway Engineers, Noida

2. Central Road Research Institute (CRRI), New Delhi

3. Engineering Staff College of India, (ESCI), Hyderabad

4. Human Settlement Management Institute (HSMI), New Delhi

5. National Institute of Construction Management and Research (NICMAR)

6. CPWD Training Institute

7. IIT BHUBANESWAR

8. Xavier Institute of Management (XIMB), Bhubaneswar

9. Administrative Staff College of India (ASCI), Hyderabad

10. National Institute of Technology Rourkela (NIT Rourkela)

11. National Transportation Planning and Research Centre (NATPAC)

12. Gopabandhu Academy of Administration, Bhubaneswar

Detailed profiles and contact information of the above training institutions are attached at *Annexure E*.

Other Possible Institutions which may be of interest to OWD are:

- IIMs (Ahmedabad, Lucknow, Kolkata, Bangalore, Indore)
- National Institute of Financial Management, Faridabad
- Narsee Monjee Institute of Management Studies, Mumbai
- Survey Training Institute, Survey of India, Hyderabad
- State Training Institutions
    o Assam Administrative Staff College, Guwahati
    o Anna Institute of Management, Chennai
    o Administrative Training Institute, Kolkata
    o Administrative Training Institute, Mysore
    o Himachal Pradesh Institute of Public Administration, Shimla
    o RCVP Noronha Academy of Administration and Management, Bhopal
    o HCM Rajasthan State Institute of Public Administration, Jaipur
    o Administrative Training Institute, Aizawl
    o Administrative Training Institute, Naharlagun (Arunachal Pradesh)
    o Shri Krishna Institute of Public Administration, Ranchi
    o Yashwant Rao Chavan Academy of Development Administration, Pune
    o Accounts and Administrative Training Institute, Gangtok
    o Uttarakhand Academy of Administration, Nainital
    o Administrative Training Institute, Patna

- o Engineering Staff College, Nashik
- – Road Research Centers such as
  - o GERI, Vadodara;
  - o MERI, Nashik;
  - o HRS, Chennai;
  - o Road Research Lab, Guwahati;
  - o Road Research Center, Trivandrum,
  - o Road Research Center, Lucknow.

Possible Institutions for Training of Supervisors, Workers

- – National Academy of Construction, Hyderabad
- – Training Centres of the Construction Industry Development Council
- – Selected Industrial Training Institutes (I) & polytechnics in Odisha

In addition to the Indian training institutions, OWD could also consider associating with some of the leading overseas organisations, as per the indicative list provided below.

Table C: Training Related Overseas Websites

Asian Institute of Technology (AIT)	www.ait.ac.th/
Alabama Technology Transfer Centre	www.alabamat2.org/
American Association of State Highway & Transportation Officials(AASHTO)	www.transportation.org/
American Society of Civil Engineers	www.asce.org/
Asphalt Institute	www.asphaltinstitute.org/
Auburn University	www.eng.auburn.edu/
Australian Asphalt Pavement Association	www.aapa.asn.au/
Australian Road Research Board	
School of Built Environment Heriot-Watt University	http://www.hw.ac.uk/
Cornell University	www.cornell.edu/
Federal Highway Administration	www.tfhrc.gov/
International Road Federation	www.irfnet.org/
Institute of Highways and Transportation UK	
Iowa State University	www.iastate.edu/
Morgan State University	www.morgan.edu/
National Highway Institute	www.nhi.fhwa.dot.gov/
Oregon State University	www.oregonstate.edu/
Purdue University	www.purdue.edu/
Roadway Safety Training Institute ATISSA	www.atssa.com/
Texas Engineering Extension Service	www.teexweb.tamu.edu/
Transport Research Laboratory UK	www.trl.co.uk/
Thomas Telford Training Institute	
University of Birmingham, School of Civil Engineering	www.birmingham.ac.uk/schools/civil-engineering/
University of Leads (Transport Department)	
University of California, Berkeley	www.berkeley.edu/
University of Kansas Civil & Environmental Engineering	www.arce.ku.edu/
University of Massachusetts Lowell	www.uml.edu/
Virginia Tech	www.vt.edu/

CHAPTER 5

OWD ROLE AND TRAINING DELIVERY STRATEGTY

5 OWD Role

For training to be successful, management at OWD has to take the initiative to implement the following actions:

o *Adoption of OWD HRD Policy:* Draft OWD-HRD policy document to support human resource development functions within the department is available for approval and implementation. On finalization, 'Government Orders' need to be issued to adopt the same in letter and spirit. A communication strategy needs to be evolved and communicated to the beneficiaries of this policy, i.e. staff of OWD.

o *Formation of Task Forces*: Several organisational issues have been identified, based on feedback of stakeholders during the TNA exercise, which currently hamper the performance of OWD staff. These issues have been listed under six categories, viz. Cultural issues, Policy & Strategies, Structural issues, Resource, Processes and System, People in section 4.1 of "Report on Training Needs Assessment Results".

These need to be separately addressed (not a part of these consultancies) by forming six Task Forces (one per category) with the mandate and authority to address/resolve the identified issues. If these organizational issues are not addressed simultaneously, they may continue to hamper organizational progress and may not allow development of a learning environment and culture in OWD.

o *Training Funds:* Provisions need to be made in the OWD Annual Administrative Budget by creating a cost head titled "Training" and funds need to be allocated annually for execution of the training plan. An indicative computation of training costs, including the TA/DA for participants, is provided in Chapter 6. However, more than the amount in absolute terms, it is important that HRD and Training is recognised as an important activity, and becomes an integral part of the budget planning itself.

o *OWD HRD & Training cell:* As part of the 'Organizational Restructuring', OWD HRD & Training Cell has to be put in place on priority. Besides other functions outlined in section 1.1, the management & monitoring of the 'HRD Policy' shall be done by the HRD & Training Cell headed by a Superintending Engineer in the office of Engineer-in-Chief. The SE will be supported by team of officers, both with-in the Cell as well as at the Circle/Division Offices. Necessary GO's need to be issued to activate the OWD HRD/Training Cell.

The proposed structure of the HRD & Training Cell is presented in the following Table:

Table D: OWD & HRD Training Cell – Headquarter and Field

Position	Office/Location	Nos.	Remarks
OWD HRD Training Cell – Head Quarters			
Engineer-in-Chief (Civil)	E-I-C	1	Already in position – additional responsibility
Superintending Engineer (HRD)	SE (HRD)	1	Proposed to be made as additional responsibility of existing SE (ISAP)
Executive Engineer (ISAP and HRD)	Office of SE (HRD)	1	Proposed to be made as additional responsibility of EE (ISAP)
Assistant Engineer (ISAP and HRD)	Office of SE (HRD)	2	Proposed to be made as additional responsibility of Existing AEs (ISAP). One AE may look after Technical courses, whereas Second AE may look after Management/ Behavioural courses
Office Assistant/Data Entry Operators	Office of SE (HRD)	2	For general office support besides database management, compilation of training feedback/evaluation etc.
OWD HRD Training Cell – Structure in Field			
DEE in the offices of SE (Circle)	SE (Circle)	15	Existing DEE in the respective circle offices shall be the **nodal officer** for training and HRD. The DEE shall liaise/interact with the office of SE (HRD) on one end and field executive engineers on the other end for training nomination etc. with the approval of respective SE (Circle).

Functions of OWD HRD/Training Cell

The HRD cell is proposed to have the following functions:

- Training Coordination team to liaise with various training institutes and external resource persons and sign 'Memorandum of Understanding' for an initial period of three years. This is also needed so that specific training delivery dates can be agreed upon between OWD and the institute/s. It is important to standardise the rates of fees/honorarium for training, which should be a respectable amount so as to attract high quality training institutes and resource persons to be associated with OWD.

- Create a staff training database before even the first participant is nominated: To generate and distribute the right type of information in an accessible way, a planning and reporting system has to be put in place which has to be based on standardised formats. A set of forms and checklists which shall help to plan various training activities, organise training data, prepare progress reports, and facilitate monitoring and feedback have to be adopted.

- Nomination of OWD staff for training: The present process of selection and nomination of staff for various training programmes, including overseas study tours/programmes is ad-hoc. It is therefore important to put in place a systematic process for the same, as outlined in the HRD Policy document.

- Carry out a selection process of "OWD's Core team of Trainers" as part of the strategy for developing an internal pool of resource persons.

- Conduct Training of Trainers programme as per needs

- *Institute and implement training evaluation process:* Evaluation is a means of monitoring the quality of capacity building efforts, on an ongoing basis. The purpose of evaluating every event is to compare the accomplishments of the programme with the pre-defined objectives. As specified in the OWD HRD Policy, the monitoring and evaluation should be carried out in three stages – pre-training, post-training and impact assessment after a specified period of time.

  Based on the results of the evaluation process, revisions in the future programmes can then be made, if they are necessary. The evaluation system must encourage the participants who might otherwise hesitate to voice their opinion, criticism, suggestion, approvals etc. HRD cell should adopt a formal evaluation, a questionnaire to assimilate corrective actions, needs to be adopted and introduced so as to monitor training context/objective, facilitators'/trainers' performance, workshop/training materials, logistics and participant selection, as appropriate.

Function and Task Matrix for HRD Cell

The functions of HRD cell has been further delineated to respective officers along with their level of commitment, indicated by responsible, accountable, consulted and informed. The details are as follows:

Responsible**:** The person who is ultimately responsible for **'getting the work done'**. This refers to the individual staff <u>who perform the given task</u>.

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

Consulted**:** The person who is the **'expert/manager'** who will do the thinking and suggest any deviations from the Standard Operating Procedures.

Informed**:** The person who have interest in the performance of a given task. This may be a overall <u>**manager overlooking**</u> the execution of the task.

On the basis of the defined functions as above, a summary of the key functions/tasks to be performed by the "OWD HRD & Training Cell" and responsibility allocation, are summarised and presented in the following Table:

Table E: Task Matrix of Respective Officers

	Key Functional Areas and Tasks	Responsible	Accountable	Consulted	Informed
1.	Establish 'HRD & Training Cell' in E-I-C (Civil),	EIC	EIC	EIC Cum Secretary (works))	GoO
2.	Operationalize 'HRD & Training Cell'	SE(HRD)	EIC	EIC	GoO
3.	Conduct annual exercise to identify critical skill gaps	EE(HRD)	SE(HRD)	EIC	EIC
4.	Prepare annual 'event calendar'/'Training calendar'	EE(HRD)	EE(HRD)	SE(HRD)	EIC
5.	Prepare periodic plans on seven HRD strategies	EE(HRD)	SE(HRD)	EIC	GOO

	Key Functional Areas and Tasks	Responsible	Accountable	Consulted	Informed
6.	Facilitate Workshops on change management	SE(HRD)	SE(HRD)	EIC	EIC
7.	Conduct periodic Training Needs Assessment (TNA)				
	• At field level	EE(HRD)	SE(HRD)	SE(Cir)	SE(Cir)
	• at head quarter	EE(HRD)	SE(HRD)	EIC	EIC
8.	Define and review coverage target	SE(HRD)	SE(HRD)	EIC	GoO
9.	Prepare annual OWD HRD Budget	SE(HRD)	SE(HRD)	EIC	GoO
10.	Carry out budget allocation	SE(HRD)	SE(HRD)	EIC	GoO
11.	Identify and mange development of internal resource persons (ToT's)	SE(HRD)	SE(HRD)	EIC	EIC
12.	Conduct web search for indentifying resource agency/Institution/ resource persons	EE(HRD)	SE(HRD)	EIC	EIC
13.	Resource selection agency/Institution resource persons	SE(HRD)	SE(HRD)	EIC	EIC
14.	Define fee/remuneration	EE(HRD)	SE(HRD)	EIC	GoO
15.	Liaise with training institutes/external resource persons, sign 'Memorandum of Understanding'	SE(HRD)	SE(HRD)	EIC	EIC
16.	Manage nomination of participants (for out of state/overseas trainings)	SE(HRD)	EIC	GoO	GoO
	Manage nomination of participants (both in-house/within Odisha trainings)	EE(HRD)	SE(HRD)	EIC	EIC
	Nominate field staff from Circle/Division/Sub Division (thru Nodal officer – DEE)	SE(Circle)	SE(HRD)	EIC	EIC and SE(Cir)
17.	Manage implementation of 'Induction Training' 'In-service Training' 'Training of Trainers' 'Study Tours – within Odisha' 'E learning'	EE(HRD)	SE(HRD)	EIC	EIC
18.	Facilitate 'lessons learnt' (Knowledge sharing) presentations by participants at Head Office	EE(HRD)	SE(HRD)	EIC	EIC
	Facilitate 'lessons learnt' (Knowledge sharing) presentations by participants at field level	EE (Division)	SE(Circle)	SE(HRD)	SE (HRD)
19.	Evolve mechanism for continuous 'Monitoring and Evaluation'	SE(HRD)	EIC	EIC	GoO
20.	Verify TA/DA of nominated participants	AE(HRD)	EE(HRD)	SE(HRD)	EIC
21.	Approve TA/DA bills of participants	EE(HRD)	SE(HRD)	SE (HRD)	EIC
22.	Maintain accounts of cost incurred on all events	AE(HRD)	EE(HRD)	SE(HRD)	EIC
23.	Review and decide 'Deviation cases' –within Odisha trainings	EE(HRD)	SE(HRD)	EIC	EIC
24.	Elicit feedback about HRD services	EE(HRD)	SE(HRD)	EIC	EIC
25.	Prepare periodic plans on integrating recruitment, induction, communication, training, performance reviews, and recognition	SE(HRD)	SE(HRD)	EIC	GoO
26.	Create Training database, maintain and manage (both at the Head Quarter level and at Circle level); prepare Training code directory Enter data Process/Analyse data Report information	AE(HRD)	EE(HRD)	SE(HRD)	EIC
27.	Prepare Annual HRD report	EE(HRD)	SE(HRD)	EIC	GoO
28.	Carry our periodic OWD HRD Policy review	SE(HRD)	All CEs of OWD	EIC	GoO
29.	Management of Proposed "Odisha Engineering Training Institute"	EE(HRD)	SE(HRD)	EIC	GoO

For implementation of all the above, an Office order from Government of Odisha (office of EIC cum Secretary, Works) needs to be issued to establish the OWD HRD and Training Cell.

Initial support: Considering the existing limitations as well as competencies required in effective operation of various actions to operationalize HRD Cell, it is suggested to provide initial support to HRD cell by engaging external consultants for a period of two years. This external support may include either hiring a training organization or hiring one senior HRD professional (advisory level) and another junior to middle level HRD professional (operational level).

- *Odisha Engineering Training and Research Institute/Academy:* As part of Organizational Restructuring it is suggested that a dedicated Engineering Training and Research institute, under the aegis of OWD, should be created to cater to the overwhelming future training needs among the engineering cadre in the State of Odisha.

  Such an Institute can be entrusted with the work of training and applied research in the various disciplines of civil engineering like highways, buildings, construction method and material studies, testing, soil mechanics, water sector, coastal, remote sensing & GIS, seismology, etc. Construction projects, contracts, man management are other areas of learning that could be promoted through this institution. Such an institute could follow the examples of Maharashtra Engineering & Research Institute, (MERI) Nashik and Gujarat Engineering & Research Institute, (GERI), Vadodara.

  Its mandate would include dealing with field problems of applied research pertaining to various projects. It could also cater to the ever growing demand of the current situation to streamline the processes to achieve quality assured testing in the State.

5.1 Training Delivery Strategies

The delivery strategies will be a combination of the following five variances, viz.

A. *Customised Programmes* – Through this report the consultant shall develop and recommend mainly 'Demand-based training plans' which include customised courses specific to the needs in OWD at various levels. Identified institutes shall be engaged to develop training programmes to serve the defined objectives and include the indicative course contents.

B. *Advertised Courses* – Participants will attend courses designed by training providers which directly serve their specific training needs, say for example the course advertised on "MX ROADS" software by M/s Bentley.

C. *In-House training using External Resource persons*–These would be customised programmes where the participation numbers are large and it is uneconomical to send the groups to the venue of training provider/s.

D. *Training of Trainers (OWD Training Team)* – OWD's primary objective should be to develop its in-house capacity and knowledge back in each of the 14 Key functional area. It is recommended that a core team of about twenty (20) staff, who have the inclination to train others, should be formed and efforts should be invested in developing them into trainers, making them specialists in their respective functional areas. The programme must include topics like principles of adult Learning, Presentation Skills, Communication Skills, etc.

E. *Study Tours:* Learning experiences outside the classrooms are inherently interdisciplinary and field experiences are unmatched in their learning potential. In-Country and overseas study tours are a way of quick 'learning' from others' experiences and applying this learning to one's own conditions. Learning about 'new technologies', 'new construction materials', and 'new management methods' should be the purpose of organising these exposure visits. This is an expensive form of learning method and hence should be undertaken to achieve very well defined, specific objectives. The participants selected for these study tours should be from among the star performs within OWD. The Training Cell team has to be on the lookout for examples of *'best practices'* and try to plan/organize two In-country and one overseas study tours per year to different locations.

F. *E-learning:* Since OWD has embarked upon becoming a 'learning organization', soon it will be required for the 'learnings' to be communicated to all concerned. To have a much wider reach, e-learning can become a crucial delivery strategy. E-learning refers to the use of electronic media and information and communication technologies (ICT) in imparting a 'learned change'. E-learning can occur out of the classroom. It can be self-paced. E-learning is suited to distance learning and flexible learning. It leads to improved interactions between participants and instructors/trainers, while providing them with tools, enabling them to independently solve problems. E-learning is acquisition of technological skills through practice with software tools and computers.

Among the key advantages of this delivery strategy (e-learning) for staff in OWD will be:

*   concrete experience – learners are enabled and encouraged to become involved in new experiences
*   reflective observation – gives learners time to reflect on their learning
*   abstract conceptualisation – learners must be able to form and process ideas and integrate them into logical theories
*   active experimentation – learners need to be able to use theories to solve problems and test theories in new situations.

It can offer flexibility of time, place and pace and can enable OWD participants to follow their own personalized learning paths. It offers great opportunities for self-directed learning and independent study. Though, it would be right to mention here that developing integrated eLearning courses is not a job for one individual. It is an industrial process, which requires teamwork, co-operation between different specialists and a systematic workflow.

A pre-requisite for adoption of e-learning strategy, however, will be to facilitate/ensure requisite IT proficiency and access to computers and Internet for the concerned staff, up to the sub-Division level.

5.2   Training of Trainers

The consultant proposes to follow the methodology of matching 'demand with supply', to be able to target the right training needs to the right participants. Since the focus shall be on a varied participant audience, it is endeavoured to maintain flexibility, while working in a broader framework.

Depending on the desired information-flow-direction, a 'Top down' or Bottom up' approach shall be decided during implementation.

Since the enumerated Training title requires dealing with large number of participants, covering the entire geographical area of Odisha and to be able to accomplish the desired output in the specified period of time, the consultant proposes the strategy of creating a core group of 'Trainers'. This group shall be selected from among the OWD Engineers from the Head Office and each Circle who shall participate in the 'training of trainers' programmes. It is suggested to select participants who have a personal interest in training and show fluency in basic communication skills. This will ensure standardized information flow in all Circles and aid in faster percolation down to the field Level.

The purpose of a training of trainers programme is to build and strengthen the capacity of OWD as a whole. The thrust of this effort should be to train trainers in training technology to help them deliver their subject-specific training in a systematic manner. The aim of such an strategy is to develop a pool of quality trainers who can promote training in partnership with subject matter experts to make learning more effective.

At the heart of any comprehensive training program are the trainers who design, teach, and evaluate the many training programs that provide basic entry level skills and advanced technical skill specializations. After attending such a course, the trainers will have understood principles of adult learning and be able to deliver and assess training. The trainer will be able to organize training, use appropriate methodology and materials for effective delivery of training. The trainer will be able to use a variety of visual aids. Such programmes are intended to equip the prospective trainer with the essential understanding of the conceptual background of the process of training in general and Training of Trainers in particular.

