
Briefing Note 29: RAP3 CPD Programme

1. INTRODUCTION

Continuing Professional Development (CPD) is defined as the systematic maintenance, improvement, and broadening of knowledge and skills, and the development of personal qualities, necessary for the execution of professional and technical duties throughout your working life.

The Rural Access Programme 3 (RAP3) is working to improve the delivery of the rural road component of the programme through the RAP3 Continuing Professional Development (CPD) programme which all engineers working on RAP3 must take part in. The need to develop a structured CPD programme within RAP3 was highlighted during the Private Sector Workshop held in June 2014 and also in the recommendations of the Nepal Road Sector Assessment Study (NRSAS).

2. RAP3 CPD PROGRAMME

The RAP3 CPD Programme has three main components; the LRN Engineering Course and Examination, On the Job Training (Modules and Practical Experience), and Self-Study. Each component is described in greater detail below.

2.1. LRN ENGINEERING COURSE AND EXAMINATION

All members of the RAP3 engineering team (RAP3 and SC staff) are required to participate in the annual 6 day 'LRN Engineering Course' and pass the associated examination. The 'LRN Engineering Course' covers all aspects of the LRN annual programme cycle, under four main themes Planning, Design, Procurement, and Implementation, and forms the basis for the RAP3 CPD programme. Road Safety will be incorporated into the 2015 LRN Engineering Course.

The 'LRN Engineering Course' modules are listed in Annex 1 below and the training materials can be found on the RAP website here <http://www.rapnepal.com/lrn-engineering-course-materials>. The training materials are reviewed annually by the RAP3 TMO LRN team to ensure that the materials remain up to date and relevant. The LRN team managed the delivery of the first year of the training course, but it is planned that for subsequent years the RAP3 District Team Leaders (DTLs) and Engineering Officers (EOs) will be involved in the delivery of the training to further develop their skills as trainers, building on the 'On the Job Training' component of the CPD programme (see Section 2.2 below). The LRN team will however continue to support the delivery of the training course.

Each District is required to send the following participants to the annual training course each year:

- District Team Leader
- Engineering Officer (where relevant)
- Supervision / Support Consultant (SC) RE (where relevant)
- SC ARE (where relevant)
- DTO Engineer
- Graduate Engineer (all graduate engineers must participate)

There is an examination each year at the end of the 6 days of the training course. The examination questions cover all aspects of the training course materials. All participants (except for the DTO engineers, who can sit the exam if they wish but are not required to) must sit the examination, and must pass in order to remain working for RAP3. Any participants that fail are provided with one opportunity to re-sit the exam. The percentage required to pass the exam will be set by the LRN team each year, as will the mark required to achieve distinction.

New engineering staff members will be required to review the 'LRN Engineering Course' materials and pass the associated examination (with one opportunity for re-sit also offered in such a situation) before being issued a contract.

2.2. ON THE JOB TRAINING

2.2.1. Training Sessions and Exams

Under the 'On the Job Training' CPD component refresher training sessions are delivered by the RAP3 District Team Leaders (DTLs), or Engineering Officers (EOs) in Districts where the DTL has a social background, before each work component starts on the relevant modules from the 'LRN Engineering Course'. The delivery of these sessions forms a part of the District Training Days Schedule, and as such the training sessions must be delivered as per the following annual schedule:

New Construction Districts

February

- Implementation (LRN Engineering Course Modules 4A, 4B, 4D, 4E, 4F)
- Quality Control (LRN Engineering Course Module 4C - Combine with Implementation for 2 days training for all modules)

May

- Bio Engineering (Part of LRN Engineering Course Module 2E)

November

- ARAMP (LRN Engineering Course Modules 1A, 1B, 1C, 1D, 1E, 1F)

December

- Detailed Design (LRN Engineering Course Modules 2A, 2B, 2C, 2D, 2E (repeat 2E))

Maintenance Districts

January

- Procurement (LRN Engineering Course Modules 3A, 3B, 3C, 3D, 3E, 3F)