The basic consideration to be kept in mind is that training is not dominantly dependent on the use of lectures, which are not only monotonous in nature but also less productive in terms of transmission of knowledge to the trainees. In fact, training can be a rewarding experience to both the trainer and the trainees if its major thrust is on the promotion of participatory learning, through the use of methods which make the training process more interesting and also ensure the training's more productive results. By the end of the course, the trainer pool should be able to:

o Recognize the importance of considering the participants and their training needs, including the different learning styles and adult learning principles

o Know how to write objectives and evaluate whether these objectives have been met at the end of a training session

o Develop an effective training style, using appropriate training aids and techniques

o Develop a plan and prepare for an effective training session

o Practice thinking on your feet in a safe environment

o Identify advanced interventions for difficult situations

o Practice the skills needed for a team presentation

Indicative Course Content

o Principles of Adult learning and Learning dynamics

o   Training needs assessment and Interactive training methods

o   Fundamentals of becoming a trainer and what makes a good trainer

o   Delivering a training session successfully

o   Design of the structure of a training course

o   Effective Training practice, skills and procedure

o   Presentation and communication skills

o   Organization and lesson planning and Group training dynamics

o   Body language and voice projection skills

o   Classroom training and one- on- one training

o   Using MS PowerPoint, overhead projectors, flip charts, handouts, etc.

o   Assessment ,evaluation and personal action plan

The overall **"Training Plan",** described above, is summarized schematically below:
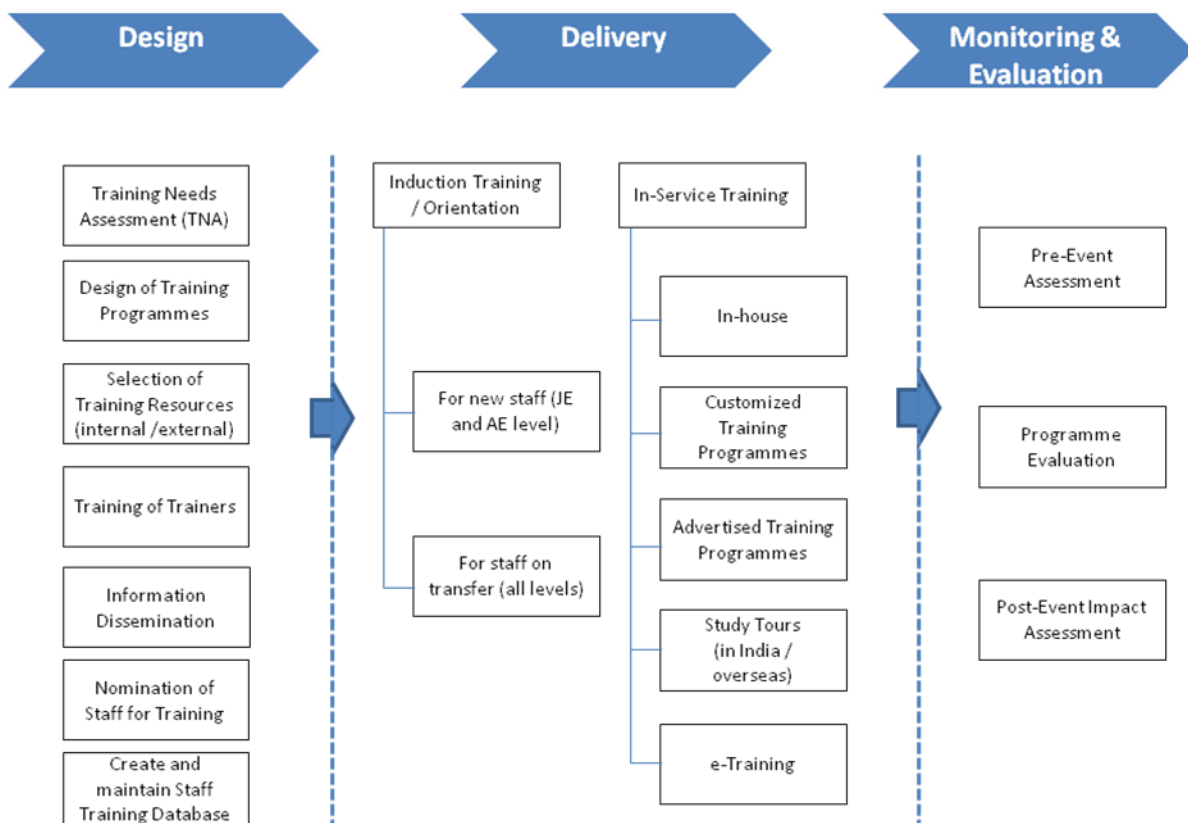
C H A P T E R **6**

T R A I N I N G B U D G E T

6   Training Budget

Before the implementation of various training programs can be initiated, it is required to make an assessment of the number of participants per training programme. The most appropriate target would be to train at least one third (33.33 %) of the total staff, but with little infrastructure, that could be too ambitious under the present circumstances. Therefore the following postulates have been considered when planning for Priority A '***Essential Short-Term Training'*** within the first year.

- Out of the eighteen (18) Chief Engineers in OWD at least half of them should undergo first rounds of training

- Superintending Engineers from the twelve (12) R & B Divisions and three (3) NIH circles i.e. fifteen (15) SE's should form part of the first group of SE's to be trained

- All the forty nine (49) R&B Divisions, and fifteen (15) N.H. Divisions should be represented among the Executive Engineers who undergo training in the first year.

- From among the Assistant Engineers, endeavour should be to train at least thirty (30), so that there is a representation of two per field circle.

- Similarly, each of the sixty five (65) field division should have at least one Junior Engineer participating in the various training.

- It is essential for the SE's, EE's and AE's who participate in these first rounds to form and perform as OWD's core team of Trainers facilitating courses for the peer group as well as for subordinates.

- For study tours, the group size should not exceed twelve (12) participants. Their selection should be from among those decision makers and executors who can implement the learning's on their return

Training courses for each level of hierarchy is based on the competency gaps identified with respect to key functional areas and especially those which can be categorised as 'Essential short-term' for the various levels are enumerated in the "Report on Training Needs Assessment Results".

6.1 Essential Short-Term Training for Chief Engineers

No.	Training Courses	Duration (Days)	Participants(numbers)	Cost (Rs) per participant per day	Total Cost (Rs)
1.	Transportation Master planning for Road network in State, District and Cities	2	9	3500	63,000
2.	Master planning for Green Buildings: Concept	2	9	3500	63,000
3.	Understanding Transport Economics	1	9	4000	36,000
4.	Planning, design and operational concepts of Highways	3	6	4500	81,000
5.	Construction of roads – planning, norms, and institutional issues	3	6	7000	1,26,000
6.	Understanding corridor management concepts	2	9	4000	72,000
7.	Urban roads: special needs and characteristics	5	6	4500	1,35,000
8.	Concept of Asset management	2	9	3500	63,000
9.	Public private partnerships (PPP) in the roads sector	5	6	4500	1,35,000
10.	Understanding elements and Developing OWD Quality Policy	1	9	3600	32,400
11.	Understanding Contract Management Process	5	6	4500	1,35,000
12.	Understanding Risk Management	5	9	4500	2,02,500
13.	How to apply the revised OWD Code	1	9	2500	22,500
14.	Executive Management Development Programme Training	5	6	17500	5,25,000
				TOTAL	16,91,400

6.2 Essential Short-Term Training for Superintending Engineers

No.	Training Courses	Duration (Days)	Participants (numbers)	Cost (Rs) per participant per day	Total Cost (Rs)
1.	Transportation Master planning for Road network in State, District and Cities	2	15	3500	1,05,000
2.	Master planning for Green Buildings: Concept	2	15	3500	1,05,000
3.	Understanding Transport Economics	1	15	4000	60,000

No.	Training Courses	Duration (Days)	Participants (numbers)	Cost (Rs) per participant per day	Total Cost (Rs)
4.	Planning, design and operational concepts of Highways	3	10	4500	1,35,000
5.	Construction of roads – planning, norms, and institutional issues	3	10	7000	2,10,000
6.	Understanding corridor management concepts	2	15	4000	1,20,000
7.	Urban roads: special needs and characteristics	5	10	4500	2,25,000
8.	Concept of Asset management	2	15	3500	1,05,000
9.	Public private partnerships (PPP) in the roads sector	5	10	4500	2,25,000
10.	Understanding elements and Developing OWD Quality Policy	1	20	3600	72,000
11.	Contract administration and procurement procedures – FIDIC conditions	2	15	5000	1,50,000
12.	Types of Contract.	2	15	5000	1,50,000
13.	Understanding requirements of Construction Supervision (Project Implementation)	2	15	4500	1,35,000
14.	Quality Assurance Systems and TQM for Highway/Building Projects	5	15	4500	3,37,500
15.	Managing Project Quality	5	15	4500	3,37,500
16.	Understanding Contract Management Process	5	15	4500	3,37,500
17.	How to apply the revised OWD Code	1	20	2500	50,000
18.	How to use Primavera/MS Project software for project management	5	10	4500	2,25,000
19.	Understanding HRMIS	2	15	2500	75,000
20.	Executive Management Development Programme Training	5	15	17500	13,12,500
21.	How to prepare response to requests under Right to Information act	3	20	2500	1,50,000
				TOTAL	**46,22,000**

6.3 Essential Short-Term Training for Executive Engineers

No.	Training Courses	Duration (Days)	Participants (numbers)	Cost (Rs) per participant per day	Total Cost (Rs)
1.	Public private partnerships (PPP) in the roads sector	5	10	4500	2,25,000
2.	Understanding elements and Developing OWD Quality Policy	1	5	3600	18,000

No.	Training Courses	Duration (Days)	Participants (numbers)	Cost (Rs) per participant per day	Total Cost (Rs)
3.	Land acquisition and resettlement and rehabilitation policies for roads	1	17	4500	76,500
3.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	1	50	2500	1,25,000
4.	Understanding social impact assessment (SIA)	2	17	4500	1,53,000
4.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	2	50	2500	2,50,000
5.	Understanding environmental impact assessment (EIA)	2	17	4500	1,53,000
5.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	2	50	2500	2,50,000
6.	How to prepare a 'rehab resettlement plan'	3	17	4500	2,29,500
6.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	3	50	2500	3,75,000
7.	How to prepare an 'Environment management plan'.	2	17	4500	1,53,000
7.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	2	50	2500	2,50,000
8.	Contract administration and procurement procedures – FIDIC conditions	2	5	5000	50,000
8.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	2	50	2500	2,50,000
9.	Types of Contract.	2	5	5000	50,000
9.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	2	50	2500	2,50,000
10.	Understanding requirements of Construction Supervision (Project Implementation)	3	17	4500	2,29,500
11.	Quality Assurance Systems and TQM for Highway/Building Projects	5	5	4500	1,12,500
11.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	5	50	2500	6,25,000
12.	Managing Project Quality	5	5	4500	1,12,500
12.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	5	50	2500	6,25,000
13.	Understanding Project management concepts	5	20	4500	4,50,000
13.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	5	50	2500	6,25,000
14.	Understanding Contract Management Process	5	5	4500	1,12,500
14.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	5	50	2500	6,25,000
15.	Maintenance of roads/pavements	5	17	4500	3,82,500
16.	High Rise Buildings - Planning, Construction & Maintenance	3	14	7000	2,94,000
17.	Leakages and Water Proofing Treatment in Buildings	3	14	4500	1,89,000

No.	Training Courses	Duration (Days)	Participants (numbers)	Cost (Rs) per participant per day	Total Cost (Rs)
18.	How to apply the revised OWD Code	1	30	2500	75,000
19.	How to operate MS Office including MS Word and MS Excel, internet explorer, send e-mails and carry out electronic data transfer	5	17	2500	2,12,500
19.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	5	50	2500	6,25,000
20.	How to operate MX Roads software	3	5	7500	1,12,500
21.	How to operate STAAD PRO software	5	5	4500	1,12,500
22.	How to use Primavera/MS Project software for project management	5	17	4500	3,82,500
23.	Understanding HRMIS	2	17	2500	85,000
24.	Understanding Leadership and Management	5	17	17500	14,87,500
24.1.	OWD Trainer facilitated training (2 rounds of 25 EE's)	5	50	2500	6,25,000
25.	How to prepare response to requests under Right to Information act	3	30	2500	2,25,000
				TOTAL	**108,08,000**

6.4   Essential Short-Term Training for Assistant Engineers

No.	Training Courses	Duration (Days)	Participants (numbers)	Cost (Rs) per participant per day	Total Cost (Rs)
1.	How to design flexible pavements (IRC37:2012)	3	5	4500	67,500
1.1.	OWD Trainer facilitated training	3	10	2500	75,000
2.	How to design Rigid pavements	3	5	4500	67,500
2.1.	OWD Trainer facilitated training	3	10	2500	75,000
3.	How to design Road Foundations	2	5	4500	45,000
3.1.	OWD Trainer facilitated training	2	10	2500	50,000
4.	Road drainage design for sustainable roads	1	5	4500	22,500
4.1.	OWD Trainer facilitated training	1	10	2500	25,000
5.	Bridge standards – design of bridge foundations, substructures, superstructures and how to design culverts	5	5	4500	1,12,500
5.1.	OWD Trainer facilitated training	5	10	2500	1,25,000

No.	Training Courses	Duration (Days)	Participants (numbers)	Cost (Rs) per participant per day	Total Cost (Rs)
6.	High Rise Buildings - Planning, Construction & Maintenance	3	12	7000	2,52,000
7.	Understanding social impact assessment (SIA) – OWD Trainer facilitated training	2	30	2500	1,50,000
8.	Understanding environmental impact assessment (EIA) – OWD Trainer facilitated training	2	30	2500	1,50,000
9.	How to prepare a 'rehab resettlement plan'- OWD Trainer facilitated training	3	30	2500	2,25,000
10.	How to prepare an 'Environment management plan'. – OWD Trainer facilitated training	2	30	2500	1,50,000
11.	Understanding Contract Management Process – OWD Trainer facilitated training	5	30	2500	3,75,000
12.	Non Destructive Testing Methods for Materials & Structures	2	15	5000	1,50,000
13.	Quality control tests in field and laboratories	5	15	4500	3,37,500
14.	How to operate MS Office including MS Word and MS Excel, internet explorer, send e-mails and carry out electronic data transfer	5	30	2500	3,75,000
15.	How to operate MX Roads software	3	5	7500	1,12,500
15.1.	OWD Trainer facilitated training	3	10	2500	75,000
16.	How to operate STAAD PRO software	5	5	4500	1,12,500
16.1.	OWD Trainer facilitated training	5	10	2500	1,25,000
17.	How to use Primavera/MS Project software for project management – OWD Trainer facilitated training	5	30	2500	3,75,000
18.	Understanding HRMIS	2	30	2500	1,50,000
				TOTAL	**37,79,500**

6.5   Essential Short-Term Training for Junior Engineers

No.	Training Courses	Duration (Days)	Participants (numbers)	Cost (Rs) per participant per day	Total Cost (Rs)
1.	How to carry out Road inspection	3	20	4500	2,70,000
1.1.	OWD Trainer facilitated training	3	45	2500	3,37,500
2.	How to carry out Bridge inspection	3	20	4500	2,70,000
2.1.	OWD Trainer facilitated training	3	45	2500	3,37,500

3.	How to carry out topographical surveys using total station equipment	2	20	3000	1,20,000
3.1.	OWD Trainer facilitated training	2	45	2500	2,25,500
4.	Land acquisition and resettlement and rehabilitation policies for roads Land acquisition – OWD Trainer facilitate training	1	65	2500	1,62,500
5.	Understanding social impact assessment (SIA)– OWD Trainer facilitated training	2	65	2500	3,25,000
6.	Understanding environmental impact assessment (EIA)– OWD Trainer facilitated training	2	65	2500	3,25,000
7.	How to prepare a 'rehab resettlement plan'- OWD Trainer facilitated training	3	65	2500	4,87,500
8.	How to prepare an 'Environment management plan'.– OWD Trainer facilitated training	2	65	2500	3,25,000
9.	Quality control tests in field and laboratories	5	15	4500	3,37,500
10.	Planning Road Safety norms, designing for road safety and elements of road safety audit	2	5	5000	50,000
11.	How to operate MS Office including MS Word and MS Excel, internet explorer, send e-mails and carry out electronic data transfer	5	65	2500	8,12,500
12.	Understanding HRMIS	2	65	2500	3,25,000
					47,10,500

6.6 Training Management Cost

Position	Nos.	Per Month Cost (INR)	Remarks
Superintending Engineer (HRD)	1	70,000	@70,000 P.M.
Executive Engineer (HRD)	1	50,000	@ 50,000 P.M.
Assistant Engineer (HRD)	3	1,20,000	@40,000P.M.
Office Assistant/Data entry Operators	5	50,000	@10,000P.M.
Vehicle, Communication, Consumables etc.	L.S.	60,000	@60,000P.M.
		3,50,000	Annual cost = 42,00,000

6.7   Summary

Table E: Man-days Percentage

Sl. No.	Levels	In Position	Total Man-days per year*	Proposed Training Man-days	Percentage Man-days
1.	Chief Engineers	18	4860	300	6.2 %
2.	Superintending Engineers	50	13500	865	6.4 %
3.	Executive Engineers	115	31050	1089	3.5 %
4.	Assistant Engineers	484	130680	1031	0.8 %
5.	Junior Engineers	608	164160	1350	0.8 %
6.	Study Visits: 5 visits, 12 p, 6 days			360	
	Overall	**1275**	**344250**	**5015**	**1.43 %**

@270 working days per year

For OWD to dedicate 1.43 percent of its man-days to training is a very meagre start and also negates the perceptive argument that 'if so much trainings are to be provided then who will be left to do the work'. Year one sees the investment of time in building in-house capacity by way of training the core team of *'OWD trainers'.* This percentage should rise in the following years when increasing numbers of "repetitive" courses are conducted Assistant Engineers and Junior Engineers.

Table F: Training Cost

Sl. No.	Training of	Year One Cost INR
1.	Chief Engineers	16,91,400
2.	Superintending Engineers	46,22,000
3.	Executive Engineers	108,08,000
4.	Assistant Engineers	37,79,500
5.	Junior Engineers	47,10,500
6.	Study Visits *(ref annexure B)*	28,00,000
	Total	**2,84,11,400**
	Training Management costs	42,00,000
	Grand Total	3,26,11,400
	say	3.26 crores

It is necessary for the management of OWD to commit itself to allocating and spending the above total of INR 2.84 Crores in year 'One', which may appear to be a large sum of money when comparing with the total amount of INR 77 lakhs spent in the last five years. However, it is worth mentioning that this sum is **only 1.42 %** of the OWD Annual Administrative Budget of INR 200 crores, which by most organisational standards is a moderate percentage. It is pertinent to mention here that as per the new HRD Policy, an allocation of 3 percent of the Annual

Administrative Budget is proposed for HRD and training initially. Even if we add training management costs of say approx. INR 0.42 Crores per annum, the total cost of INR 3.26 Crores, i.e. 1.63%, is well within the proposed budget.

The phasing of this budget requirement cannot be determined at this stage, as it will depend upon the Training/Event calendar to be evolved by the HRD & Training Cell, and once the MoU's have been signed between OWD and Training Agencies. However, as a general principle it is recommended that the training programmes should be scheduled throughout the year, so that the budget utilization is broadly uniform across the four quarters of each year. They may peak with during June-July (comparatively with lower work-load for field engineers due to rains) and should be comparatively less during the month of March (period of financial closures)

It is expected that once the training function is streamlined in OWD, and fully operational this percentage will progressively increase to the suggested figure of five (5) percent in the 'OWD Human Resource Development Policy' document.

C H A P T E R **7**

W AY F ORWARD

7 Way Forward

7.1 Summary of Key Action Points

OWD/Government of Orissa

i. Formally adopt the **OWD HRD Policy** in letter and spirit;

ii. Constitute **Task Forces** to address the organisational issues;

iii. Establish and operationalize the **OWD HRD & Training Cell** on priority, by:

   a. designating a dedicated team for the HRD & Training Cell as per the proposed structure;

   b. allocating requisite budget for HRD and Training by recognising it as an integral part of the budget planning.

OWD HRD & Training Cell

i. Design and finalise high priority Training Programmes as per templates already prepared based on the Training Needs Analysis undertaken

ii. Identify appropriate Training Resources and delivery strategies

iii. Set in motion the process for creating the core group of 'OWD Trainers'

iv. Manage the delivery of training programmes as well as monitoring and evaluation of the same

7.2 Possible alternative to implementation of Training Plan

HRD & Training are effectively 'new' functions within OWD, as presently, the competency set or the capacity does not exist in the organization. The new HRD skill sets will have to be acquired by those designated with performing these functions. OWD's management has expressed a sense of urgency for these skill sets to be utilised for improving the organizational performance. Hence, OWD may consider outsourcing the implementation of the HRD function to a team of HRD professionals/Agency for the initial period of 24 months.

This implementation team/Agency may be entrusted with executing the HRD functions during 'first six months". The functions and tasks listed in the OWD HRD & Training Cell matrix could form the terms of reference for the implementing team/agency. It is expected that after OWD's Organizational Restructuring, the HRD & Training Cell will be in place by such time and during 'next 12 months' the capacity building of those entrusted with the HRD Cell can take place. During 'last six months' this implementation team/Agency will take a back seat and will work as a 'help desk', while officials in the HRD & Training Cell shall independently perform the required functions.

In case of an unlikely scenario, where a separate budget for OWD HRD and Training Cell, is not immediately available, the funding for the implementation of training plan along with the fee for the implementation team/Agency can be sourced through the budget allocated towards 'ISAP' under the current project funds for the initial period, so that the same is not delayed. Alternatively, OWD can also explore the possibilities of support in the form of 'Technical Aid' from other international organisations, such as JBIC, GTZ, DFID etc.

A N N E X U R E S

Essential Short-Term Training Needs Based on TNA

Table L: *Essential Short-Term Training* Needs *in the Functional Areas of CE's*

No.	Functions/tasks -
1.	Strategic Planning (Master Plan: Roads, Buildings, etc)
2.	Public/Private Sector Participation
3.	Prioritization of Investments
4.	Quality Policy and systems
5.	BOT/PPP Contracts
6.	Staffing & assigning responsibilities
7.	Work Program and Time Management
8.	Cost Control
9.	Dispute Resolution and Arbitration
10.	Application of OWD code
11.	Performance appraisal
12.	e-Governance
13.	Management Information System (HRMIS)
14.	HR Management skills
15.	Decision-making
16.	Motivation

Table M: *Essential Short-Term Training Needs in the Functional Areas of SE's*

No.	Functions/tasks -
1.	Strategic Planning (Master Plan: Roads, Buildings, etc)
2.	Public/Private Sector Participation
3.	Quality Policy and systems
4.	FIDIC Contracts
5.	BOT/PPP Contracts
6.	Staffing & assigning responsibilities
7.	Review of Construction Management Plan
8.	Assessment of Quality of Works
9.	Work Program and Time Management
10.	Cost Control
11.	Dispute Resolution and Arbitration
12.	Quality Assurance
13.	Quality Control
14.	Quality Auditing
15.	Application of OWD code
16.	Project Management – Prima Vera, M S Projects
17.	e-Governance
18.	Management Information System (HRMIS)

No.	Functions/tasks -
19.	HR Management skills
20.	Decision-making
21.	Right to Information (RTI)
22.	Motivation

Table N: Essential Short-Term Training Needs in the Functional Areas of EE's

No.	Functions/tasks -
1.	Public/Private Sector Participation
2.	Quality Policy and systems
3.	Utility shifting management
4.	Rehabilitation & Resettlement issues, social assessment
5.	Environmental assessment
6.	FIDIC Contracts
7.	BOT/PPP Contracts
8.	Construction Procedure and Methodology
9.	Work Program and Time Management
10.	Cost Control
11.	Dispute Resolution and Arbitration
12.	Quality Assurance
13.	Quality Control
14.	Quality Auditing
15.	Application of OWD code
16.	Proposal preparation for Maintenance Requirement
17.	Asset Management
18.	Computer applications – M S Office, Web etc.
19.	Computer applications – Auto CAD, MX Roads, STAAD
20.	Project Management – Prima Vera, M S Projects
21.	e-Governance
22.	Management Information System (HRMIS)

Table O: Essential Short-Term Training Needs in the Functional Areas of AE's

No.	Functions/tasks -
1.	Utility shifting management
2.	Pavement design
3.	Storm water drainage design
4.	Bridge design
5.	Culvert design
6.	Building design – Multi-storeyed
7.	Rehabilitation & Resettlement issues, social assessment
8.	Environmental assessment
9.	Dispute Resolution and Arbitration
10.	Quality Control

No.	Functions/tasks -
11.	Asset Management
12.	Computer applications – M S Office, Web etc.
13.	Computer applications – Auto CAD, MX Roads, STAAD
14.	Project Management – Prima Vera, M S Projects
15.	e-Governance
16.	Management Information System (HRMIS)

Table P: Essential Short-Term Training Needs in the Functional Areas of JE's

No.	Functions/tasks -
17.	Field surveys– Roads
1.	Land acquisition
2.	Utility shifting management
3.	Rehabilitation & Resettlement issues, social assessment
4.	Quality Control
5.	Safety During Construction
6. 3	Computer applications – M S Office, Web etc.
7.	Computer applications – Auto CAD, MX Roads, STAAD
8.	Project Management – Prima Vera, M S Projects
9.	e-Governance
10.	Management Information System (HRMIS)

Annexure B

Induction Training

Induction Training: *Indicative Course Content* (inclusive of lectures, group discussions, skill practice sessions, laboratory training site visits and evaluation)

- Part A: Orientation
    - OWD Mission, Vision and Goals
    - OWD organisation structure and management
    - Public administration
    - Establishment and their service conditions
    - Accounts and financial matters
    - Audit and accounts
    - Labour laws
    - Minimum Wages Act
- Part B: Technical skills - Roadsand Highways
    - State Road Policy
    - Built-Operate-Transfer Policy
    - Road Surveying Techniques, Formation of Lay outs and Alignments
    - Land Acquisition Rules and Methodology of Land Acquisition for Road Construction.
    - Layout Criteria and Laws for Public Utility Serves viz. Level Crossings, Religious Structures, Historical Monuments, Petrol Pump, Flyovers, Road Safety Aspects
    - Pavement and Cross Drainage Designing: Identification of Soil Types and Determination of Bearing Capacity of Soils; Sub-grade/Sub-base strengthening materials in salt-infested and water-logged areas for road construction; Damage prevention; specifications for road construction in coastal areas;
    - Pavement Designing: Traffic census methods; Determination of standard axle loads and passenger car units for flexible pavement design and layer equivalencies of various non-bituminous and bituminous courses.
    - Deflection techniques and their use in overlay designs
    - Guidelines for flood assessment and preventive measures
    - Culvert designing and drainage development system
    - Evaluation of construction materials: Bricks/OBBB, Stone metal, Sand/filling materials, Blending material/Screening materiel, Bituminous materials including emulsions and cutbacks, Bitumen modifiers including polymers and rubbers, Cement, Lime, Geo-synthetic Materials, Steel Bars, Industrial Wastes
    - Estimate Preparation and sanction process: Preparation of schedule of rate, Estimation preparation, General requirement for sanction of works, Budgetary Planning, Administrative approval and Technical sanction of Works; Tender Process for road construction work
    - Construction Management: Material management techniques, Inventory Control and Work planning for road construction; Road construction machines and plants
    - Earthwork: Determination of borrow area and principles of cartage of earth; methodology and measurement techniques; earthwork equipment

- Construction of granular sub base and base courses: WBM and WMM; Construction of bituminous levelling course like lean bituminous macadam; Construction of bituminous base courses BUSG, BM and DBM
  - Design of bituminous mixes: Construction of painted surface with single or two-coat surface dressing with special reference to design procedure for surface dressing; Construction of mix seal surfacing; Construction of semi-dense asphaltic concrete, dense asphaltic concrete, full depth asphaltic concrete, hot-mix-hot laid bituminous paving materials; Construction of Traffic Intersection and Bridge decks with Mastic Asphalt
  - Pavement Maintenance and Management System: Pavement evaluation techniques and norms; repair of pavements and damage control measure for potholes, cracking, depressions, rutting, slippage/creep of the surface; Rehabilitation of pavement by pavement recycling

- Part C: Technical skills - Bridgeconstruction and management

  - Criteria for site selection of bridges
  - Elements of bridge design
  - Bridge construction stages and management
  - Rules for Toll collection and levies on bridges
  - Construction and maintenance of pontoon bridges and road bridge ferries

- PartD: Technical skills -Building construction and management

  - Criteria for site selection
  - Design systems for single and Multi storied buildings
  - Special Building Design: Green building designs; Earthquake resistant building designs and Preventive measures for damage in existing structures
  - Construction Requirements for RCC and RB work, Steel Structures, Brick Work, Wood Work, Painting and Varnishing, Floorings, Kitchen fixtures, General Installations, Maintenance of Buildings, Fire prevention measures in Multi-storied buildings, Electrification of buildings, Rehabilitation & repair of heritage buildings/structures using new techniques
  - Dismantling of old structures, process and precautions

- Part E: Technical skills –Quality Tests

  - Destructive & Non Destructive Testing Methods
  - Field test for Road: GSB gradation; GSB Compaction (Sand replacement); aggregate crushing value, impact value; Binder quality; bitumen content
  - Field test for Buildings: Slump test; concrete mix density; water cement ratio
  - Lab test for Road: Sand content in soil; liquid limit; plastic limit; CBR Index
  - Lab test for Buildings: aggregate crushing value,   impact value; water quality; Steel Tensile test; Concrete cube test (7 & 28 days)

- Part F: Technical skills –Information Technology

  - Operating MS Office including MS Word, MS PowerPoint and MS Excel
  - Using internet explorer, sending e-mails and carry out electronic data transfer.

- PartG: Technical skills –topographical surveys, using total station equipment, satellite imagery, remote sensing

Anenxure C

Workshop/Seminar/Training Cost Estimation

1) Per participant Per Day Cost when visiting the institute

Institute	Per participant per day cost				
	Institute Fee + Lodge + Board Rs.	D A* Rs.	Travel cost* Rs.	Total Rs.	Rounded off Rs
IAHE (NOIDA)	1500	350	2500	4350	4500
CPWD (GAZ)	1600	350	2500	4450	4500
CRRI (DEL)	2000	350	2500	4850	5000
ESCI (HYD)	4000	350	2500	6850	7000
NICMAR (PUNE)	4000	350	2500	6850	7000
NATPAC (KER)	4000	350	3000	7350	7500
ASCI (HYD)	4000	350	2500	6850	7000
IIM (CAL)	15000	350	2000	17350	17500
PMI (NOIDA)	10000	350	2500	12850	13000
Bentley (NOIDA)	4500	350	2500	7350	7500
XIMB (BBI)	12000	350	650	13000	13000
GAA (BBI)	1500	350	650	2500	2500
NIT (Rourkela)	2000	350	500	2850	3000

*Although, TA, DA is slightly varying for the different levels, for budgeting purpose the highest figures have been considered

2) Per participants Per Day Cost when faculty is invited (group of 3 faculty) for 3-5 day programmes

All Figures in Rs.

Institute	Visiting Faculty Fee Per day	Visiting Faculty TA + DA	Venue cost	Total	Per participant per day cost (20 participants)	Misc. cost, Tea, snacks, stationery	Participant TA + DA	Total
IAHE	45000	9000	2500	56500	2855	1000	500	4500
ESCI (HYD)	45000	9000	2500	56500	2855	1000	500	4500
NATPAC (KER)	50000	10000	2500	62500	3125	1000	500	5000
CPWD (GAZ)	30000	9000	2500	41500	2075	1000	500	3500

CRRI (DEL)	30000	9000	2500	41500	2075	1000	500	3500
PMI (NOIDA)	50000	0	2500	52500	2625	1000	500	4200
NDMI (DEL)	30000	9000	2500	41500	2075	1000	500	3500
XIMB (BBI)	60000	0	2500	62500	3125	1000	500	4500
IN-House (OWD)	0	0	0	0	0	2000 (incl. venue cost)	500	2500

3) Per participants Per Day Cost when faculty (group of 2 faculty) is invited for 1-2 day workshops

All Figures in Rs.

Institute	Visiting Faculty Fee Per day	Visiting Faculty TA + DA	Venue cost	Total	Per participant per day cost (20 participants)	Misc. cost Tea, snacks stationary	Participant TA + DA	Total	Rounded off
IAHE	30000	6000	2500	38500	1925	1000	500	3425	3500
ESCI (HYD)	30000	6000	2500	38500	1925	1000	500	3425	3500
NATPAC (KER)	36000	7000	2500	45500	2275	1000	500	3775	4000
CPWD (GAZ)	12000	6000	2500	20500	1025	1000	500	2525	2500
CRRI (DEL)	12000	6000	2500	20500	1025	1000	500	2525	2500
PMI (NOIDA)	18000	0	2500	20500	1025	1000	500	2525	2500
NDMI (DEL)	12000	6000	2500	20500	1025	1000	500	2525	2500
XIMB (BBI)	40000	0	2500	42500	2125	1000	500	3625	3600
IN-House (OWD)	0	0	0	0	0	2000 (incl. venue cost)	500	2500	2500

4) Study Tours –

   i.   In-Country exposure visits for 6 days (12 participants)

Cost head	Per participant cost	Amount
Travel	15000	180000
Lodge & Board	21000	252000
Visit management charges	Lump sum	90000
Total		528000

   o   Say INR 5,25,000/- per visit, therefore annually for three (3) visits INR 15,75,000/-

ii.   Overseas exposure visit for 5 days (10 participants)

Cost head	Per participant cost	Amount
Travel (incl. local travel plus visa cost)	50000	500000
Lodge & Board (@ US$ 120)	45000	450000
Visit management fee/charges	Lump sum	350000
Total		1250000

o   Say INR 12,50,000/- per visit annually

o   Total annual 'Study Tour' cost (i + ii) = INR 28,25,000 **or say 28 lakhs**

Training profiles-Information Technology

TITLE	**Basics of Computer, MS office and Internet Use**
TARGET GROUP	JE, AE,
OBJECTIVE/S	After the training, the participants will be able to: • Comprehend the fundamental of computer operation • Have required knowledge to work with computers • Understand basic functions used in MS word and email communication • Understand the basics of adobe and networking of computers • Capable of Practicing basic Computer Skills
KEY CONCEPTS	• Fundamentals of Computer operation. • Operating Systems and Use of Windows • Basic knowledge on Microsoft Office • Working in MS Word • Zipping/Unzipping files & folders • Fundamentals of Networking • Internet Technologies, Email • Basics of Adobe • Exercises
DURATION	3 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	In –house, Faculty of IT-ICT Consultants
METHOD/S	Interactive presentations, Practical Oriented, Exercise
COST (Indicative approximation)	INR 200 per head per day
Special requirements	Computer Facilities

Annexure D - *Continued*

Training profiles-Information Technology

TITLE	**Training in MS-Excel & MS-Access**
TARGET GROUP	JE, AE,
OBJECTIVE/S	After the Training, the participants will be able to:
	• Understand the basics of MS Excel and Access software
	• Functional knowledge and basic practice in data entry and data manipulation using excel
	• Understanding basic and advance functions in Excel
	• Understand data base Management System and Queries
	• Importing and Exporting Data in both softwares
KEY CONCEPTS	• Getting started with Excel
	• Working in MS Excel
	• Data manipulation
	• Customising Defaults
	• Advanced Functions
	• Reports
	• Exercise
	• Introduction to RDBMS
	• Local and Linked Table in MS-Access
	• MS- ACCESS Queries
	• Data Import and Export
	• Exercise
DURATION	4 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	OWD Internal resource persons, Faculty from IT ICT consultants, External resource persons by invitation
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 3500 per head per day
Special requirements	Computer Facilities for Practicals

Training profiles- Information Technology

TITLE	**On-the-Job Training on COTS Software**
TARGET GROUP	O-RAMS Core Group (O-RAMS Core Group consists of selected OWD officers who will be trained by the COSTS software supplier for ORAMS after the software delivery.)
OBJECTIVE/S	After the Training the participants will be able to: • Understand the basics of COTS software • Configuration of software and software use • Data entry and manipulation in COTS software • Integration and maintenance of COTS software
KEY CONCEPTS	• Configuration, software use, management, integration, and maintenance of COTS Software
DURATION	3 weeks(21 Days)
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	by The COTS software supplier
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic costs (faculty to be provided by consultants)
Special requirements	

Annexure D - Continued

Training profiles- Information Technology

TITLE	**Capacity Building on ITAMS (developed by IT-ICT)**
TARGET GROUP	EO,HA
OBJECTIVE/S	After the Training the participants will be able to: • Understand the need of ITMAS and its objectives and utility • Process mapping of ITMAS including inputs and outputs • Practice (Hands-on) by Exercising on Software use • Report Generation
KEY CONCEPTS	• ITAMS
DURATION	3 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of IT-ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistic Costs
Special requirements	Computer Facilities for Participants

Training profiles- Information Technology

TITLE	**Capacity Building on CDMS (developed by IT-ICT)**
TARGET GROUP	EE
OBJECTIVE/S	After the Training the participants will be able to: • Understand the need of CDMS and its objectives • Process mapping of CDMS including inputs and outputs • Practice (Hands-on) by Exercising on Software use • Report Generation
KEY CONCEPTS	• CDMS
DURATION	3 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of IT-ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic logistic Costs
Special requirements	Computer Facilities for Participants

Training profiles- Information Technology

TITLE	**Capacity Building on Computerised System of** Assembly Questions and Audit Compliance **(developed by IT-ICT)**
TARGET GROUP	EE, DAO
OBJECTIVE/S	After the Training the participants will be able to: • Understand the need of Computerization of Assembly Questions and Audit Compliance and its objectives • Process mapping of the developed system including analysis of inputs and outputs • Practice (Hands-on) by Exercising on Software use • Report Generation
KEY CONCEPTS	• Assembly Questions and Audit Compliance – Computerized database management
DURATION	2 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of IT-ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistics Costs
Special requirements	Computer Facilities for Participants

Annexure D - *Continued*

Training profiles- Information Technology

TITLE	**Asset Management System - Computerized module**
TARGET GROUP	AE, JE
OBJECTIVE/S	After the Training the participants will be able to: • Over view of AMS, Measurement of various attributes for Road Condition • Data Needs and Sources, Data entry of Road Condition data in AMS • Maintenance Planning and Estimation of Budget Requirements • Practice (Hands-on) by Exercising on Software use: Data analysis using O-RAMS software • Report Generation
KEY CONCEPTS	• Overview, Data Needs and Sources, Data entry of road condition data into the AMS, maintenance planning and budgeting including data analysis involving O-RAMS software applications, Report generation, Examples
DURATION	2 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of AMS Consultants (M/s LASA)
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistic costs
Special requirements	Computer Facilities for Participants

Training profiles-Information Technology

TITLE	**Performance monitoring and decision making using O-RAMS and RIS**
TARGET GROUP	CEs, SEs
OBJECTIVE/S	After the Seminar the participants will be able to: • Concepts of Performance Monitoring and Indicators • Application of O RAMS and Road Information Systems in Maintenance Planning • Understanding Performance Reports and Budgets • Prioritizing Management Actions under budget limitations
KEY CONCEPTS	• O RAMS software and Decision Making
DURATION	1 day
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	Faculty from AMS Consultants (Lasa)
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistics Costs
Special requirements	

Training profiles-Information Technology

TITLE	**Software maintenance, modifications and improvements**
TARGET GROUP	IT Staff of OWD
OBJECTIVE/S	After the Training the participants will be able to: • Understand Process architecture of various software developed by IT ICT Consultants • Understand applications and undertake troubleshooting of these software • Undertake modifications and improvements in developed software • Carry out testing and validation of updated software
KEY CONCEPTS	• Maintenance of Software, Software Modification
DURATION	2 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of IT ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistic costs
Special requirements	Computer Facilities with all participants