February

- Implementation (LRN Engineering Course Modules 4A, 4B, 4D, 4E, 4F, 4G)
- Quality Control (LRN Engineering Course Module 4C - Combine with Implementation for 2 days training for all modules)

May

- Bio Engineering (Part of LRN Engineering Course Module 2E)

September

- Emergency Maintenance (Parts of LRN Engineering Course Modules 1D and 2D)
- Rapid Survey (LRN Engineering Course Module 1D)

November

- ARAMP (LRN Engineering Course Modules 1A, 1B, 1C, 1D, 1E, 1F)

December

- Detailed Design (LRN Engineering Course Modules 2A, 2B, 2C, 2D, 2E (repeat 2E))

The schedule is linked to the annual calendar of works and so the refresher training courses are carried out just before each work component, thereby preparing the team for the work that must be carried out. The schedule also indicates which 'LRN Engineering Course' training modules must be covered as part of each CPD session. For each module a short exam must also be completed by all the participants. The exams were prepared by RAP3 TMO and shared with all the DTLs / EOs. The DTLs / EOs are responsible for supervising and marking the exams. The exams can be carried out after each individual module or all of the exams can be carried out at the end of each training day. Unlike, the LRN Engineering Course Examination there is no 'pass' or 'fail' mark associated with the 'On the Job Training' exams as these exams are simply intended to be used by the DTLs / EOs as an indicator of the level of the participants following each training session. In cases where the exam scores of participants are poor, the RAP3 DTLs / EOs are encouraged to hold a debriefing session with the participants to

determine potential reasons for poor performance and ways in which this can be addressed in future CPD sessions.

The expected participants in each CPD session, as per the schedule above, are as follows:

- DDC Engineers
- DTO Engineers
- SC RE
- SC ARE
- RAP3 Engineer Intern
- RAP3 Engineer Graduate

The DTLs / EOs are responsible for inviting the participants and should consider the above as a guide. For example, in some Districts it may be considered appropriate for IoWs to participate.

The DTLs / EOs must ensure that all participants maintain their CPD log book and the DTLs must sign off on each 'On the Job Training' activity in their CPD log books.

As the DTLs / EOs are responsible for managing and delivering the 'On the Job Training' component of the CPD programme they have a different system of CPD credits and certification, as outlined in Section 3.2 below.

2.2.2. Practical Experience

The 'On the Job Training' component is particularly focused on the practical implementation of the work associated with the modules covered in the training. The training sessions are designed to provide a refresher for the District teams on what is required under each work component. The District teams must then go and implement these work components. Under the CPD programme there are considered to be three different levels at which the programme participants are involved in the practical implementation of the works:

- i. Observing the work being completed by others,
- ii. Completing the work under the supervision of others, or
- iii. Managing the work.

The record of practical experience must be supported by a daily record of activities / tasks carried out that must be maintained by every engineer in their own 'Day Book'. Their 'Day Book' can be a notebook or diary, and each day they must record all the details of the activities / tasks that they have carried out. Some examples of details to be documented are given below:

- Meetings: who with, what about, etc.
- Site visits: where, what was observed, activities / tasks undertaken at the site, site instructions issued, etc.
- Reports / documents prepared: title of documents, summary of content, etc.
- Surveys: location, type of survey, findings of survey, etc.
- Design work: what was designed, what standards / guidelines were used for the design, etc.
- Measurement of works: location, method of measurement used, etc.

For every task / activity carried out, they must explain what their role was in that task / activity, e.g. organised and led a meeting with the DDC / participated in a meeting with the DDC / prepared the minutes of a meeting with the DDC. Each engineer must get their 'Day Book' signed each day by the DTL / EO (for Districts with SEDO DTLs).

2.3. SELF-STUDY

As part of the RAP3 CPD programme all participants are required to complete a minimum of 6 days self-study per year.

The mechanisms for self-study which are considered appropriate for the RAP3 CPD programme are as follows:

- | | |
|---|--|
| <input type="checkbox"/> Professional Association Activities | <input type="checkbox"/> Study Tours |
| <input type="checkbox"/> Continuing Professional Development Programmes | <input type="checkbox"/> Training Audio and CD Rom |
| <input type="checkbox"/> Personal Learning from the Internet | <input type="checkbox"/> Technical Presentations |
| <input type="checkbox"/> Peer Guidance and Group Discussions | <input type="checkbox"/> In House Presentations |
| <input type="checkbox"/> Self-study using textbooks or study packs | <input type="checkbox"/> Seminars & Workshops |
| <input type="checkbox"/> Distance and Open Learning Courses | <input type="checkbox"/> Knowledge Sharing |
| <input type="checkbox"/> Validated and Accredited Qualifications | <input type="checkbox"/> Job Secondment |
| <input type="checkbox"/> Conferences | <input type="checkbox"/> Work Shadowing |
| | <input type="checkbox"/> Learning on the Job |

As part of the self-study component RAP3 provides a CPD stipend, to all participants in the CPD programme, of 1,000 NPRs / day, up to a total of 6,000 NPRs. The CPD allowance must be used to cover the costs associated with self-study, such as the purchase of books, attendance at workshops or study tours, participation in e-learning courses, etc., and will be reimbursed on presentation of receipts. The CPD stipend will be paid based on the number of self-study days completed, i.e. if only 2 days of self-study are completed then only 2,000 NPRs of the CPD stipend can be paid out.

2.4. CPD LOG BOOK

RAP3 engineering staff (RAP3, SC, and DTO) will be required to record their CPD activities in the RAP3 CPD log book. Activities which are not documented in the log book, will not be considered to count towards the CPD programme.

There are three sections in the CPD log book and CPD activities must be recorded in the relevant section of the log book. Details of what will be recorded under the three sections, and examples for each section, are provided below:

1. Annual LRN Engineering Course and Examination:

- a. Record score achieved in annual LRN examination
- b. Must be signed off by the Engineering Team Leader

Score (%)	Distinction / Pass	Year	Date	Signed
75	Distinction	2014	18 th Sept.	By RAP3 Engineering Team Leader
88	Distinction	2015	16 th August	By RAP3 Engineering Team Leader

2. On the Job Training – Modules and Practical Experience:

- a. Record modules revised prior to carrying out work / activities
- b. Record practical experience gained
- c. Clearly indicate, by including a (1), (2), or (3) after the details of the practical aspect of the CPD activity, if the practical work involved:
 - i. Observing the work being completed by others (1),
 - ii. Completing the work under the supervision of others (2), or
 - iii. Managing the work (3).
- d. Record of practical experience must be supported by 'Day Book' entries
- e. The DTL / EO (for Districts with SEDO DTLs) must sign off on all 'On the Job Training' activities. The DTL / EO must get their 'On the Job Training' activities signed off by either their District Coordinator or the Engineering Team Leader.

Details of CPD Activity	Duration	Date	Signed
Module: 3E Detailed Bid Evaluation Exam: 72% Practical: Evaluated Contractor Bids as part of Evaluation Committee (2)	Part of 1 Day Procurement Training	18/01/15	By DTL/EO
Module: 4G RMG Refresher Exam: 83% Practical: Conducted monthly inspections and prepared monthly work plans (2) (See attached sheets from Day Book)	Part of 1 Day Implementation Training	05/02/15	By DTL/EO

3. Self-Study:

- a. A minimum of 6 days self-study must be completed annually
- b. All details of self-study completed must be recorded in the CPD log book, including mechanism for study, topics covered, and duration
- c. Delivery of training sessions can also be included in the self-study section of the log book
- d. The DTL / EO (for Districts with SEDO DTLs) must sign off on all Self-Study' activities. The DTL / EO must get their 'On the Job Training' activities signed off by either their District Coordinator or the Engineering Team Leader.