Training profiles- Information Technology

TITLE	**Web Technology Management**
TARGET GROUP	AE and EEs – engaged in IT management (Staff of proposed IT Unit in OWD)
OBJECTIVE/S	After the Training the participants will be able to: • Understand basic concepts of web based technologies • Knowledge about open sourcing including security tools • Understand operation and management of open source web based systems • Develop Knowledge of various on line resources
KEY CONCEPTS	• Introduction to Web technologies • Introduction to Enterprise Applications (ERPs) and Open Source Systems • Existing solutions, features, benefits and challenges in ERP and open source systems implementations • Open source software product adoption, benefits and concerns in Open Source Software • Products and tools available in Open source • Open Source Security Tools • Open Source systems and standards for e-Governance • Benefits and challenges in open source systems • Operations and management of open source systems • Online resources
DURATION	10 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	Resource persons from IT ICT
METHOD/S	Interactive presentations
COST (Indicative approximation)	Logistic Costs only
Special requirements	Computer facilities with networking and internet facilities

Annexure D - Continued

Training profiles-Information Technology

TITLE	**Data Security & Disaster Recovery Plan**
TARGET GROUP	AE and EEs – staff of proposed IT Unit in OWD
OBJECTIVE/S	After the Training the participants will be able to: • Understand and Comprehend the information/data security in e-governance • Understand various security systems for data, network and infrastructure • Understand and apply specific data recovery plans • Apply security audits and legal framework on information security
KEY CONCEPTS	• Introduction to e-Governance • Introduction to Information Security in e-Governance • Information Security risks and its impact on e-Governance • Information Security Risk Assessment • Models and frameworks for Information Security Management • Securing e-Governance applications • Securing data and database systems • Securing networks and IT infrastructure • Securing web applications • Securing end-user environment • Information Security policies • Disaster recovery plans • Information Security Audits • Cryptography and Data Encryption, PKI and Digital Certificates • Legal Framework of Information Security • Good practices • Online resources
DURATION	10 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	Resource Persons from IT- ICT Consultancy (CSM Technologies)
METHOD/S	Interactive presentations
COST (Indicative approximation)	Logistic costs only
Special requirements	Computer Facilities with networking and internet facilities for all participants

***Annexure D** - Continued*

Training profiles-Information Technology

TITLE	**GIS and Mapping**
TARGET GROUP	Limited EEs, AE
OBJECTIVE/S	After the Training the participants will be able to: • Understand basic of GIS and emerging survey techniques • Applicability of GIS in road/transport planning • Basic use of GIS based Highway Information System and similar software • Report Generation
KEY CONCEPTS	• Introduction to GIS applications in roads and transportation. • Fundamentals of GIS, map sources and digital map preparation and interpretation • Modern survey techniques using GPS, DGPS, Total Station etc • GIS based highways information System • Application of GIS for preparation of road development plans • GIS applications in urban transport planning • GPS/DGPS/GIS – based pavement information and management system (including data collection equipment) • GIS based bridge information system • GIS software demonstration/hands-on training
DURATION	5 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of AMS Consultants (M/s LASA)
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistic Costs
Special requirements	Computer Facilities for all participants

Training profiles

TITLE	**Training on Complain Handling Module (developed by IT-ICT)**
TARGET GROUP	EE, AE
OBJECTIVE/S	After the Training the participants will be able to: • Understand the need of CHS and its objectives • Process mapping of CHS and inputs and outputs • Practice (Hands-on) by Exercising on Software use • Report Generation
KEY CONCEPTS	• Use of Complain Handling System (Computerised module on CHS)
DURATION	2 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By faculty of IT-ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic logistic costs
Special requirements	Computer facilities

Annexure D - Continued

Training profiles

TITLE	**Capacity Building on HRMS Module (developed by IT-ICT)**
TARGET GROUP	EO, HA
OBJECTIVE/S	After the Training the participants will be able to: • Understand the need of HRMS and its objectives • Process mapping of HRMS including inputs and outputs • Practice (Hands-on) by Exercising on Software use • Report Generation
KEY CONCEPTS	• Use of HRMS (Human Resource Management System) - Computerised module on HRMS)
DURATION	3 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	Faculty of IT-ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistic costs
Special requirements	Computer Facilities for Participants

Annexure D - Continued

Training profiles

TITLE	**Capacity Building on e-Nirman Module**
TARGET GROUP	EE, AE, JE
OBJECTIVE/S	After the Training the participants will be able to: • Understand the need of e-Nirman and its objectives • Process mapping of e-Nirman including inputs and outputs • Practice (Hands-on) by Exercising on Software use • Report Generation
KEY CONCEPTS	• e-Nirman
DURATION	2 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of IT-ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic logistics costs
Special requirements	Computer Facilities for participants

Annexure D - Continued

Training profiles

TITLE	**Capacity Building on Building Asset Management System (BAMS)**
TARGET GROUP	EE, AE , JE
OBJECTIVE/S	After the Training the participants will be able to: • Understand the need of BAMS and its objectives and utility • Process mapping of BAMS including inputs and outputs • Practice (Hands-on) by Exercising on Software use • Report Generation
KEY CONCEPTS	• BAMS
DURATION	3 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of AMS Consultants (LASA)
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistics Costs
Special requirements	Computer Facilities for Participants

Training profiles

TITLE	**Capacity Building on Estimation Tools**
TARGET GROUP	EE, AE , JE
OBJECTIVE/S	After the Training the participants will be able to:
	• Understand the need of Est Tools and their objectives
	• Process mapping of these tools including inputs and outputs
	• Practice (Hands-on) by Exercising on Software use
	• Report Generation
KEY CONCEPTS	• Est. Tool
DURATION	2 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By faculty of IT-ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistic Costs
Special requirements	Computer Facilities for Participants

Training profiles

TITLE	**Capacity Building on LMS (developed by IT-ICT)**
TARGET GROUP	EE, DAO
OBJECTIVE/S	After the Training the participants will be able to: • Understand the need of LMS and its objectives • Process mapping of LMS including inputs and outputs • Practice (Hands-on) by Exercising on Software use • Report Generation
KEY CONCEPTS	• LMS
DURATION	2 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of IT-ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistic Costs
Special requirements	Computer Facilities for participants

Training profiles

TITLE	**Capacity Building on LA and RR Module (developed by IT-ICT)**
TARGET GROUP	EE, AE , DAO
OBJECTIVE/S	After the Training the participants will be able to: • Understand the need of LA and RR Module and its objectives and utility • Process mapping of LA and RR Module including inputs and outputs • Practice (Hands-on) by Exercising on Software use • Report Generation
KEY CONCEPTS	• LA & RR Module
DURATION	3 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By Faculty of IT ICT Consultants
METHOD/S	Interactive presentations
COST (Indicative approximation)	Basic Logistic costs
Special requirements	Computer Facilities for Participants

Training profiles-Maintenance

TITLE	**Training Programme on HDM-4**
TARGET GROUP	EE, AE
OBJECTIVE/S	After the Training, the participants will be able to: • Understand basics of HDM 4 and its various applications • Visualize Analytical framework of HDM 4, Data needs and its manipulation using HDM 4 • Decision making using HDM 4 • Report Generation
KEY CONCEPTS	**Module-I: Concepts** • Overview • Functions and cycles • Planning • Programming • Preparation • Operations **Module II : Working with HDM-4, Development of Case Studies and Operational Skills** • Management Functions • HDM-4 Analytical Framework • Pavement life cycle analysis • HDM-4 Applications • Strategy Analysis • Programme analysis • Project analysis • Implementing HDM-4 within a Road Management System • Data collection • Database management • Decision support • Management information • Adapting HDM-4 to local conditions • Calibration of HDM-4 • Practice exercise
DURATION	2 days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By External resource persons
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 3500 per head per day
Special requirements	Computer Facilities for each Participant

Annexure D - *Continued*

Training profiles

TITLE	**Process Reform Management**
TARGET GROUP	EIC cum Secretary, SICs and CEs
OBJECTIVE/S	After the Series of two Seminars, the officers will be able to: • Understand and Comprehend need for process reform • Assess the requirements for process reform • Manage process reforms
KEY CONCEPTS	Seminar A: (One and half day) • Overview of Process Re-engineering • Problem Tree analysis in processes • Development of process Maps • Business process analysis Seminar B (one and half day) • Identifying solutions for the challenges in business process environment • Optimizing the business processes • Approach for implementation of reengineered processes • Change Management for implementation of reengineered business processes • Leveraging Consultants in PRM engagements
DURATION	2 seminars of one and half day each (total 3 days)
VENUE – Institute, Location	Bhubaneswar
FACULTY	Invited Resource Persons
METHOD/S	Interactive presentations
COST (Indicative approximation)	Resource person costs: Rs 25,000 per day for four days + travel and logistics cost
Special requirements	Training/Conference room with AV aids

Training profiles-Human Resource Management

TITLE	**Leadership and Management**
TARGET GROUP	SEs, EE's
OBJECTIVE/S	After the Training the participants will be able to understand: • Concept of Leadership • Leadership Styles • Developing and Managing Effective Teams • Concepts of Change Management • How to lead a Change
KEY CONCEPTS	• What is leadership? The difference between leadership and management; Assessing leadership competencies and developmental needs; Articulate leadership vision, in light of the assessment, and consider the best way(s) to realize it • Processes for establishing direction, aligning people, and motivating people to follow the vision • Identifying different leadership style: Tasking, Encouraging, Steering, Entrusting • Leading Effective Teams • Leading and maintaining effective, productive teams • Evaluating team progress and coaching team members as necessary • Building Relationships: How individual differences affect your ability to lead • Identifying motivational patterns: How to be more influential by understanding motivational patterns; Using an understanding of individual differences to help manage conflict more effectively • Ethics and Leadership • Conflict resolution, Negotiating Conflict, Difference between competitive negotiation and collaborative negotiation • Leading Change – Self's Role in a changing organization; Predictable stages of adjusting to change; Appropriate leadership strategies for each stage • Developing a change management plan • Mock Exercise & Role Plays
DURATION	Five (5) days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	ASCI, IIM, XIMB etc.
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 5,000 per head per day
Special requirements	

Annexure D - *Continued*

Training profiles-Contract Management

TITLE	**Contract Management**
TARGET GROUP	Select CE's SE's, EE's and AE's
OBJECTIVE/S	After the training the participants will be able to understand: • Principles of Contract Management • Contracting Methods and Various Activities • Contract administration
KEY CONCEPTS	• Contract management definition; Description and uses of contracts; Client and Contractor perspectives • Concept of agency; Types of authority; Privity of contract; Contractor personnel • Concepts and Principles of Contract Law; Mandatory elements of a legally enforceable contract; Terms and conditions; Remedies; Interpreting contract provisions • Contracting Methods: Competitive and non competitive; Sealed bidding, competitive negotiation and competitive proposals; • Purchase agreements vs. contracts; Single-source negotiation vs. sole-source negotiation • Developing Contract Pricing Agreements; Uncertainty and risk in contract pricing • Categories and types of contracts and their selection • Pre-award Phase of Contracting including bid preparation • Award Phase: Source selection, Evaluation procedures and Standards • Negotiation objectives; Negotiating a contract; Tactics and counter-tactics; Document agreement or walk away • Contract Administration: Policies, Responsibilities for Client and Contractor • Contract analysis: Performance and progress; Records, files and documentation • Contract Termination, Resolving Claims and Disputes • Case studies
DURATION	Five (5) days
VENUE – Institute, Location	ESCI, NATPAC or ASCI, XIMB etc. could be the options
FACULTY	External Resource Persons
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 5500 per head per day
Special requirements	

Training profiles-Project Management

TITLE	**Project Management : Module A (Theory)**
TARGET GROUP	Select SE's, All EE's
OBJECTIVE/S	After the training the participants will be able to understand and apply: • Concepts of Project Management • Project Cycle and its main components • Networking and Scheduling • Project Monitoring
KEY CONCEPTS	• Introduction to Project Management • The project life cycle; Key stakeholders • Project management Process group and their responsibilities • Project Planning • Needs Assessment; Project selection; Economic Analysis • Building SMART objectives • Developing Requirements and Documentation • Project Planning • Project Scheduling • Network Diagrams – CPM; • Overview of Project Management Software I.e. PRIMAVERA, MS PROJECT • Cost Planning and Control • Responsibility Matrix; Resource Loading and Levelling; Risk Planning; Procurement • Planning; Communication and quality planning • Project Implementation; Baselines; Developing the project team; Organizations and team structures; Managing change; Managing Risk • Performance reporting; Assessing and monitoring project performance • Reserves; Earned value; Sunk costs • Project Closeout – Scope verification and acceptance; Administrative and contractual closure • Documenting Lessons learned • Case study
DURATION	Five (5) Days
VENUE – Institute, Location	Out of Odisha
FACULTY	ASCI, ESCI, IIM, XIMB etc.
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	

Annexure D *Continued*

Training profiles-Project Management

TITLE	**Project Management: Module B - Software (MS Project/ Primavera)**
TARGET GROUP	Select SE's, Most EE's, and Selected Senior AE's
OBJECTIVE/S	After the training the participants will be able to
	• Understand basics of operation of project management software
	• Able to operate needful functional modules of PM software especially those relating to planning, construction and monitoring
	• Able to assess and input various data, manipulate it and develop desired project management scenarios along with practical limitations
	• Generate reports and use it for decision making
	• Confidently apply Primavera/MS Project software for project management
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Overview

- Overview
  - Building a Project plan.
  - Networking techniques for Time, Resource and Cost Scheduling – Tracking and Monitoring of projects
  - Multiple Project Management, Data interface with Excel
  - Project coordination and integration management
  - Tracking Progress
  - Assessing the quality of the project.
  - Communication
- Software demonstration and application
  - Activities, Calendars- Definition, Sequencing & Estimate Duration
  - How to Develop a Schedule Plan and Control
  - Network Analysis-CPM, PERT,PDM
  - How to Prepare Work Breakdown Structure (WBS)
  - How to update WBS
  - Constraints
  - How to Manage Cost in a Project
  - How to do Resource Planning and Cost Estimation
  - How to Prepare Resource Sheet
  - How to Apply Resource to each Activity
  - How to Define Resource Pool and to Allocate Resources
  - Filters and Grouping
  - How Material Resources are being allocated
  - Analyzing resources by 74erkeley74 the resource using Crashing, Stretching & Splitting
  - Earned Value Analysis
  - Method of Developing Different types of reports according to Industrial needs
  - Schedule in multiple Projects
  - Customization
  - Exercise Project
- Date needs, entry and data manipulation in various modules
- Report Generation

DURATION	Five (5) Days
VENUE – Institute, Location	In- house, Bhubaneshwar
FACULTY	By invitation from Xavier Institute of Management, Bhubaneshwar
	Or
	Project Management Institute, NOIDA
METHOD/S	Interactive group discussions, Group Discussions, Working exercises
COST (Indicative approximation)	INR 1,25,000 for five days (total cost of resource person and three assistants) for a batch of 20 participants
Special requirements	Computer facilities for each participant with **licensed access to PM software** (This cost may be added if OWD does not have spare computers and licensed PM software. It is learnt that they are using PRIMAVERA already).

Training profile- Policy and Planning

TITLE	**Transportation Master planning for Road network in State, District and Cities**
TARGET GROUP	CE's , SE's + Select EE's
OBJECTIVE/S	After the Seminar the participants will be able to: • Comprehend and develop various aspects of transport policy • Plan for appropriate transportation systems at regional and city level for freight and passenger transport • Identify critical issues; facilitate short, medium and long term planning process • Understand the interaction between, land use, road safety, environment and Transport
KEY CONCEPTS	• Transport Policy Framework • Planning for Transportation Systems • Transport & Environment • Transport & Land Use • Transport & Safety • Urban and Rural Roads – Issues and Challenges
DURATION	Two (2) days
VENUE – Institute, Location	In-House, Bhubaneshwar
FACULTY	By invitation from ESCI or NATPAC
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 3500 per head per day
Special requirements	

Training profile- Policy and Planning

TITLE	**Planning for Green Buildings: Concepts**
TARGET GROUP	CE's , SE's + Select EE's
OBJECTIVE/S	After the Seminar the participants will be able to: • Understand the concept of building orientation and lay out using natural daylight and ventilation • Understand the green building rating system based on LEEDS system, star rating by TERI-GRIHA system and its significance • Comprehend and develop specification for use of green building materials • Appreciate ways to conserve energy by retrofitting in existing buildings
KEY CONCEPTS - INDICATIVE PROGRAMME OUTLINE	• Green Building Principles • Factors Accelerating Green Building • Standards, Regulations and Incentives • Green Building Rating Systems • No- and Low-Cost LEED Credits • star rating by TERI-GRIHA system • Economic and Environmental Benefits • Sustainable Sites • Efficient Water Management • On-Site Renewable Energy • Applications for Energy Conservation • Green Materials • Emerging Lighting Technologies • Improving Air Quality • Intelligent Building Automation and Control Systems • Keeping Building Green
DURATION	Two (2) days
VENUE – Institute, Location	In-House, Bhubaneshwar
FACULTY	By invitation from ESCI/CPWD
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 3500 per head per day
Special requirements	

Training profile- Policy and Planning

TITLE	**Understanding Transportation Economics**
TARGET GROUP	CE's , SE's + Select EE's
OBJECTIVE/S	After the Seminar the participants will be able to:
	• Comprehend the concepts of Transportation Economics
	• Understand its usage in the planning process
KEY CONCEPTS - INDICATIVE PROGRAMME OUTLINE	• Externalities
	• Traffic Congestion
	• Congestion pricing
	• Road space rationing
	• Tradable mobility credits
	• Funding & financing
	• Regulation & competition
	• Project appraisal and evaluation
	• Social effects
DURATION	One (1) day
VENUE – Institute, Location	In-House, Bhubaneshwar
FACULTY	By invitation from NATPAC
TRAINING METHODS	Interactive presentations
COST (Indicative approximation)	INR 4000 per head per day
Special requirements	

Training profile- Policy and Planning

TITLE	**Planning, Design and Operational Concepts of Highways**
TARGET GROUP	Select CE's , SE's, EE's
OBJECTIVE/S	After the training the participants will be able to:
	• Define the operational objectives
	• Understand concepts of Traffic management
	• Carry out selection of a management system
	• Facilitate highway control strategies
KEY CONCEPTS - INDICATIVE PROGRAMME OUTLINE	• Overview of highway operations
	• Operational objectives of design
	• Function and history of Highway system
	• Basic traffic flow characteristics
	• Operational demands
	• Operational analysis
	• Data needs
	• Operational considerations for geometric design
	• Operational considerations for
	o Traffic management
	o System management
	• Selection of a management system
	• Incident management
	o incident characteristics
	o incident response and management
	o management techniques
	• Control strategies
	o Highway control strategies
	o Urban & Rural street control strategies
	o System control strategies
	• Information systems
	o Importance of real-time information
	o Information techniques
	o Emerging technologies
DURATION	Three (3) days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Presentations, Group discussions, Case studies
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	

Annexure D - Continued

Training profile- Policy and Planning

TITLE	**Planning for Construction of Roads**
TARGET GROUP	Select CE's , SE's and EE's
OBJECTIVE/S	After the training the participants will be able to:
	• Understand concepts of Technical Planning, Management and Organization
	• Carry out selection of a management system
	• Practice the correct construction procedure

KEY CONCEPTS - INDICATIVE PROGRAMME OUTLINE	• Technical Planning
	   o Road Selection
	   o Road Design
	   o Road Alignment
	   o Estimating Works

	• Management and Organization
	   o Project Cycle
	   o Levels of Management
	   o Administration and Logistics
	   o Site Management

	• Appropriate Setting Out Methods
	   o General Observations
	   o The Profile Board Method
	   o The Centre Line
	   o Ditching, Sloping and Camber Formation

	• Construction Procedures
	   o Site overview
	   o Clearing
	   o Earthworks
	   o Embankments
	   o Drainage
	   o Culverts
	   o Drifts
	   o Gravelling
	   o Compaction
	   o Erosion Protection

DURATION	Three (3) days
VENUE – Institute, Location	ESCI, Hyderabad
TRAINING METHODS	Presentations, Group discussions, Case studies
COST (Indicative approximation)	INR 7000 per head per day
Special requirements	