Mechanism for Study	Topic(s) Covered	Duration	Date	Signed
E-learning course, provided by ICE	Report Writing	2 Days	12/01/15 to 25/01/15	By DTL/EO
Textbook, Design of Bridge Structure, M. A. Jayaram	Bridge Design	2 Days	02/02/15 to 05/04/15	By DTL/EO

3. CPD PROGRAMME RESULTS AND AWARDS

3.1. CPD CREDITS

CPD credits are awarded for all CPD activities completed by the participants in the CPD programme. The structure for awarding CPD credits is as follows:

CPD Component	Year 1	Year 2	Year 3
Annual LRN Course and Exam	1	2	3
On the Job Training			
Exams	0.5 Credit awarded per exam passed		
Practical experience	Based on different levels of experience: (1) observed = 1 credit (2) carried out under supervision = 2 credits (3) managed = 3 credits		
Self-study	6	6	6

1. Annual LRN Course and Exam

- a. RAP3 and SC staff who participate in the annual LRN engineering course and exam will receive 1 credit for passing the LRN examination the 1st year they take part, 2 credits passing the LRN examination the 2nd year they take part, and 3 credits for passing the LRN examination the 3rd year they take part
- b. DTO staff who do not take part in the annual LRN Engineering examination will earn credits for this component based on the number of modules covered as part of the 'On the Job Training' component; if they cover all modules during the annual programme cycle then they will receive 1 credit for the first year, 2 credits for the 2nd year, and 3 credits for the 3rd year

2. On the Job Training

- a. Exams
 - i. Half a credit (0.5) will be awarded for every exam passed (to be assessed by RAP3 TMO)
 - ii. Each exam relates to a particular module of the LRN Engineering course and the relevant modules must be reviewed, and the associated exam must be taken, before beginning each piece of work in the programme cycle
- b. Practical Experience
 - i. 1 credit will be awarded for practical experience that involved you observing work being carried out
 - ii. 2 credits will be awarded for practical experience that involved you carrying out the work under supervision
 - iii. 3 credits will be awarded for practical experience where you managed the work

3. Self-Study

- a. 1 credit will be awarded for each day of self-study completed
- b. A minimum of 6 days self-study must be completed each year

Each year the number of credits earned will determine which level within the CPD programme has been achieved. There are four CPD levels within the RAP3 CPD Programme:

Level 1: Manager	100 Credits +
Level 2: Implementer	75 Credits +
Level 3: Observer	50 Credits +
Level 4: Intern	25 Credits +

All participants in the CPD programme will be required to submit their log books, along with any relevant supporting documentation, to the RAP3 Technical and Management Office (TMO, Kathmandu) for review at the time of the LRN Engineering Course. Before a CPD participant can move up a level they will have to take part in an interview where the details of the CPD activities they have carried out will be discussed and reviewed. These interviews will be carried out by RAP3 TMO at the end of the LRN Engineering Course following review of the CPD log books and calculation of the CPD credits achieved.

3.2. CPD CREDITS FOR TRAINERS (DTLS / EOS)

The DTLs / EOs who are responsible for delivering and managing the ‘On the Job Training’ and ‘Self-Study’ CPD components at district level earn credits in a different way to the participants in the CPD programme. CPD credits will be awarded to the DTLs / EOs as follows:

CPD Component	Year 1	Year 2	Year 3
Annual LRN Course and Exam	1	2	3
On the Job Training			
Delivery of Training modules	1 Credit awarded per module delivered		
Self-study	6	6	6

1. Annual LRN Course and Exam

- a. Participants in the annual LRN Engineering Course will receive 1 credit for passing the LRN examination the 1st year they take part, 2 credits for passing the LRN examination the 2nd year they take part, 3 credits for passing the LRN examination the 3rd year they take part, and so on

2. On the Job Training

- a. 1 Credit will be awarded per module delivered

3. Self-Study

- a. 1 credit will be awarded for each day of self-study completed

There are four levels within the CPD programme for trainers which are as follows:

First Class Trainer	100 Credits +
Second Class Trainer	75 Credits +
Third Class Trainer	50 Credits +
Fourth Class Trainer	25 Credits +

The DTLs / EOs are also required to share their CPD log books, and any associated supporting documents, with RAP3 TMO at the beginning of the Annual LRN Engineering Course. The log books will then be reviewed and the CPD credits achieved during that year calculated. As the DTLs / EOs will be increasingly involved in the delivery of the Annual LRN Engineering Course their training skills will be assessed by RAP3 TMO during the annual training. Before a DTL / EO can move up a level they will have to take part in an interview where the details of the CPD activities carried out will be discussed and reviewed, along with the findings from the assessment of the DTLs / EOs training skills during the Annual LRN Engineering Course. These interviews will be carried out by TMO at the end of the LRN Engineering Course following review of the CPD log books and calculation of the CPD credits achieved.

3.3. CPD CERTIFICATION

Once participants in the CPD programme (including trainers) have achieved the number of certificates required for a certain CPD level, they will be awarded a certificate recognising this. The Certificates are awarded based on the level achieved, differ for participants and trainers, and are as follows:

Participants		Trainers	
Level 1	LRN Manager Certificate	Level 1	1 st Class Trainer Certificate
Level 2	LRN Implementer Certificate	Level 2	2 nd Class Trainer Certificate
Level 3	LRN Observer Certificate	Level 3	3 rd Class Trainer Certificate
Level 4	LRN Intern Certificate	Level 4	4 th Class Trainer Certificate

4. MONITORING AND MANAGEMENT OF RAP3 CPD PROGRAMME

The RAP3 CPD programme is led by the DTLs / EOs at District level. The DTLs / EOs are responsible for delivering the CPD training sessions, invigilating the associated exams, and providing guidance on CPD to all participants in the programme. At Central level, the CPD Programme is managed under the Capacity Development component of RAP3.

The monitoring of the CPD programme throughout the year will be carried out as part of the RAP3 internal audit system. All RAP3 districts are subject to internal audit throughout the RAP3 implementation year. The audits are carried out by technical experts from RAP3 TMO and these technical experts also conduct monitoring of the CPD programme during the audit in each District. The audit team also collect general feedback on the CPD programme from the participants, the LDO and DTO Chief, and from the DTL / EO responsible for delivering the programme at District level. The annual review of CPD log books and the interviews with all the participants will also support the monitoring of the CPD programme. The monitoring of the DTL / EO's development as trainers will be greatly supported by the RAP3 TMO review of their performance delivering modules during the annual LRN Engineering Course

5. COLLABORATION WITH THE NEA, NEC, AND ICE

RAP3 been collaborating with the Nepal Engineers' Association (NEA), the Nepal Engineering Council (NEC), and the Institute of Civil Engineers UK (ICE) with a view to supporting the development of Continuing Professional Development (CPD) for the engineering sector in Nepal. As part of this collaboration, RAP3 hosted a 'CPD Field Visit' in Parbat District on the 10th and 11th of March. Representatives from the NEA, NEC, ICE, and DFID took part in the field visit. The aim of the field visit was to provide the NEC and the NEA with an opportunity to consider the practical aspects of developing CPD across the engineering sector in Nepal, by providing the chance to observe the RAP3 pilot CPD programme in practice.

RAP3 are also working with the NEA and NEC to hold a CPD workshop on the 27th of March with a wide variety of stakeholders from across the engineering sector. The key outcomes expected from the workshop are a commitment from the stakeholders present to establish and participate in a 'CPD Coordination Forum', identification of programmes / organisations with potential to launch CPD / internship / graduate programmes, and to identify the technical and financial resources available to support CPD for the engineering sector in the long term.

Beyond the CPD workshop RAP3 will continue to collaborate with the NEA, NEC, and ICE to support with the 'CPD Coordination Forum' and with the development of a long term plan for CPD for the engineering sector in Nepal.