Training profile- Policy and Planning

TITLE	**Basics of Corridor Management**
TARGET GROUP	CE's , SE's + Select EE's
OBJECTIVE/S	After the training the participants will be able to: • Comprehend the framework for corridor management • Put into practice mechanisms to improve corridor performance • Carry out corridor management

KEY CONCEPTS - INDICATIVE PROGRAMME OUTLINE	• Framework for Corridor Management
	   o Defining a Corridor
	   o Role of Corridors
	   o Development Objectives
	   o Evaluating Corridor Performance
	   o Corridor Services Analysis
	      ▪ Cost and Time
	      ▪ Reliability
	      ▪ Flexibility
	• Mechanisms to Improve Corridor Performance
	   o Interconnections
	   o Route Capacity
	   o Gateways
	   o Other Nodes
	• Corridor Management
	   o Role of Corridors
	   o Corridor Functions
	   o Infrastructure and Facilities
	   o Transport and Logistics Services
	   o Regulatory Procedures
	   o Implications for Management
	   o Recent Approaches to Corridor Management
	   o Role of Agreements
	   o Management Structures
	   o Developing and Managing Corridors

DURATION	Two (2) days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By invitation from NATPAC
TRAINING METHODS	Interactive presentations, Group discussions, Case studies
COST (Indicative approximation)	INR 4000 per head per day
Special requirements	

Training profile- Policy and Planning

TITLE	**Urban Roads - special needs and characteristics**
TARGET GROUP	Select CE's , SE's, EE's
OBJECTIVE/S	After the training the participants will be able to: • Appreciate the different perspectives of all users • Plan integrated street networks • Prepare street design • Implement a plan-led approach

KEY CONCEPTS - INDICATIVE PROGRAMME OUTLINE	• Policy background
	• Different user perspectives
	• The Need for Change
	   o Impact of Cars
	   o Pedestrians Perspective
	• Way Forward
	   o 'Place' as Part of the Design
	   o User Priorities
	   o A Balanced Approach
	• Integrated Street Networks
	   o Movement and Place
	   o Movement Function
	   o Place Context
	• Permeability and Legibility
	   o Street Layouts
	   o Block Sizes
	   o Retrofitting
	   o Way finding
	• Management
	   o Vehicle Permeability
	   o Traffic Congestion
	   o Bus Services
	   o Relief Roads
	   o Noise and Air Pollution
	• Street Design
	   o Movement, Place and Speed
	   o A Balanced Approach to Speed
	   o Self-Regulating Streets
	   o Streetscape
	   o Building Height and Street Width
	   o Street Trees
	   o Active Street Edges
	   o Signage and Line Marking
	   o Street Furniture
	   o Materials and Finishes
	   o Planting
	   o Historic Contexts
	   o Pedestrian and Cyclist Environment
	   o Footways, Verges and Strips
	   o Pedestrian Crossings
	   o Corner Radii

- o Pedestrianised and Shared Surfaces
- o Cycle Facilities
- o Carriageway Conditions
- o Carriageway Widths
- o Carriageway Surfaces
- o Junction Design
- o Forward Visibility
- o Visibility Splays
- o Alignment and Curvature
- o Horizontal and Vertical Deflections
- o Kerbs
- o On-Street Parking and Loading
- Implementation
  - o The Challenges
  - o A Plan-Led Approach
  - o Policy and Plans
  - o Development Rationale
  - o Multidisciplinary Design Process
  - o Design Team
  - o Process
  - o Audits
  - o Road Safety Audits
  - o Quality Audits

DURATION	Five (5) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations, Group discussions, Case studies
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	

Annexure D - *Continued*

Training profile- Policy and Planning

TITLE	**Tolling and Toll Operations**
TARGET GROUP	Select CE's , SE's, EE's
OBJECTIVE/S	After the Seminar the participants will be able to be familiar with the concept and its practical application

KEY CONCEPTS - INDICATIVE PROGRAMME OUTLINE

- Toll policy, Toll act, Toll rates and its determination mechanism
- General issue of toll roads – International/National
  - Network and Planning Issues
  - Tariff Setting and Policy Issues
- Objectives and Potential Consequences of Tolling
- Automated vehicle classification
- Toll variations
  - Time of Day or Day of Week
  - Cost of road construction
  - Social considerations
  - Tolling by area
  - Congestion Related Tolling
  - Loyalty programs and other discounts
- Open and Closed Tolling system
- Tolling Options
  - Manual tolling.
  - Electronic toll collection (E-Tolls)
  - Mixed tolling some manual tolling, some electronic.
- Means of payment
  - Cash payment
  - Magnetic cards
  - For subscribers, specific payment systems
- Shadow Tolls
- Transaction processing
- Violation enforcement - Toll evasion Pilferage of revenues
- Informal Tolls
- Mechanisms for Involving the Private Sector
  - Maintain and operate contracts.
  - Rehabilitate, Operate, Transfer (ROT) contracts.
  - BOT contracts.
  - Corridor management/maintenance contracts
- Bidding process
  - Detailed development of the project
  - draft concession agreement
  - nature of Government support
  - decision criteria
  - Risk sharing/responsibilities of different parties
- Duration
- Issues involved in regulation and contract management

DURATION	Two (2) days
VENUE – Institute, Location	IAHE, NOIDA

METHOD/S	Interactive presentations, Group discussions, Case studies
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	

Annexure D - *Continued*

Training profile- Policy and Planning

TITLE	**Economic and Financial Analysis of Roads Projects**
TARGET GROUP	Select CE's , SE's, EE's
OBJECTIVE/S	After the Seminar the participants will be able to:
	• Appreciate the relevance of CBA for assessing public investment projects
	• Know the components of an integrated framework for applied CBA
	• Appreciate the relevance of CBA for enhancing development
	• interpret and assess the results of CBA
KEY CONCEPTS	• An integrated approach to project appraisal using CBA
	• Alternative points of view and investment criteria
	• Principles of financial analysis and constructing cash flows
	• Financial and economic analysis
	• Distributive analysis: Harberger's basic needs approach
	• Risk management
DURATION	Two (2) days
VENUE – Institute, Location	ASCI, Hyderabad
TRAINING METHODS	Interactive presentations, Case studies, Example Project analysis
COST (Indicative approximation)	INR 7000 per head per day
Special requirements	

Training profile- Policy and Planning

TITLE	**Public private partnerships (PPP) in the roads sector**
TARGET GROUP	Select CE's , SE's, EE's
OBJECTIVE/S	After the Workshop the participants will be able to: • Have appreciation of PPP Models • Facilitate structuring of PPP models • Equip self for negotiations with selected concessionaires
KEY CONCEPTS - INDICATIVE PROGRAMME OUTLINE	• PPP Policy of GoI & GoO • Commercial and financial provisions • Fundamental concepts and definitions having bearing on financial performance • Commercialization principles, road user charges, tolls • BOT Models (Toll-based, Annuity based), shadow tolls, DBFO • Allocation and management of risks in PPP projects, project financing • Financial engineering, commercial dynamics of projects, financial closure • Model Concession Agreements: technical, financial and legal aspects • Manuals of standards and specifications • Other Project Agreements: construction agreement, O&M agreement, shareholders' agreement, agreement with lenders, insurance cover • Differences between cash construction contracts and BOT contracts • Regulatory aspects, duties of Independent Engineer • Conditions Precedent: land acquisition, environment and social concerns, utilities shifting • Case studies (national and international)
DURATION	Five (5) days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations, Group discussions, Case studies
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	

Training profile- Policy and Planning

TITLE	**Preparation of Budget & its Monitoring**
TARGET GROUP	All CE's , SE's, EE's
OBJECTIVE/S	After the training the participants will be able to:
	• Be well conversant with budgeting procedures and Govt. Circulars
	• Complete budget formats correctly
	• Work as a 'budget team'
	• Be aware of various sources of revenue
KEY CONCEPTS	• Budget manual – procedure of budget
	• Budget formats
	• Budget circulars- cash management
	• Performance budget
	• Outcome budget
	• Sources of revenue – toll, advertisement rights
	• Collection mechanism
	• Accounting and recording thereof
DURATION	Three (3) days
VENUE – Institute, Location	IN-House, Bhubaneshwar
FACULTY	Gopabandhu Academy of Administration, Bhubaneshwar
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 2500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Policy and Planning

TITLE	**Need and Elements of Quality Policy**
TARGET GROUP	CE's , SE's + Select EE's
OBJECTIVE/S	After the Workshop the participants will be able to • Finalize OWD Quality Policy Statement • Disseminate statement to all concerned • Monitor its adherence

KEY CONCEPTS	• Session 1: Writing a new Quality Policy
	• Describe the nature and purpose of organization
	• Identify any gaps that exist
	• State all defined requirements, including those defined by GoO, public, vendors, statutory and regulatory requirements, ISO9001:2000, etc. (Using examples of other organizations)
	   o It is recommend to critically examine and identify the specific sentences within the quality policy that cover each of the requirements listed above
	   o Also, state that all concerned are committed to continually improve the effectiveness of the quality management system
	• Develop new statements that address the identified gaps
	   o Highlight extraneous statements that are not required by ISO9001:2000 and consider removing them
	   o Clarify ambiguous or vague language. (Avoid using words such as "exceed" etc.)
	   o Remember that your policy states the intent, it doesn't need to state "how" staff will achieve the intent
	   o Above all, the quality policy statement should be one for which the top management takes full ownership
	• State that the quality policy will be communicated to all employees within the organization, and that steps will be taken to ensure that it is understood by everyone
	• Describe who and how often the quality objectives and quality policy statement will be reviewed and revised
	• Session 2: Comparing the Quality System To The Standard
	   o Who does what? – role definition (incl. approval, dissemination, monitoring etc.)
	   o Service delivery process
	   o Inputs needed
	   o Documentation approach
	   o Addressing problems
	   o Assessing quality system
	• Session 3: Communication Strategy For the Quality Policy - Indicate what steps need to be taken in order to communicate the Quality Policy effectively:
	   o post copies of the Quality Policy around the office
	   o orient staff to the Quality Policy at a staff meeting
	   o make sure that all proposals contain the Quality Policy
	   o distribute your Quality Policy to your GoO& Vendors
	   o distribute the Quality Policy through web dissemination

DURATION	One (1) day
VENUE – Institute, Location	In- house, Bhubaneswar
FACULTY	By invitation from Xavier Institute of Management, Bhubaneswar
SESSION METHODS	Working exercises, Interactive group discussions,
COST (Indicative approximation)	INR 3600 per head
Special requirements	

Training profiles-Project Preparation

TITLE	**Undertaking OD Survey**
TARGET GROUP	Select AE's and JE's
OBJECTIVE/S	After the training the participants will be able to
	1. Understand the need for conducting the survey
	2. Select the correct site locations for the survey
	3. Conduct the surveys
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	o Introduction to OD Survey
	o OD Survey - Its Type – Road Side Interview Method, License Plate Method, Return Post Card Method, Tag On Car Method, Home Interview Method, Work Spot Interview Method.
	o Methodology
	o Data Collection –Type of Vehicles, Passenger, Origin Point ,Destination Point
	o Storage of Data & its Analysis
	o Results & Report Generation
	o Field Demonstration and Exercise
DURATION	Three (3) Days
VENUE – Institute, Location	CRRI, New Delhi
TRAINING METHODS	Interactive presentations, Group Discussions, Field Demonstration and Exercise
COST (Indicative approximation)	INR 5000 per head per day
Special requirements	

Training profiles-Project Preparation

TITLE	**Undertaking Axle Load survey**
TARGET GROUP	Select AE's and JE's
OBJECTIVE/S	After the training the participants will be able to
	• Understand the need for conducting the survey
	• Select the correct site locations for the survey
	• Conduct the surveys
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• General Overview

	• Damage to pavements and bridges caused by loaded vehicles
	   o Load spreading to a pavement
	   o Magnitude and effect of load repetitions
	      ▪ Pavements
	      ▪ Bridges
	   o Contact pressure

	• Resources required for axle load surveys
	   o Staff composition and qualifications
	   o Equipment requirements

	• Condition of survey sites
	   o Stationary weigh bridges
	   o Site location for mobile weigh bridges

	• Traffic safety o Traffic warning

	• Axle weighing
	   o Factors affecting the vehicle weighing
	   o Distribution of vehicle load
	   o Measuring accuracy
	   o Duration of the survey
	   o Origin and Destination (O/D) survey
	   o Procedures for weighing
	   o Vehicle categories
	   o Axle configuration
	   o Surveying procedure
	      ▪ Stationary weigh bridges
	      ▪ Mobile weigh bridges

	• Computer analysis of axle weighing data
	   o Layout of the computer analysis program
	   o Data entering and use of spread sheet components
	   o Presentation of axle load data

	• Field Demonstration and Exercise
DURATION	Five (5) Days
VENUE – Institute, Location	CRRI, New Delhi
TRAINING METHODS	Interactive presentations, Group Discussions, Field Demonstration and Exercise
COST (Indicative approximation)	INR 5000 per head per day

Special requirements

Training profile- Project Preparation

TITLE	**Road inspection**
TARGET GROUP	Select AE's, All JE's
OBJECTIVE/S	• After the training the participants will be able to conduct comprehensive Road Inspection and prepare Inspection reports

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• General Overview
	• Road Network
	    o Carriageway
	    o Footway
	• Categories of Road Defects
	• Inspection Equipment
	• Safety Inspection (SI)
	    o Methods for Conducting SI
	    o Frequency of SI
	    o Defects to be Recorded
	    o Responses for Hazardous Defects
	• Detailed Inspections (DI)
	    o Carriageways
	    o Footways and Cycle Tracks
	    o Covers, Gratings, Frames and Boxes
	    o Highway Drainage
	    o Fences and Barriers
	    o Grassed Areas
	    o Road Studs
	    o Road Markings
	    o Road Traffic Signs
	• Preparation of Inspection report
	• Field visit

DURATION	Three (3) days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By invitation from ESCI
TRAINING METHODS	Interactive presentations, Group Discussions, Field Demonstration and Exercise
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Project Preparation

TITLE	**Bridge inspection**
TARGET GROUP	All AE's, JE's
OBJECTIVE/S	• After the training the participants will be able to conduct comprehensive Bridge Inspection and prepare Inspection reports

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE

- Inspection Requirements
  - Routine Maintenance Inspection
    - Frequency of Inspections
    - Extent of Inspections
    - Inspection Procedure
    - Preparation for Inspection
    - Inspection observations
    - Data Recording
  - Bridge Condition Inspection
    - Frequency of Inspections
    - Extent of Inspections
    - Inspection Procedure
    - Preparation for Inspection
    - Inspection observations
    - Data Recording
    - Data
    - Condition Rating
    - Compilation of the Component Inventory
    - Condition State Criteria
    - Component Condition Assessment
    - Measurement
    - Structure Condition Assessment
    - Exposure Classifications
    - Inventory Data
    - Measurement of Scour
  - Detailed Structural Engineering Inspection
    - Frequency
    - Extent of Inspection
    - Inspection Procedure
    - Data Recording in the Field
    - Reporting
    - Load Capacity
- Deterioration Mechanisms
  - Material Defects
  - Concrete
    - Corrosion of reinforcement
    - Carbonation
    - Alkali - Silica Reaction (ASR)
    - Cracking
    - Spalling
    - Surface Defects
    - Delamination
  - Steel
    - Corrosion
    - Permanent Deformations Cracking

- - Loose Connections
  - o Timber
    - Fungi
    - Termites
    - Marine Organisms
    - Corrosion of Fasteners
    - Shrinkage and Splitting
    - Fire
    - Weathering
  - o Masonry
    - Cracking
    - Splitting, Spalling and Disintegration
    - Loss of Mortar and Stones
    - Protective Coatings
- Common Causes of Older Bridge Deterioration
- Deck Joints
- Bearings
- Other Structure Types
  - o Box Culverts
  - o Pipe Culverts
- Causes of deterioration not related to bridge materials
  - o Damage due to Accidents
  - o Drainage
  - o Debris
  - o Vegetation
  - o Scouring of Foundations
  - o Movement of the Structure
  - o Condition of Approaches

DURATION	Three (3) days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By invitation from ESCI
TRAINING METHODS	Interactive presentations, Group Discussions, Field Demonstration and Exercise
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Project Preparation

TITLE	**Rehabilitation and strengthening of bridges and BMS**
TARGET GROUP	Select AE's, JE's
OBJECTIVE/S	• After the training the participants will be able to carry out rehabilitation and strengthening of bridges using Bridge Management System (BMS)

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Programming, and project planning
	• Basic components:
	   ○ data storage
	   ○ cost and deterioration models
	   ○ optimization and analysis models
	   ○ Updating functions
	• Collecting and managing data during inspection through the system's Inspection Module
	• Collection of inventory data
	• Inspection
	• Assessment of condition and strength
	• Repair
	• Strengthening or replacement of components
	• Prioritizing the allocation of funds
	• BMS to manage bridge information to formulate maintenance programs within cost limitations
	• Customized databases
	• Data import/export procedures
	• Demonstration and practice sessions

DURATION	Five (5) days
VENUE – Institute, Location	CRRI
TRAINING METHODS	Interactive presentations, Group Discussions, Field Demonstration and practice sessions
COST (Indicative approximation)	INR 5000 per head per day
Special requirements	Bridge Management System (BMS) equipment and software

Annexure D - Continued

Training profile- Project Preparation

TITLE	**Soil and Geotechnical investigations for Road Projects**
TARGET GROUP	All AE's and select EE's
OBJECTIVE/S	After the training the participants will be able to
	• Conduct field and laboratory tests
	• Collect and record correct data
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Soil and Geotechnical investigations- an overview
	• Soil sampling
	• Soil samplers
	• In-situ tests
	o Standard Penetration Test (SPT)
	▪ Dynamic Cone Penetrometer (DCP)
	▪ A Cone Penetration Test (CPT)
	▪ CPTu - Piezocone Penetrometer
	▪ Seismic Piezocone Penetrometer
	▪ Full Flow Penetrometers - T-bar, Ball, and Plate
	▪ Helical Probe Test (HPT)
	▪ Flat Plate Dilatometer Test (DMT)
	• Geophysical exploration
	o Crosshole method
	o Downhole method (with a seismic CPT or a substitute device)
	o Surface wave reflection or refraction
	o Suspension logging (P-S logging or Oyo logging)
	• Laboratory tests
	o Atterberg limits
	o Particle-size analysis
	o California bearing ratio
	o R-Value test
	o Direct shear test
	o Expansion Index test
	o Hydraulic conductivity tests
	o Oedometer test
	o Soil compaction tests
	o Soil suction tests
	o Triaxial shear tests
	o Unconfined compression test
	o Water content
	• Data recording and presentation
DURATION	Five (5) Days
VENUE – Institute, Location	National Institute of Technology, Rourkela
TRAINING METHODS	Interactive presentations, Field Demonstration and practice sessions
COST (Indicative approximation)	INR 3000 per head per day

Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	*INR 2500 per Head per day*

Training profile- Project Preparation

TITLE	**Landslide investigations – Soil, Geotechnical**
TARGET GROUP	All AE's and EE's
OBJECTIVE/S	After the training the participants will be able to
	• Understand the behaviour of landslide debris
	• Carry out Landslide risk assessment
	• Contribute to decision-making in risk management
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Landslide risk assessment and management: an overview
	• Basic framework for landslide risk assessment and management
	• Assessment of probability of land sliding
	• Runoutbehavior of landslide debris
	o Factors contributing to runoutbehavior of landslide debris
	■ Slope characteristics
	■ Mechanisms of failure and modes of debris movement
	■ Downhill path
	■ Residual strength behavior of sheared zones
	o Methods for predicting runout distance of landslide debris
	■ Empirical models
	■ Analytical methods
	■ Numerical methods
	• Assessment of vulnerability
	• Landslide risk assessment
	o Distributed landslide risk assessment
	o Site-specific landslide risk assessment
	o Global landslide risk assessment
	• Landslide risk management
	o Planning control
	o Engineering solution
	■ Correction of the underlying unstable slope
	■ Controlling of the landslide movement
	o Acceptance
	o Monitoring and warning systems
	o Decision-making
DURATION	Two (2) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations, Group Discussions, Case studies
COST (Indicative approximation)	INR 3000 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - Continued