ANNEX 1: CPD PROGRAMME MODULES AND MODULE CONTENTS

Theme 1: Planning	
Module	Contents
(1A) RAP3 LRN Overview (Intro to Planning)	LRN Component, budget, guiding principles, etc.
(1B) DTMP	Background, importance of DTMP in district transport planning process, DRCN principles and ID, Brief stepwise process of DTMP preparation, common errors experienced in past practices and how to overcome, and scope of review of DTMP guideline
(1C) ARAMP 1	Overview of ARAMP principles (Background, difference between old and new (ARMP vs. ARAMP) and key revisions in YR-2 update
(1D) Rapid Condition Survey and Compilation and analysis of information	Types of maintenance, intro to Rapid Condition Surveys, and steps involved in conducting a Rapid Condition Survey
(1E) ARAMP 2	Stepwise procedures of ARAMP preparation in detail
(1F) ARAMP Practical	Explanation of 'red cells' in hypothetical ARAMP excel template
(1G) Implementation Plan	Implementation Modality Strategy, Packaging, Annual Implementation Plan, Procurement Plan, and Yearly Expenditure Forecast
Theme 2: Design	
Module	Contents
(2A) Nepal Rural Road Standards (Intro to Design)	Overview of all the key aspect of the NRRS and their implications
(2B) Stage 1 Survey and Design	Stage 1 Survey Procedures, Stage 1 Design and Estimates Procedures (including lessons learned from RAP3 stage 1 design carried out by Consultants)
(2C) Stage 2 Survey and Design Detailing	Detailed procedures of Stage 2 Survey, key aspects of design of horizontal and vertical alignment in relation to design standards, design of structures, drainage provisions, optimisation of road alignment and its effects on mass balancing/management, mass management plan, quantity surveying
(2D) Maintenance/Improvement Design	Type of defect and possible solution, highlight maintenance-specific treatment selection, improvement design/design issues, and maintenance treatment selection based on road condition survey
(2E) Environmental Design	Over view of safeguard regulatory frameworks-acts, rules, guidelines, and framework, IEE Procedures, 'sensitive' designs/alignment choices, EMPs, bio-engineering, and disaster resilience and climate change adaptation
Theme 3: Procurement	
Module	Contents
(3A) Intro to Procurement	Overview of all the key aspect of procurement
(3B) Public Procurement Act & Rules	Overview of PPA & PPR and procurement of works or goods for different types of contract
(3C) Procurement Plan	Choice of Implementation modality, package size and project requirement, and timing/season

(3D) RAP3 Procurement Procedures (in detail)	Procurement procedures and their application under RAP3 (Procurement Procedures: Requirement finalised, estimation, approval of estimate, Preparation of Bid Document, Invitation for tender, Bid submission, Bid evaluation, Negotiation, LoA, Contract Award.)
(3E) Detailed Bid Evaluation	Roles and responsibilities of DTA (fund flow mechanism from tripartite agreement), procedure for bid evaluation, practical application of Act & Rules, 'pitfalls', low-bid safeguards, approval procedures, technical evaluation, and cost comparison
(3F) Pre-Contract Award Procedures	Bid review and negotiation procedures and scope and pre-award formalities
Theme 4: Implementation	
Module	Contents
(4A) Intro to Implementation	Overview of all the key aspects of implementation
(4B) Contract Administration	Staff Organisation/logistics
(4C) Quality Management Plan	Work plan, Inspections (frequency & timing), priority works/key issues , appropriate testing (labs), and routine vs suspect works
(4D) Work Supervision	Method statements for different work items, checklist for supervision of major work items, site inspection record books, written site instructions, and construction and site safety
(5A) Ethics	What is corruption and what are the effects of corruption, how to avoid corruption in the workplace, how to report corruption
(4E) Environmental Management	EMP, basic safeguards & precautions, impacts, issues, and mitigations, lessons learned on mitigation and bio-engineering, monitoring, and auditing
(4F) Works Measurement and Valuation	Pre-works survey/record, principles for main work categories, invoicing procedures, and work measurement/valuation formats and procedures
(4G) RMG Refresher	Overview of RMGs, issues faced during implementation, monthly work plan, inspection, and payment
Theme 5: Road Safety	
Module	Contents
(5A) Guidelines for carrying out Road Safety Assessments	A practice for assessing safety for rural earth construction roads
(5B) Principles for achieving a safe road	Identifying road hazards, Safety Checklist for rural (earth construction) roads in Nepal, the importance of Warning Signs
(5C) Low cost Road Safety Engineering	
(5D) Engineering for pedestrian safety	
(5E) Accident data and accident management	Guidelines for treating accident black spots in Nepal
(5F) Speed management	