Training profile- Project Preparation

TITLE	**Importance of Hydrology for sustainable roads**
TARGET GROUP	All AE's and select EE's
OBJECTIVE/S	After the training the participants will be able to
	• Understand the need for Hydrological Analysis
	• Comprehend the elements of hydrology data
	• Carry out hydrological surveys
	• Prepare and present hydrology data for design use
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Objectives of Hydrological Analysis
	• Peak Discharge
	• Flood Severity
	• Factors Affecting Runoff
	• Basin Characteristics
	o Size and Shape
	o Slope and Land Use
	o Soil and Geology
	o Storage
	o Elevation
	o Orientation
	• Channel and Floodplain Characteristics
	o Length and Slope
	o Cross Section
	o Hydraulic Roughness
	o Natural and Man-made Constrictions
	o Channel Modifications
	o Aggradation – Degradation
	o Debris
	• Meteorological Characteristics
	o Rainfall
	o Evapo-transpiration
	o Tides and Waves
	• Hydrological Data - Field Investigations and data presentation
	o Flood Magnitude
	o Measurements
	o Flood Probability And Frequency
	• Estimating Design Discharge
	o Empirical, Statistical and Hydrograph Methods
	o Transfer of Data
DURATION	Three (3) days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By invitation from ESCI, Hyderabad
TRAINING METHODS	Interactive presentations, Group Discussions, Case studies, Exercises
COST (Indicative approximation)	INR 4500 per head per day

Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Project Preparation

TITLE	**Modern Techniques of Topographical Surveys**
TARGET GROUP	Select AE's and All JE's
OBJECTIVE/S	After the training the participants will be able to • Familiar with every component of the Total Station equipment • Take measurement with the equipment • Collect and present survey data

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Total Station
	   o Technology
	   o Advantages of Total Station Surveying
	   o Limitations
	• Equipment handling procedure
	   o Components Used in Total Station Surveying
	   o RTK Positioning
	• Measurements
	   o Coordinate measurement
	   o Angle measurement
	   o Distance measurement
	• Data processing, recording and data presentation
	• Exercise - Practice session (each participant to practice)

DURATION	Two (2) days
VENUE – Institute, Location	National Institute of Technology, Rourkela
TRAINING METHODS	Interactive presentations, Field Demonstration and practice sessions
COST (Indicative approximation)	INR 3000 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - Continued

Training profile- Project Preparation

TITLE	**Specifications for road and bridge works**
TARGET GROUP	Select AE's, EE's
OBJECTIVE/S	After the training the participants will be able to • Comprehend MORT&H Orange book and its application in road and bridge/culvert works • Recommend the appropriate testing required for different road components • Write specifications appropriate to site conditions

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Introduction to MORT&H Orange book
	• Elements of Standard Data Book (MORTH)
	• Overview of Testing of materials
	   o Embankment,
	   o Subgrade,
	   o Wet Mix Macadam,
	   o Water Bound Macadam
	   o Bituminous Courses
	   o Concrete
	• Preparation of Specifications – case studies
	• Example exercises

DURATION	Three (3) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	

Annexure D - *Continued*

Training profile- Project Preparation

TITLE	**Geometric design of roads - case studies**
TARGET GROUP	AE's & EE's – OWD Design Unit
OBJECTIVE/S	After the training the participants will be able to
	• Understand and develop the ability to use national and international standards for geometric design
	• Understand various elements involved in highway design
	• Develop geometric design with support
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Principles of highway engineering
	• National (IRC) and International Guidelines
	• Geometric Design visible dimensions
	o Requirements of traffic
	o Horizontal and vertical alignments
	o Sight distances
	o Cross-section components
	o Lateral and vertical clearances
	o Intersection treatment and Control of access
	• Highway design elements
	o Cross sectional elements
	o Width of pavement,
	o formation and land,
	o Surface characteristics and cross slope of pavement
	o Sight distance considerations
	o Horizontal curves and their types, vertical curves, Transition curves
	o intersections governing the safety of highways
	o Horizontal alignment details
	o Change in road direction,
	o Super-elevation,
	o Extra pavement width,
	• Design Controls and Criteria
	o Design speed
	o Topography
	o Traffic factors
	o Design hourly volume and capacity
	o Environmental and other factors
	• Important for economic operation and safety
	• Exercise - Practice session
DURATION	Three (3) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff

OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - Continued

Training profile- Project Preparation

TITLE	**Land acquisition, resettlement and rehabilitation process for roads**
TARGET GROUP	Select EE + All AE's and JE's
OBJECTIVE/S	After the Seminar the participants will be able to
	• Understand the statutes and clauses of LA act
	• Apply the guidelines in road projects
KEY CONCEPTS- INDICATIVE	• GoI & GOO Land acquisition, resettlement and rehabilitation policies
PROGRAMME OUTLINE	• Land Acquisition Act
	• Ownerships of land
	• Action necessary for acquisition depending on ownership of land
	○ Private land
	○ Government land
	○ Defence land
	• Accuracy of DPR from Land acquisition considerations
	• Importance of accurate valuation
	• Role of OWD officers in land Acquisition
	• Procedure and documentation
	• How to expedite the procedure
DURATION	One (1) day
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By invitation from IAHE
TRAINING METHODS	Interactive presentations, group discussions
COST (Indicative approximation)	INR 3000 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2,000 per Head per day

Training profile- Project Preparation

TITLE	**Design of Flexible and Rigid Pavements**
TARGET GROUP	AE's & EE's – OWD Design Unit
OBJECTIVE/S	After the training the participants will be able to • Understand and use national and international standards • Analyse the pavement data • Design a flexible pavement using empirical and mechanistic approach • Carry out mix design of bituminous layers • Design a rigid pavement

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Design criteria
	  o vertical compressive strain
	  o horizontal tensile strain or stress
	  o pavement deformation
	• Failure Criteria
	  o Fatigue Criteria
	  o Rutting Criteria
	• Design procedure
	  o Design traffic
	    ▪ Initial traffic in terms of CVPD
	    ▪ Traffic growth rate during the design life
	    ▪ Design life in number of years
	    ▪ Vehicle damage factor (VDF)
	    ▪ Distribution of commercial traffic over the carriage way
	• Pavement thickness design charts
	• Pavement composition
	  o Sub-base
	  o Base
	  o Bituminous surfacing
	• Case Study and practice design sessions (national/international practices)
	• Overview
	  o Modulus of sub-grade reaction
	  o Relative stiffness of slab to sub-grade
	  o Critical load positions
	Equivalent radius of resisting section
	Wheel load stresses
	• Temperature stresses
	  o Warping stress
	  o Frictional stresses
	Combination of stresses
	• Design of joints
	  o Expansion joints
	  o Contraction joints
	Dowel bars - Design procedure Steps
	Tie bars - Design procedure Steps
	Case Study and practice design sessions (national/international practices)

DURATION	Five (5) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Project Preparation

TITLE	**Design of Road Foundations**
TARGET GROUP	AE's & EE's – OWD Design Unit
OBJECTIVE/S	After the training the participants will be able to
	• Understand and use national and international standards
	• Analyse the data
	• Carry out embankment design and assess stability of slopes
	• Design various embankment protection works like stone pitching, turfing etc.
	• Prepare specifications for embankment and subgrade referring to the Orange book issued by MORT&H
	• Design road foundations
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• National (IRC) and International guidelines
	• Design of road embankment and subgrade
	• Stability of slopes
	• Embankment protection
	• Specification of materials
	• Case Study and practice design sessions (national/international practices)
DURATION	Two (2) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

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Training profile- Project Preparation

TITLE	**Design of Interchanges**
TARGET GROUP	AE's & EE's – OWD Design Unit
OBJECTIVE/S	After the training the participants will be able to • Comprehend the terminology • Take decision on the type of interchanges that suit a particular situation

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Terminology
	   o Complete and incomplete interchanges
	• Between two controlled- or limited-access highways (system interchange)
	   o Four-way interchanges
	      ▪ Cloverleaf interchange
	      ▪ Stack interchange
	      ▪ Clover stack interchange
	      ▪ Turbine interchange
	      ▪ Roundabout interchange
	      ▪ Other/hybrid interchanges
	   o Three-way interchanges
	      ▪ Trumpet interchange
	      ▪ Full Y interchange
	      ▪ Semi-directional T interchange
	      ▪ Other/hybrid interchanges
	   o Two-way interchanges
	• Between a controlled- or limited-access highway and a road without access control (service interchange)
	   o Diamond interchange
	   o Parclo interchange/folded diamond
	   o Diverging diamond interchange
	   o Single-point urban interchange
	   o Other/hybrid interchanges
	• Case Study and practice design sessions (national/international practices)

DURATION	Two (2) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Project Preparation

TITLE	**Bridge standards - design of bridge foundations, substructures, superstructures and how to design culverts**
TARGET GROUP	AE's & EE's – OWD Design Unit
OBJECTIVE/S	After the training the participants will be able to • Understand the principles of bridge design • enhance design productivity • design all types of culverts and bridges

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Overview
	  ○ Definitions
	  ○ Components of a bridge
	  ○ Classification
	  ○ Standard specifications
	• Standard Specifications for Road Bridges
	• Standards for Railway Bridges
	• Investigation for Bridges
	• General Design Considerations
	• Design of Culverts
	• Reinforced Concrete Bridges
	• Pre-stressing Concrete Bridges
	• Steel Bridges
	• Masonry and Composite Bridges
	• Temporary and Movable Bridges
	• Substructure
	• Foundations
	• Bearings, Joints and Appurtenances
	• Lessons from bridge failures

DURATION	Five (5) days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Project Preparation

TITLE	**Road drainage design**
TARGET GROUP	AE's & EE's – OWD Design Unit
OBJECTIVE/S	After the training the participants will be able to
	• Understand and use IRC and International guidelines for drainage design
	• Become familiar with the types of highway drainage used in various countries
	• Understand the factors behind the selection of drainage type
	• Design the storm water drains in urban and rural areas
KEY CONCEPTS	• National (IRC) and International guidelines
	• Types of highways drainage – open ditches, lined drains and pipe drains
	• Guidelines for selection of drains
	• Design of storm water drains – pipe and concrete in rural and urban areas
	• Case Study and practice design sessions (national/international practices)
DURATION	One (1) Day
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4,500 per Head per day
ToT	INR 2,500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2,500 per Head per day

Training profile- Project Preparation

TITLE	**Soil reinforcement structures -design and construction**
TARGET GROUP	AE's & EE's – OWD Design Unit
OBJECTIVE/S	After the training the participants will be able to
	• Understand the reinforced soil concepts
	• Carry out the design
	• Plan construction monitoring programs
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Highway Construction and Soil Reinforcement
	• General Application of Reinforced Soil
	• Factor in selection of Soil Reinforcement System
	• Types of Reinforcement systems - Types of Multi-anchored systems
	• Reinforced Soil Concept
	• Design Practice and Construction Considerations
	• Current Design Approach
	• Soil and site exploration
	• Facing system
	• Reinforcing system
	o Geometric characteristics
	o Strength Properties
	• Durability of reinforcement systems
	o Metallic Reinforcement
	o Durability of Polymeric Reinforcement
	• Reinforced fill materials
	• In-situ soils suitable for soil nailing
	• Soil reinforcement interaction
	• Design steps
	• External stability
	o Sliding Along the Base
	o Overturning
	o Bearing Capacity Failure
	o Overall Stability
	o Seismic Loading
	o Settlement Estimate
	• Internal local stability
	o Calculation of Maximum Tensile force in the Reinforcement Layers
	o Internal stability with respect to breakage
	o Internal Stability in Respect to Pullout Failure
	o Strength and Spacing Variations
	o Internal Stability Respect to Seismic loading
	• Internal wall displacement evaluation
	• Construction and filed observation
	• Requirement for field observation
	• Construction of reinforced fill system with precast facing elements
	• Anchored soil systems

- Construction of reinforced fill wall and slope wall system with flexible facings
- In-situ reinforcement by soil nailing
  - Equipment Required and Construction Methods
  - Facing
  - Drainage
  - Precautions and observations Required for In-Situ Soil Reinforcement
- Monitoring of reinforced soil structures
- Planning monitoring programs
- Executing monitoring programs
- Case Study, Field visit and practice design sessions (national/international practices)

DURATION	Three (3) Days
VENUE – Institute, Location	CRRI, New Delhi
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 5000 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Project Preparation

TITLE	**Preparation of a Traffic Management Plan**
TARGET GROUP	Select AE's, EE's
OBJECTIVE/S	After the training the participants will be able to
	• Comprehend the national (IRC & UTIPEC) and international guidelines
	• Understand the use and principles of traffic signs and design the same using IRC 67: 2012
	• Understand the use and principles of road markings and design the same using IRC 37
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Traffic management at construction zones
	• Safety at constriction zones
	• Traffic management measures at accident sites
	• Traffic management planning in urban areas, rural areas and intercity sections
	• Select and design urban street furniture such as bollards, guard rails and crash barriers
	• Design the bus stops and bus bays for urban and rural conditions
DURATION	Three (3) Days
VENUE – Institute, Location	CRRI, New Delhi
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 5000 per Head per day
Special requirements	

Training profile- Project Preparation

TITLE	**Concepts of Traffic Engineering Design**
TARGET GROUP	Select EE's, AE's
OBJECTIVE/S	After the training the participants will be able to

- Comprehend the national and international guidelines
- Conduct appropriate surveys and analysis for - junction designs, parking in rural and urban areas,
- Prepare junction designs, parking in rural and urban areas, design of Vulnerable Road User (VRU) facilities

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE

- Junction Design
  - National and International Guidelines
  - Type of Junctions
  - Surveys at junctions – Turning movement count surveys, pedestrian count surveys
  - Data Analysis
  - Selection of Junction Type
  - Design of priority junctions, signalized junctions, roundabouts and grade separators
  - Design of traffic signs and road markings
  - Type and design of pedestrian crossings
- Parking in rural and urban areas
  - Parking Surveys – Data collection and Analysis
  - Design of parking spaces – Open Spaces in rural areas and parking structures in urban areas
  - Design of street parking in cities and towns
  - Safety at parking spaces
- Design of Vulnerable Road User Facilities
  - National and International Guidelines
  - Design of Cycle Lanes
  - Design of Footpaths, Footways and Shared facilities
  - Pedestrian crossings – Type and design
- Public Transport
  - National and International guidelines
  - Bus Priority/Bus lane/Bus Rapid Transit System Overview
  - Design of bus stops and Bus bays
  - Safety at bus bays and bus stops

DURATION	Three (3) Days
VENUE – Institute, Location	CRRI, New Delhi
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 5000 per Head per day
Special requirements	

Annexure D - *Continued*

Training profile- Project Preparation

TITLE	**Design of Green Buildings for Hospitals and Schools**
TARGET GROUP	All AE's, EE's – OWD Design Unit, C Arch, Dy. Arch
OBJECTIVE/S	After the training the participants will be able to • Understand the concept of building orientation for hospitals and schools and lay out using natural daylight and ventilation • Understand the green building rating system based on LEEDS system, star rating by TERI-GRIHA system and its significance • Comprehend and develop specification for use of green building materials

KEY CONCEPTS- INDICATIVE	• What is a Green Building
	   o Green Building Principles
	   o Concept of green building while architectural planning
	   o Factors accrediting a Green Hospitals or Schools Building

PROGRAMME OUTLINE	• Standards, Regulations and Incentives
	   o Concept of carbon credit
	• Efficient Air, Light, Water Management for Green Hospitals or Schools Building
	• Sustainable Sites
	• On-Site Renewable Energy
	• Green Building Rating Systems
	   o What is LEED rating system & what is 'TERI GRIHA' rating system
	   o ECBC for Energy conservation
	• Applications for Energy Conservation
	   o Energy Audit of existing buildings
	• Green building material

DURATION	Two (2) days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By invitation from ESCI, Hyderabad
METHOD/S	Interactive presentations, Group discussions, Case studies
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	

Annexure D - Continued

Training profile- Project Preparation

TITLE	**High Rise Buildings - Planning, Construction & Maintenance**
TARGET GROUP	Select EE's, AE's
OBJECTIVE/S	After the training the participants will be able to
	• Comprehend the technology involved and the statutory considerations
	• Contribute effectively to planning of High Rise Buildings
	• Monitor the execution of high-rise construction during all phases
KEY CONCEPTS- INDICATIVE	• Overview
	o High-rise buildings - technology and the environment
	o Architectural aspects and urban development today
PROGRAMME OUTLINE	• Planning considerations
	o Infrastructural aspects
	o Economic aspects
	o Social and ecological aspects
	o Statutory Obligation
	▪ Legislative Framework
	▪ Policy Framework (national, local, regional)
	▪ Consents and Permits
	o Contractual Obligation
	▪ Development control
	▪ Payment (including legislative requirements)
	o Site Characteristics
	▪ Strategic planning/zoning
	• Technology of high-rise construction
	o Planning
	▪ Planners
	▪ Regulations and directives
	▪ Site Layout
	▪ Technical analyses and special questions
	▪ Construction licensing procedure
	o Execution
	▪ Foundations
	▪ Supporting structure
	▪ Load-bearing parts
	▪ Special construction methods
	▪ Facade
	▪ Roof
	▪ Interior finishing
	▪ Service systems
	▪ Installations Deliveries,
	▪ Vehicles
	▪ Passenger transport, vertical development
	▪ Waste disposal
	o Occupancy
	▪ Maintenance,
	▪ Administration
	▪ Organizational measures
	o Risk potential

- ▪ Structural fire protection
- ▪ Fire fighting
- • Case studies and site visit

DURATION	Three (3) days
VENUE – Institute, Location	NICMAR, Pune
METHOD/S	Interactive presentations, Group discussions, Case studies, Field visit
COST (Indicative approximation)	INR 7000 per head per day
Special requirements	

Training profile- Project Preparation

TITLE	**Understanding National Building Code of India 2005**
TARGET GROUP	Select EE's, AE's
OBJECTIVE/S	After the training the participants will be able to
	• Comprehend the various elements of National Building Code of India 2005
	• Apply the code in day to day work
KEY CONCEPTS-	• Definitions
	• Development control rules and general building requirements
	• Fire and life safety
	• Building materials
	• Structural design
	o Loads, Forces and Effects
	o Soils and Foundations
	o Masonry
	o Concrete: Plain, Reinforced Concrete, Pre-stressed Concrete
	o Steel
	o Prefabrication, Systems Building and Mixed/Composite Construction: Prefabricated Concrete
	o Systems Building and Mixed/Composite Construction
	• Constructional practices and safety
	• Building services
	o Lighting and Ventilation
	o Electrical and Allied Installations
	o Air Conditioning, Heating and Mechanical Ventilation
	o Acoustics, Sound Insulation and Noise Control
	o Installation of Lifts and Escalators
	• Plumbing services
	o Water Supply, Drainage and Sanitation, Including Solid Waste Management
	o Gas Supply
	• Landscaping
	o Landscape Planning and Design
	o Signs and Outdoor Display Structures
DURATION	Three (3) Days
VENUE – Institute, Location	CPWD Training Institute, Ghaziabad
TRAINING METHODS	Interactive presentations, Case studies, Examples
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	

Annexure D - Continued

Training profile- Project Preparation

TITLE	**Understanding Features of Road/Highway legislation**
TARGET GROUP	Select EE's, AE's
OBJECTIVE/S	After the training the participants will be able to • Comprehend the various Road/Highway legislative instruments • Apply the same in day to day work
KEY CONCEPTS-	• NH Act, • NHAI Act, • Control of National Highways (Land & Traffic) Act, • CRF Act, • State Highways Act, • Motor Vehicles Act
DURATION	Two (2) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations, Case studies
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - *Continued*

Training profile- Project Preparation

TITLE	**Preparation of Detailed Project Report (DPR)**
TARGET GROUP	Select AE's, EE's
OBJECTIVE/S	After the training the participants will be able to • Understand the differences and structures of 'FR' and 'DPR' • Prepare a FR and DPR

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Problem/Opportunity Definition
	• Project Scope
	   o Purpose
	   o The Needs Analysis
	      ▪ Demonstrate that the project aligns with the institution's strategic objectives
	      ▪ Identify and analyse the available budget(s)
	      ▪ Demonstrate the institution's commitment and capacity
	      ▪ Specify the outputs
	      ▪ Define the scope of the project
	   o Project Due Diligence
	• Identification and Analysis of Options
	• Financial Assessment
	   o Economic Valuation
	• Procurement And Implementation Plan
	• Recommended Options for Further Analysis
	• Approvals/Signatures requirements
	• Review and revisiting FR & DPR drafts
	• Contents of DPR
	   o Sector Background Context & Broad Project Rationale
	   o Project Definition, Concept and Scope
	   o Project Cost
	   o Project Institution Framework (for construction)
	   o Project Financial Structuring
	   o Project Phasing
	   o Project O&M planning
	   o Project Financial Viability & Sustainability
	   o Project Benefits Assessment (Social Cost-Benefit Assessment)
	• Case Study and practice sessions

DURATION	Three (3) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - *Continued*

Training profile - Environmental and Social Management

TITLE	**Understanding Social Impact Assessment (SIA)**
TARGET GROUP	Select EE's, AE's, EE's
OBJECTIVE/S	After the training the participants will be able to • Understand the basic principles of SIA • Appreciate various social issues • Monitor social impact assessment process • Execute issue resolving options

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Overview – Social Impact Assessment Principles
	• Project Awareness in affected area – social issues
	• Importance of various social issues
	• Issues resolving options
	• Issues and counter measures
	• Social screening and scoping purpose
	• Key elements of SIA process
	   o Human environment/area of influence and baseline conditions
	   o Effective public plan to involve all potentially affected public
	   o Proposed action or policy change and reasonable alternatives
	   o Scoping to identify the full range of probable social impacts
	   o Screening to determine the boundaries of the SIA
	   o Predicting Responses to Impacts
	   o Develop Monitoring Plan & Mitigation Measures
	• Outsourcing for SIA
	• Audit for social safeguards
	• Case studies

DURATION	Two (2) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and case studies
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile - Environmental and Social Management

TITLE	**Understanding Environmental Impact Assessment (EIA)**
TARGET GROUP	Select AE's, EE's
OBJECTIVE/S	After the training the participants will be able to
	• Understand the basic principles of EIA
	• Supervise the EIA process
	• Facilitate EIA clearances

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE

- Overview – guiding principles
  - Factors causing environmental impact
  - Environmental regulation (national, state, local)
  - Clearances required
- Agencies involved
- Conducting Environmental Impact Assessment – EIA Process
  - Project screening
  - Scoping
  - Baseline data collection
  - Identification of environmental impacts
  - Impact prediction comparison of alternatives and determination of significance
  - Mitigation measures
  - Public consultation and participation
  - Environmental monitoring
  - Environmental auditing
- Case studies

DURATION	Two (2) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and case studies
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Environmental and Social Management

TITLE	**How to prepare a 'Resettlement and Rehabilitation Plan'**
TARGET GROUP	Select AE's, EE's
OBJECTIVE/S	After the training the participants will be able to
	• Understand the basic principles of R & R process
	• Facilitate R & R plan implementation
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Overview – guiding principles
	• Scope of Land Acquisition and Resettlement
	• Measures to Minimize Land Acquisition and losses
	• Socio-Economic Features of the Project-Affected Persons
	• Resettlement Policy and Entitlements
	• Resettlement Site selection
	• Income Restoration
	• Institutional Arrangements
	• Implementation Schedule
	• Affected Persons Participation and Consultation
	• Monitoring and Supervision
	• Grievance Redress Mechanism
	• Cost Estimate
	• Case Study
DURATION	Three (3) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

***Annexure D** - Continued*

Training profile- Environmental and Social Management

TITLE	**How to prepare an 'Environment management plan' (EMP)**
TARGET GROUP	Select AE's, EE's
OBJECTIVES	After the training the participants will be able to • Understand the basic principles and prepare an EMP Plan • Facilitate EMP implementation
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Awareness of preparation of mitigation plan • Project specific needs • Approval of EMP • Authorities controlling the EMP • Environment Impact Assessment • Management measures • safety management plans • specifics of EMP implementation • Case Study
DURATION	Two (2) Days
VENUE – Institute, Location	IAHE, NOIDA
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 4500 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - *Continued*

Training profile- Procurement Management

TITLE	**Basics of EPC Contract Models**
TARGET GROUP	Select SE's, EE's
OBJECTIVES	• After the training the participants will be able to make decision on using EPC contract model for specific projects

KEY CONCEPTS- INDICATIVE
PROGRAMME OUTLINE

- Reasons for EPC contract
- Functions
  - Engineering Functions
    - Initiation
    - Planning
    - Estimating – Request for Quote
    - Design
  - Procurement Functions
    - Purchasing
    - Expediting
    - Receiving
    - Invoicing
  - Construction Functions
    - Construction Schedule
    - On-site Material Handling
    - Building Activities
    - On-site Client Communications
    - Closing
- Owner and contractor liabilities
  - Owner's perspective
    - Guarantees
    - Scope and Quality definition
    - Milestones definition
    - LD/penalty clauses definition
    - Specific payment terms
  - Contractor's perspective
    - Terms and conditions as owner regarding quality, guarantee etc., for subcontracts/vendors
    - No open-ended terms
    - Coordination & site vigilance
- Global context of EPC management
  - Local market conditions for materials and labour availability and capabilities
  - Local code, statutory etc., requirements
  - Availability of local supervisory personnel
  - Availability of local engineering services
  - Local and global subcontractor experience and performance
- Cost certainty
- Owner's responsibilities
- Case Study

DURATION	Two (2) Days

VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By invitation from NATPAC
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 5000 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Procurement Management

TITLE	**Good Procurement Practices – e-procurement procedure model**
TARGET GROUP	Select SE's, EE's
OBJECTIVES	• After the training the participants will be able to follow GoO e-procurement procedure
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Bidder – Registration and Submission of online bids • Creation and Publishing of tender enquiries on CPP Portal • Creation of Nodal Officer and User Accounts plus Creation of Bill of Quantity (BoQ) • Opening and Evaluation of Technical Bids and Financial Bids • Download and mapping of Digital Signature Certificates (DSCs) • Demonstration and practice session • Case Study
DURATION	Two (2) Days
VENUE – Institute, Location	NICMAR
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 7000 per head per day
Special requirements	Equal number of computers as participants with network connectivity

Annexure D - *Continued*

Training profile- Project Management

TITLE	**How to monitor and report physical & financial progress of work**
TARGET GROUP	Select SE's, EE's
OBJECTIVE/S	After the training the participants will be able to • Understand the need for progress monitoring and reporting • Monitor and report physical & financial progress of work in the prescribed form

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Overview – principles
	• Choice of Key Performance Indicators
	  o Traditional Physical Progress Measurement Limits
	  o Effort-Based KPIs
	  o Comparison
	• Overall Physical Progress Index
	  o Weight Matrix
	  o Overall Physical Progress Equation
	  o 'S Curve' of the Overall Physical Progress
	• Baseline to Measure Against
	  o Planned Baseline
	  o Ideal Baseline
	  o Comparison
	• Visual Management
	• Document Management System to view
	  o Construction equipment details, Meeting/Site visit reports
	  o Contract & Correspondence documents, Quality Reports, etc.
	• Executive summary of progress details (including latest, location map, Linear & Numerical progress details)
	• Following type of information from site office
	  o Contractor Schedule
	  o Work Progress
	  o Financial Progress , Bill information
	  o Quality Maintenance details
	• Customised reports
	  o Physical Progress Report – Quantity wise
	  o Physical Progress Bar Chart
	  o Financial Progress Report , Bill payment status report
	  o 'S-curve report'
	• Case Study
	• Practical working exercises

DURATION	Five (5) Days
VENUE – Institute, Location	In- house, Bhubaneswar
FACULTY	By invitation from Xavier Institute of Management, Bhubaneswar Or Project Management Institute, NOIDA
METHOD/S	Interactive group discussions, Group Discussions, Working exercises
COST (Indicative approximation)	INR 4500 per head
Special requirements	1st course for 'OWD Trainers', to be followed by series of training by In-House trainers for all AE's
OWD Trainer Run Course	INR 2500 per Head per day

Training profiles-Construction Supervision

TITLE	**Understanding Requirements of Construction Supervision (Project Implementation)**
TARGET GROUP	Select SE's, EE's
OBJECTIVE/S	After the training the participants will be able to • Prepare a checklist/Do-list to follow when supervising projects • Implement best practices of construction supervision • Execute timely closure to the projects supervised
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Overview of contract documents • Roles of Employer, Engineer and Contractor, Contract Administration • Encumbrances at site, social and environment concerns • Specifications and standards • Quality control, testing procedures, recording of results • Quantity measurements and checks, recording of measurement • Variation Orders, fixing of rates • Liquidated Damages, Updating of Program, Extension of time • Determination of Contract • Dispute Resolution Mechanisms • Processing of IPCs and Final Payments • Supervision during Defect Liability Period • Case Study
DURATION	Three (3) days
VENUE – Institute, Location	In-House, Bhubaneswar
FACULTY	By invitation from ESCI
METHOD/S	Interactive presentations
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	

Training profile- Construction supervision

TITLE	**Non Destructive testing methods, equipment and applications**
TARGET GROUP	Select EE's, AE's – OWD QC Unit
OBJECTIVE/S	After the training the participants will be able to
	• Learn about the NDT technologies available
	• Use various equipment to collect data
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Concrete Elements
	o Acoustic wave measurement
	o Delamination detection (chain drag, sounding)
	o Ground penetrating radar
	o Impact echo testing
	o Infrared thermography
	o Pachometer
	o Rebound and penetration methods
	• Steel Elements (most apply to other metals also)
	o Dye penetrants
	o Ultrasonic testing
	o Radiographic testing
	o Magnetic particle testing
	o Acoustic emissions testing
	o Strain Gaging
	• Field Demonstrations
	• Practical working exercises
DURATION	Three (3) days
VENUE – Institute, Location	CRRI, New Delhi
METHOD/S	Interactive presentations, Field Demonstrations Practical working exercises
COST (Indicative approximation)	INR 5000 per head per day
Special requirements	

Training profile- Construction supervision

TITLE	**Quality Control Tests in Field and Laboratories**
TARGET GROUP	Select EE's, AE's – OWD QC Unit
OBJECTIVE/S	After the training the participants will be able to
	• Understand the need for conducting the various field and lab test
	• Carry out each test and present results in the prescribed format
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• For Road projects
	○ Field test
	▪ GSB gradation test;
	▪ GSB Compaction (Sand replacement) test;
	▪ aggregate crushing value, impact value;
	▪ Binder quality;
	▪ bitumen content
	○ Lab test
	▪ Sand content in soil;
	▪ liquid limit;
	▪ plastic limit;
	▪ CBR Index
	• For Building projects
	○ Field test
	▪ Slump test;
	▪ concrete mix density;
	▪ water cement ratio
	○ Lab test
	▪ aggregate crushing value, impact value;
	▪ water quality;
	▪ Steel Tensile test;
	▪ Concrete cube test (7 & 28 days)
	• Field Demonstrations
	• Practical working exercises
DURATION	Five (5) days
VENUE – Institute, Location	IAHE, New Delhi
METHOD/S	Interactive presentations, Field Demonstrations Practical working exercises
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series of training by In-House trainers for all AE's, JE's
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Contract Management

TITLE	**Understanding Risk Management**
TARGET GROUP	Select SE's, EE's
OBJECTIVE/S	After the training the participants will be able to • Understand the concepts • Apply risk management principles to current/future projects
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Introduction to Risk: Definition and characteristics of "risk" • Elements and factors of risk – Event (future occurrence); Probability (uncertainty), Impact (amount at stake) • Types of risk • Components of risk management – Identification, Quantification • Response development; Response control • Risk Management Planning and Identifying Risks • Idea generation tools and techniques • Analysis Fundamentals – Probability and impact • Presenting risk – Descriptive, Qualitative, Quantitative • Probability analysis • Analyzing and Prioritizing Risk; Determining risk tolerances; Analyzing risks, Impact analysis • Risk-based financial tools and techniques: Expected-value analysis, Decision trees, Prioritizing risks • Risk Response Planning: Risk response strategies for opportunities and threats, Risk acceptance, Risk avoidance, Risk mitigation, Probability minimization, Impact minimization, Transference • Establishing reserves • Execution, Evaluation and Update • Risk Response monitoring and control • Execute risk strategies • Contingency plans and workarounds • Risk evaluation; Reassessing risk • Risk documentation • Case studies
DURATION	Five (5) Days
VENUE – Institute, Location	In- house, Bhubaneswar
FACULTY	By invitation from Xavier Institute of Management, Bhubaneswar Project Management Institute, NOIDA
METHOD/S	Interactive group discussions, Group Discussions, Working exercises
COST (Indicative approximation)	INR 4500 per head

Training profile-Quality Management

TITLE	**Quality Assurance Systems and TQM for Highway/Building Projects**
TARGET GROUP	Select SE's, EE's
OBJECTIVE/S	After the training the participants will be able to • Explain the meaning of total quality management (TQM) • Identify costs of quality • Apply tools for identifying and solving quality problems

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Overview
	• Elements of total quality management (TQM)
	  o Customer-focused
	  o Total employee involvement
	  o Process-centered
	  o Integrated system
	  o Continual improvement
	  o Fact-based decision making
	  o Communications
	• TQM practices
	  o cross-functional outcome
	  o process management
	  o supplier quality management
	  o customer involvement
	  o information and feedback
	  o committed leadership
	  o strategic planning
	  o cross-functional training
	  o employee involvement
	• How to implement Quality Assurance
	  o Quality management plan
	  o Quality metrics
	  o Process improvement plan
	  o Work performance information
	  o Approved change requests
	  o Quality control measurements
	  o Quality Assurance Outputs
	    ▪ Requested changes
	    ▪ Recommended corrective actions
	    ▪ Project management plan updates
	• Quality Control Methods
	  o Statistical Quality Control with sampling by attributes
	  o Statistical Quality Control with sampling by variables
	  o The seven tools:
	    ▪ Cause-and-effect diagram (also known as the "fishbone" or Ishikawa diagram)
	    ▪ Check sheet
	    ▪ Control chart
	    ▪ Histogram
	    ▪ Pareto chart
	    ▪ Scatter diagram
	    ▪ Stratification (alternately, flow chart or run chart)

- o   Exercise to apply each of the above
- Quality Audit
  - o   Why Audit?
  - o   What is an Audit?
  - o   Types of Audit
  - o   Internal and External Audits
    - ▪ The purpose of an Internal Audit System
    - ▪ The structure of an Internal Audit System
  - o   The basic approaches to Auditing
  - o   Organizing Audits: Management
  - o   Auditors
  - o   Exercise in Auditing

DURATION	Five (5) days
VENUE – Institute, Location	IAHE, New Delhi
METHOD/S	Interactive presentations, Practical working exercises
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series of training by In-House trainers for all EE's
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Quality Management

TITLE	**Managing Project Quality**
TARGET GROUP	Select SE's, EE's
OBJECTIVE/S	After the training the participants will be able to • Understand the concepts of project quality • Apply project quality management principles
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• What is quality? Quality and the triple constraint. What is project quality management? • The evolution of quality; How it fits into the project life cycle; The evolution of quality Systems thinking • The cost of quality; Formal quality systems • Planning Project Quality; What is quality planning (QP)? • QP inputs and tools & techniques • Importance of identification, Prioritization • Project quality requirements, Identifying requirements, Sources of requirements, Common characteristics of quality requirements, Prioritizing project quality requirements • Project quality standards, SMART quality standards, Benchmarking, Quality function deployment (QFD), QP outputs • Assuring Project Quality; What is quality assurance (QA)? • QA inputs and tools & techniques, Developing QA activities, Investigating QA capabilities, Gap analysis, Flowchart, SWOT analysis, Process improvement • QA activities and the project quality management plan • Quality audits; Quality path vs. critical path; QA and change control; QA outputs • Controlling Project Quality; What is quality control (QC)?Major questions of QP, QA and QC • QC inputs and tools & techniques; The voice of the customer and the voice of the process; "Good enough" approach; Taguchi's loss function; Quantum innovation vs. continuous improvement, Plan-do-check-act (PDCA) cycle • QC activities and the project quality management plan • QC outputs • Putting Project Quality to Work
DURATION	Five (5) Days
VENUE – Institute, Location	In- house, Bhubaneswar
FACULTY	By invitation from Xavier Institute of Management, Bhubaneswar Or Project Management Institute, NOIDA
METHOD/S	Interactive group discussions, Group Discussions, Working exercises
COST (Indicative approximation)	INR 4500 per head

Special requirements	1ˢᵗ course for 'OWD Trainers', to be followed by series of training by In-House trainers for all AE's
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - Continued

Training Profiles-Safety Management

TITLE	**Planning Road Safety Norms, Designing for road safety and elements of road safety audit**
TARGET GROUP	Select AE's, EE's, JE's
OBJECTIVE/S	After the training the participants will be able to
	• Appreciate the social and economic costs involved in road accidents
	• Appreciate and use the national (IRC) and international guidelines used for road safety improvement designs
	• Carry out road safety audit at various stages of a project
	• Collect and analyse accident data and determine the root cause of accidents
	• Design traffic signs, pedestrian crossings and road markings in rural and urban highways
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Road Safety Engineering
	• Social and Economic aspects of road accidents
	• Safe Road System (SRS)
	• Plan- Do- Check-Act approach to SRS
	• Accident Data Collection & Analysis
	• Operating a crash database management system
	• Safe road design
	• Design of traffic signs Pedestrian crossings and road markings
	• Role of different stake holders in road safety
	• Coordination among various department for road safety during construction and operation
	• Road Safety Audit at various stages of a project – Planning, Design, Pre-opening and Operational
	• Road safety assessment
	• Action to be taken after road safety assessment
	• Pedestrian Safety
	• Accident Prevention and Investigation
	• Blackspot studies
DURATION	Two (2) Days
VENUE – Institute, Location	CRRI, New Delhi
TRAINING METHODS	Interactive presentations and practice sessions
COST (Indicative approximation)	INR 5000 per Head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for all JE's

Annexure D - Continued

Training Profiles-Financial Management & System Implementation

TITLE	**Understanding Banking Instruments for Contract Management**
TARGET GROUP	Select AE's, EE's
OBJECTIVE/S	After the training the participants will be able to • Conversant with different commercial practices and options • Efficiently use banking facilities
KEY CONCEPTS-	• Commercial banking practices and procedures • How to open an LC • How to prepare BG's • Procedure for encashing a BG
DURATION	One (1) Days
VENUE – Institute, Location	Gopabandhu Academy of Administration, Bhubaneswar
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 2500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - *Continued*

Training profile- Financial Management & System implementation

TITLE	**Understanding Statutory Requirements of Direct Taxation: IT Act, Service Tax for Contract Management**
TARGET GROUP	Select EE's, AE's
OBJECTIVE/S	After the training the participants will be able to • Conversant with different commercial practices and options • Efficiently use banking facilities • Facilitate compliance with tax rules
KEY CONCEPTS-	• Commercial banking practices and procedures • How to open an LC • How to prepare BG's • Procedure for encashing a BG • Provisions relating to TDS under IT ACT and provisions of Service tax law
DURATION	Two (2) Days
VENUE – Institute, Location	Gopabandhu Academy of Administration
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 2500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - Continued

Training profile- Financial Management & System implementation

TITLE	**Understanding Financial MIS – IOTMS and WAMIS**
TARGET GROUP	Select EE's, AE's
OBJECTIVE/S	After the training the participants will be able to
	• Enter data
	• Generate reports
	• Analyze results
KEY CONCEPTS-	• How to enter data in IOTMS and WAMIS
	• Analysis of data entered in IOTMS and WAMIS
	• How to generate reports from IOTMS and WAMIS
	• Practice exercise
DURATION	Two (2) Days
VENUE – Institute, Location	Gopabandhu Academy of Administration
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 2500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Financial Management & System implementation

TITLE	**Financial Accounting & Management in OWD**
TARGET GROUP	Select EE's, and AE's
OBJECTIVE/S	After the training the participants will be able to
	• understand succinctly financial accounting concepts
	• comprehend different principles of financial accounting
	• Understand Generally Accepted Accounting Principles (GAAP)
	• Develop skills in analysing and interpreting financial and accounting information
	• Identify limitations of Financial Accounting
KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Introduction
	○ Role of Financial Accounting
	○ Principles of Financial Accounting
	○ Importance of Financial Accounting
	○ Benefits of Financial Accounting
	○ Limitations of Financial Accounting
	• Accounting Principles
	○ Accounting Concepts and Conventions
	○ Accounting Standards in India and International Accounting Standards
	• Information for decision making both financial and non-financial
	• Understanding and analysing the balance sheet, income statement and cash flow statement
	• Planning, budgeting and cash flow forecasting
	• Cash flow and working capital management
	• Understanding and managing costs
	• Break-even and contribution analysis
	• Driving and monitoring divisional performance
	• Preparing and evaluating capital project appraisals
	• How to drive and monitor performance and create value
	• Case studies
	• Practice exercise
DURATION	Two (2) Days
VENUE – Institute, Location	Gopabandhu Academy of Administration
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 2500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Financial Management & System implementation

TITLE	**Financial Audit and responses**
TARGET GROUP	EE's, and AE's
OBJECTIVE/S	After the training the participants will be able to • comprehend different principles of financial auditing • comply with the prescribed procedure • prepare responses

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Principles of financial audit
	
	• Process of audit
	• GoO procedure of audit
	• Understanding audit reports
	• Analyzing contents
	   o Financial section of audit report
	   o Technical section of audit report
	• Response preparation
	• Case studies
	• Practice exercise

DURATION	Two (2) Days
VENUE – Institute, Location	Gopabandhu Academy of Administration
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 2500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - *Continued*

Training profile- Maintenance

TITLE	**Modern Techniques in Structural Conservation of heritage Buildings**
TARGET GROUP	Select EE's, and AE's
OBJECTIVE/S	After the training the participants will be able to • Identify conservation problems • Carry out rehabilitation process • Carry out maintenance management in a planned manner

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Definition
	 • Common architectural conservation/preservation problems
	 • Current treatments
	     o Preservation
	     o Rehabilitation
	     o Restoration
	     o Reconstruction
	 • Conservation process
	     o Assessment
	     o Treatment
	     o Case example
	 • Public awareness and outreach to promote architectural conservation
	 • Field visit

DURATION	Three (3) Days
VENUE – Institute, Location	CPWD, Gaziabad
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- Maintenance

TITLE	**Water Proofing Treatment in Buildings**
TARGET GROUP	Select EE's, all AE's and JE's
OBJECTIVE/S	After the training the participants will be able to
	• Diagnose and Identify problem areas
	• Carry out rehabilitation process
	• Carry out maintenance management of buildings in a planned manner
KEY CONCEPTS- INDICATIVE	• Leakage & dampness in buildings– Precautions during construction of building
PROGRAMME OUTLINE	• Leakage/dampness in old building – diagnosis
	o Visual Effects
	o Occurrence, Time
	• Types of terracing
	o Brick bat coba
	o Indian patent stones
	o Mud phuska with brick tiles
	o Lime concrete terracing
	o Bituminous surface treatment
	o Water proofing with bitumen felt
	o Standard application methodology: bitumen based system
	o Water proofing admixtures : cement based
	• Recent developments
	o Polymer modified bitumen coatings
	o Polymer Modified bitumen felts
	o Prefabricated elastic membrane
	o Polymer Emulsions/membranes water based coatings based on PVA, SBR etc.
	o Alkali proof synthetic felt
	o Silicon based emulsions
	o Epoxy based coatings
	o Polyurethane compounds
	o Cementitious Polymer Waterproofing compound
	• Concrete water proofing by crystallization
DURATION	Three (3) Days
VENUE – Institute, Location	CPWD Training Institute, Ghaziabad
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile-**Miscellaneous Tasks**

TITLE	**Disaster Management in Highway Sector and retrofitting**
TARGET GROUP	Select AE's, and JE's
OBJECTIVE/S	After the training the participants will be able to • Understand the variety of disaster situations where OWD involvement is needed • Prepare a disaster management plan

KEY CONCEPTS- INDICATIVE PROGRAMME OUTLINE	• Importance of protecting critical infrastructure
	• Relevant authorities and roles for protection efforts
	• Disaster Management – Applications for public works
	• Organizational principles and elements
	• Position and responsibilities
	• Facilities and functions
	• Planning
	   o Risk management framework.
	   o Information sharing process
	• Case studies

DURATION	Two (2) Days
VENUE – Institute, Location	In – Bhubaneswar
FACULTY	By invitation from National Disaster Management Institute, New Delhi
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 3500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Training profile- **Miscellaneous Tasks**

TITLE	**How to set up an Effective Documentation filing System**
TARGET GROUP	Select JE's, Senior Section Officers
OBJECTIVE/S	After the training the participants will be able to • Understand the need for proper documentation • Implement an effective filing system in OWD
KEY CONCEPTS- INDICATIVE	• Overview o What are the records o Where should they be filed o Who uses the records o How often are they used o How are they used o How are the records referred to o What is the size of each record o How many of each record are filed o Who else has copies of the same record
PROGRAMME OUTLINE	• Best arrangement of the records • Type of media to be filed (paper, soft etc.) • Proper equipment for adequate storage and retrieval • Proper systems to complement the equipment • The required record retention schedule and facility • Basic Filing Procedure o Inspecting o Marking o Follow-up and Cross-reference o Sorting o Filing • Filing systems methods: o Alphabetical o Numeric o Geographical o Subject o Chronologic • Practice session
DURATION	Two (2) Days
VENUE – Institute, Location	Gopabandhu Academy of Administration
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 2500 per head per day
Special requirements	1st course for 'OWD Trainers', to be followed by series for other staff
OWD Trainer Run Course	INR 2500 per Head per day

Annexure D - Continued

Training profile- Miscellaneous Tasks

TITLE	**Preparing response to requests under Right to Information Act**
TARGET GROUP	Select SE's, EE's, AE's
OBJECTIVE/S	After the training the participants will be able to • Comprehend the objectives of RTI • Apply the statutes of RTI Act • Prepare responses to requests under RTI
KEY CONCEPTS-	• General Overview ○ RTI Act, 2005 and Explanation of Important Concepts/ Terms in the Act ○ Public Authorities and Their Obligations Under the Act ○ Role of Public Information Officers: APIOs and PIOs ○ Accepting a Request. Processing and Disposing it ○ Exemptions from Disclosure of Information, Partial Disclosure and "Third Party" Information ○ First Appeals and Appellate Officers ○ Information Commission: Powers and Functions ○ RTI and Good Governance: Role of Civil Society Organizations and Media ○ Records Management for Effective Implementation of Act ○ International Perspectives on Right to Information • Group Exercise – Cases ○ Request for Application Made to Police Commissioner ○ Information Pertaining to Commercial and Trade Secrets ○ Access to Information More Than 20 Years Old ○ Information Pertaining to Third Party ○ Public Interest and Privacy
DURATION	Three (3) Days
VENUE – Institute, Location	Gopabandhu Academy of Administration
TRAINING METHODS	Interactive presentations, Case studies, Example exercise
COST (Indicative approximation)	INR 2500 per head per day
Special requirements	
TRAINING METHODS	Interactive presentations, Demonstrations, Example exercise
COST (Indicative approximation)	INR 4500 per head per day
Special requirements	One computer should be available per participant

Annexure D - *Continued*

Training profiles-Human Resource Management

TITLE	**Executive Management Development Programme**
TARGET GROUP	All CE's, SE's
OBJECTIVE/S	After the training the participants will be able to • develop an action plan for specific issues in the workplace • find solutions to each management problem

KEY CONCEPTS-	• Management Development Programme will combine study of proven frameworks for best business management practices with experiential learning, in a supportive environment. Participants practice a range of effective management skills in live team exercises as well as in role play situations with actors and apply all they learn to their own work situation through reflection and discussion
	• The programme is to be built around a framework of People, Processes and Perspectives and would cover the following topics
	   o People
	      ▪ Define an effective manager: Knowledge, skills, attitudes and authenticity, leadership and interpersonal skills, effective communication
	      ▪ Self and others: Enhance awareness of self and of others' motivations; manage self's emotions; build productive relationships; influence peers, team members or bosses
	      ▪ Build a high performance team: Understand team roles and interaction; make effective team decisions; empower and motivate team members.
	   o Processes
	      ▪ Comprehend responsibilities: Organization structure and hierarchy, line and staff relationships with colleagues, self's specific roles and responsibilities, Recognize the importance of value of public services, team work.
	      ▪ Manage self: Personal effectiveness and Time management; delegation; running effective meetings; presentation skills; personal impact and practical problem-solving, managing stress, setting goals for personal improvement and evolving a plan to achieve them
	      ▪ Manage the performance of others: Diagnose problems and practice productive performance conversations; work with "difficult" people and conflict situations.
	      ▪ Measuring performance
	   o Perspectives
	      ▪ Strategy: Understand the big picture and self's role in it

- Cross functional dynamics: basic understanding of legal issues, financial management, purchase and contracts management, etc.
- Responsibilities as members of a "development" agency and the role that development agencies serve within the local economic development process
- Mock exercises and Role Plays

DURATION	Five (5) Days
VENUE – Institute, Location	Indian Institute of Management, Kolkata
	Or
	Xavier Institute of Management, Bhubaneswar
METHOD/S	Interactive group discussions, Group Discussions, Working exercises
COST (Indicative approximation)	INR 17500 per head per day (IIM – Cal)
	INR 13000 per head per day (XIMB– BBI)
Special requirements	

Annexure E

Training Institutions Profiles

Sl. No.	Institute/ Organization	About the institute/Organization	Contact details
1)	Indian Academy of Highway Engineers	Indian Academy of Highway Engineers (formerly NITHE) is the apex training institute set up to address the training needs of Highway and Bridge Engineers in the country. It was set up as an Institute in the year 1983 with the primary objective to fulfil the need for training of highway engineers at the entry level and during the service. IAHE conducts regular training programmes for the Engineers & highway sector professionals of Central Government organizations, State Government organizations, Public sector units, private sector, stake holders of multi-lateral agencies like World Bank, Asian Development Bank, etc. On specific demand, customized training programmes for Engineers & highway sector professionals or Indian organizations as well as Foreign organizations are also conducted.	**A-5,** Institutional Area, Sector-62, NH-24 Bypass, NOIDA-201301 (UP) **Telephone:** 0120-2400085 – 86, 2405006 – 09, **Fax:** 0120 – 2400087
2)	Central Road Research Institute (CRRI),	CSIR-Central Road Research Institute (CRRI), a premier national laboratory established in 1952, a constituent of Council of Scientific and Industrial Research (CSIR) is engaged in carrying out research and development projects on design, construction and maintenance of roads and runways, traffic and transportation planning of mega and medium cities, management of roads in different terrains, improvement of marginal materials, utilization of industrial waste in road construction, landslide control, ground improvements environmental pollution, road traffic safety and analysis & design, wind, fatigue, corrosion studies, performance monitoring/evaluation, service life assessment and rehabilitation of highway & railway bridges. The institute provides technical and consultancy services to various user organizations in India and abroad. For capacity building of human resources in	CENTRAL ROAD RESEARCH INSTITUTE Delhi – Mathura Road, PO CRRI, New Delhi 110025 **Telephone** +91-11-26848917 (Director) +91-11-26832173 (Reception) **Fax** +91-11-26845943

Sl. No.	Institute/ Organization	About the institute/Organization	Contact details
		the area of highway Engineering to undertake and execute roads and runway projects, Institute has the competence to organize National &International Training Programmes continuing education courses since 1962 to disseminate the R&D finding to the masses.	
3)	Engineering Staff College of India, (ESCI)	ESCI is an autonomous organ of The Institution of Engineers (India). It is the country's premier professional organization, imparting continuing education for engineers and managers in the Engineering profession. It has completed three decades in service to the nation and provides consultancy services to the industry and government agencies.	Address : Old Bombay Road, Gachibowli, Postal Code : 500032 City : Hyderabad State : Andhra Pradesh Phone : +91-40-66304100 +91-40-23000465 Fax : +91-40-23000336 Email : ic@escihyd.orgwww.escihyd.org
4)	Human Settlement Management Institute (HSMI)	Human Settlement Management Institute (HSMI), New Delhi was established in 1985 by the Housing and Urban Development Corporation Ltd. (HUDCO) to undertake training and capacity building in the Urban Sector. A team of professionals with varying professional background and experiences man the institute. Its main activities cover training, research, consultancy and advisory services in the following thrust areas: – Housing, Infrastructure – Urban Environment, Urban Poverty, Urban Finance – Urban Governance – IT for Capacity Building in Human Settlements.	HUDCO House, Lodhi Road, New Delhi – 110 003 Tel: 011-24369534, 24308600-01 Fax: 011-24365292, 24366426 E-mail: hsmi@hudco.org HSMI Hostel 212, Asiad Village, KhelGaonMarg, New Delhi. Tel: 011-26493445, 26493015, 26493375, 26493559, 26493281, 26493870,26493391, Fax: 011-26493726
5)	National Institute of Construction Management and Research (NICMAR)	National Institute of Construction Management and Research (NICMAR) is a leading educational Institute established by the Indian construction industry. NICMAR is an autonomous, non-government, non-profit academic body, incorporated in India on September 1983 as a 'Society' and a public charitable 'Trust'. It is recognised by Government of India as a Scientific and Industrial Research Organisation – SIRO.	25/1, Balewadi, N.I.A. Post Office, Pune 411 045, India. Tel : (020)66859100/200, (020) 27293473 Fax : (020) 27291057 E-mail : mail@nicmar.ac.in
6)	CPWD Training Institute	CPWD Training Institute, a National Resource Institute is looking after the training needs of Engineers, Architects, Horticulturists and workers. The main	CPWD Training Institute Kamla Nehru Nagar, Hapur Road TRAINING INSTITUTE,CPWD 0120-2711791,

Sl. No.	Institute/ Organization	About the institute/Organization	Contact details
		Institute is located at Ghaziabad. Regional Training Institute and Workers Training Centres are located in the four metros i.e. New Delhi, Mumbai, Kolkata and Chennai. The Institute conducts training programmes, workshops, brain-storming sessions, seminars etc. to upgrade the techno-management skills of CPWD officers as well as other Central Govt. Departments, State Govt., PSUs etc. The training programmes are conducted in diverse streams such as Civil Engineering, Electrical and Mechanical Engineering, Architecture, Computer Application and Management Techniques. A number of new courses on Green Buildings- their rating system and certification, energy efficient buildings, conservation of heritage buildings etc. have been introduced to cater to the current changing construction scenario.	011-23062804 Email adgtrg@gmail.com
7)	IIT BHUBANESWAR	The Institute has received a number of sponsored and consultancy projects from various national and international funding agencies viz. UKEIRI, DST, CSIR, DRDO and industries to the tune of 50 million rupees. In addition, the faculty of the Institute has applied for projects worth more than 70 million rupees. IIT Bhubaneswar is collaborating with many universities and institutes abroad.	IIT BHUBANESWAR Samantapuri (Rearside of Hotel Swosti Plaza) Bhubaneswar-751 013 Phone: +91 674 2301 982 Fax: +91 674 2301983 Email:- registrar@iitbbs.ac.in
8)	Xavier Institute of Management (XIMB)	XLRI has been a pioneer in developing and offering short duration Management Development Programmes (MDPs) with a four decade enviable standing in the committee of B-schools in India. The participants are equipped with the latest tools, techniques and skills spanning different streams of management such as General Management, Human Resources, Organizational Behaviour, Marketing, Finance, Operations Management, Information Systems, Strategic Management and Industrial Relations. XLRI accepts requests from organizations for conducting customized training programmes for their executives at different levels, and offers unique programmes to suit the business and developmental needs of client	Xavier Institute of Management, Xavier Square, Bhubaneswar – 751 013, Phone: +91-674-6647777 Fax: +91-674-2300995 MDP Office CH Area (East) Jamshedpur – 831001 Phone : +91-657-398 3329, 3330 E-Mail : **mdp@xlri.ac.in** Web : **www.xlri.ac.in**

Sl. No.	Institute/ Organization	About the institute/Organization	Contact details
		organizations. The duration of these programmes ranges from two days to one month depending upon the variety, magnitude and complexity of topics covered. While some of these are conducted at the Institute, a few are held in the premises of the client organizations.	
9)	Administrative Staff College of India (ASCI),	Administrative Staff College of India (ASCI), was started jointly by the Government of India and the representatives of industry as an autonomous institute in the year 1956 to impart training in the field of management development. It is located at the palace of the erstwhile Prince of Berar known as Bella Vista at Hyderabad. Initially Government Of India envisaged to set up the college in Britain. The first session was to commence in 1948 at Henley. However a committee of the All India Council for Technical Education in 1953 recommended that the Administrative Staff College be established in India. ASCI specializes in training of civil servants and managers of corporate and government sectors and urban management. The research and consultancy activities of ASCI were started in 1973.	Administrative Staff College of India Bella Vista, Raj Bhavan Road, Khairatabad, Hyderabad – 500 082 Phone : +91-40-66533000 Fax : +91-40-2331295
10)	National Institute of Technology Rourkela(NIT Rourkela)	National Institute of Technology Rourkela formerly Regional Engineering College Rourkela (REC Rourkela), is a publicly funded institute of higher learning for engineering and technology located in the steel city of Rourkela, Odisha, India. It is one of the 30 National Institutes of Technology in India and has been recognized as an Institute of National Importance by the National Institutes of Technology Act, 2007.	National Institute of Technology Jagda Rourkela, OR 769008 Phone 0661 246 2021
11)	National Transportation Planning and Research Centre (NATPAC)	National Transportation Planning and Research Centre (NATPAC). In 1982, NATPAC was reconstituted as an R&D institution under the Department of Science, Technology and Environment, Government of Kerala. The Centre is undertakes research and consultancy works in the fields of traffic engineering and transportation planning, highway engineering, public transport system,	NATIONAL TRANSPORTATION PLANNING AND RESEARCH CENTRE, Technology and Environment Sasthra Bhavan, Pattom Palace (PO), Thiruvananthapuram Pin :695 004, Kerala, India Phone : + 91 471 – 2548200 + 91

Sl. No.	Institute/ Organization	About the institute/Organization	Contact details
		alternate options for transport system, transport energy, inland water transport, tourism planning and rural roads. The activities of NATPAC range from surveying to preparation of techno-economic studies, feasibility analysis, detailed project reports, training for infrastructure development projects involving multi-modal system of transportation covering road, rail, water, ports/157arbours and airport	471 – 2548200 , 2548209 Fax : +91 471 – 2543677 E-Mail: natpac@asianetindia.com
12)	Gopabandhu Academy of Administration	Gopabandhu Academy of Administration is the apex training institute for Administrative Officers serving in the Government of Orissa. The Academy serves as the focal point and the nodal agency for the implementation of the National Training Policy for promoting good governance. The Academy provides induction training to successive batches of officers of the Orissa Administrative Service recruited directly as well as through promotion and selection. In-service training programmes for middle and senior level officers serving in different departments of the State Government and its Public Sector Undertakings constitute the other major activity of the Academy. Short duration training courses, mostly for senior and middle level officers, being sponsored by the Department of Personnel and Training (DoPT), Government of India are also carried out by the Academy on a regular basis. District training of the Indian Administrative Service Officers allotted to the Orissa Cadre is supervised by the Academy.	Gopabandhu Academy of Administration, Chandrasekharpur, Bhubaneswar, Orissa. Pin Code- 751023. Tel. No. : +91-674-2300743/ 2301258/2300742/2300804 Fax No. : +91-674-2301530 Email: dg_gaa@datatone.in