



Continuing Professional Development for the Engineering Sector in Nepal

Workshop Proceedings

27th March 2015

RAP 3
RURAL ACCESS
PROGRAMME 3



Acknowledgements

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The Workshop Organisers

Nepal Engineering Council, Nepal Engineers' Association, and Rural Access Programme 3

CPD for the Engineering Sector in Nepal, Workshop Proceedings

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ACRONYMS AND ABBREVIATIONS

AECON	Association of Engineering Colleges of Nepal
ARAMP	Annual Road Asset Management Plan
CCEE	Centre for Continuous Engineering Education (Nepal Engineers' Association)
CPD	Continuing Professional Development
DFID	Department for International Development (UK)
DoI	Department of Irrigation
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DoR	Department of Roads
DTL	District Team Leader
DTMP	District Transport Master Plan
DTO	District Technical Office
DWIDP	Department of Water Induced Disaster Prevention
ESC	Engineering Staff College
ESCB	Engineering Staff College Bangladesh
ESCI	Engineering Staff College India
FCAN	Federation of Contractors' Associations Nepal
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
GoN	Government of Nepal
IoW	Inspector of Works
IPTM	Institute for Professional Training and Management Nepal
LDO	Local Development Officer
LRN	Local Road Network
MITRA	Management Innovation, Training and Research Academy Pvt. Ltd.
MoPIT	Ministry of Physical Infrastructure and Transport
MTEEC	Management and Training Environmental Engineering Consultant

NASC	Nepal Administrative Staff College
NEA	Nepal Engineers' Association
NEC	Nepal Engineering Council
NRCS	Nepal Red Cross Society
NRRC	Nepal Risk Reduction Consortium
NSET	National Society for Earthquake Technology-Nepal
RAP3	Rural Access Programme, Phase 3
SAARC	South Asian Association for Regional Cooperation
SCAEF	Society of Consulting Architectural and Engineering Firms
STS	Senior Technical Supervisor

EXECUTIVE SUMMARY

On the 27th March 2015, a workshop on the topic of 'Continuing Professional Development for the Engineering Sector in Nepal', was jointly hosted by the NEC, NEA, RAP3, and ICE, and this document provides a summary of the workshop proceedings.

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 working life", and is an increasingly important aspect of the engineering profession globally. The [Nepal Engineering Council \(NEC\)](#) and the [Nepal Engineers' Association \(NEA\)](#) are at the forefront of developing CPD for the engineering profession in Nepal, where the NEC is the regulatory body for the profession (as per the Nepal Engineering Council Act (1999) and the Nepal Engineering Council Regulations (2000)) and the NEA is a democratically elected body which represents the engineering profession and contributes to major policy issues and the overall direction and development of the profession. With over 4,000 engineers graduating each year in Nepal, there is a critical need for CPD across all disciplines of the profession.

The Rural Access Programme 3 (RAP3), a UK Aid funded poverty alleviation project focused on the maintenance and development of the rural road network in 14 districts of Nepal, developed and implemented a pilot CPD programme in the last quarter of 2015. The RAP3 CPD Programme was initially designed to overcome capacity gaps that were affecting the delivery of the programme, in particular the lower than expected performance of consulting engineering firms hired by RAP3. Gradually, it became clear that the efforts of RAP3 in relation to CPD, and the lessons learned through the pilot CPD programme, could be of benefit to the wider engineering profession.

On this note RAP3, with the Nepal Representative for the Institute of Civil Engineers, UK (ICE) approached the NEC and NEA in early 2015 in order to review the potential for collaboration between the organisations on CPD. The first step in the collaboration was a field visit, in early March 2015, by representatives of the NEC, NEA, ICE, and the UK's Department for International Development (DFID) to Parbat District in order to observe the RAP3 CPD Programme in practice. The CPD workshop built on the success of the CPD field visit, and had the primary objective of initiating discussion amongst all relevant stakeholders for the development of CPD for the engineering sector in Nepal.

The workshop participants represented the wider engineering profession and included Government of Nepal (GoN), private sector, and development actors. The workshop included four main sessions, which were as follows:

- **Session 1:** '[Quality Engineering Education and the Role of the Nepal Engineering Council](#)', a presentation by Er. Satya Narayan Shah, NEC Chairman which provided an overview of the 'Issues and Challenges of Engineering Education in Nepal' workshop, jointly hosted by the NEC and the Association of Engineering Colleges of Nepal (AECON) in February 2015. The presentation also provided an introduction to the NEC, and its roles and responsibilities.
- **Session 2:** '[Nepal Engineers' Association \(NEA\) Vision for Continuing Professional Development](#)', a presentation by Er. Kishore K. Jha, NEA General Secretary, which outlined the global context of CPD and the South Asian context in relation to CPD. The presentation then introduced the vision of the NEA in terms of CPD in Nepal, with the first step being the establishment of the 'Centre within the NEA, and which will start delivering training programmes in later April 2015. The NEA's long term vision involves the establishment of an 'Engineering Staff College'.
- **Session 3:** '[Rural Access Programme 3 \(RAP3\) Continuing Professional Development Programme](#)', a presentation by Siobhan Kennedy, Independent Researcher (on behalf of RAP3), which introduced the three components of the RAP3 pilot CPD Programme as well as the internship and graduate programmes

which RAP3 is running. The presentation also covered the benefits of CPD and provided an overview of the CPD field visit conducted with the NEC, NEA, ICE, and DFID in early March 2015.

- **Session 4:** Panel Discussion, where the panel members were Jeevan K. Shrestha, DG, DoLIDAR (Workshop Chairperson), Satya Naryan Shah, Chairman, NEC, Kishore K. Jha, General Secretary, NEA, Suman Baidya, Infrastructure Adviser, DFID Nepal, Bill Seal, Engineering Team Leader, RAP3 (ICE member), and Siobhan Kennedy, Independent Researcher.

There was a lot of discussion during the workshop around the need for formal professional experience recognition, beyond registration (and licensing examination), by the Nepal Engineering Council (NEC). It was emphasised that it is not possible to teach 'work experience', and that engineer's professional development is dependent on structured professional work experience opportunities. This was further emphasised in the discussion around the standard of engineering education and graduates, with Er. Shah's presentation in session 1 highlighting the on the job training requirements of engineering graduates. The workshop discussions also highlighted the need for strong collaboration between employers and the NEC and NEA, as it is employers who need to provide opportunities for structured work experience, graduate programmes, internship programmes, CPD activities, etc.

The key outcomes of the workshop were as follows:

- A consensus was reached amongst all participants that the proposed '**CPD Coordination Forum**' should be established where the members of the coordination forum will represent all aspects of the engineering profession, and include GoN institutions, private sector actors, and development partners.
- A consensus was also reached amongst all participants that a '**CPD Working Group**' should be formed which will work together to review issues, challenges, opportunities, and suggestions as put forward by participants in workshop and will present findings and proposals at the CPD Coordination Forum
- The workshop also generated interest and discussion amongst the employers present regarding the possibilities of providing CPD programmes to their staff, and / or introducing internship and / or graduate programmes.

The Continuing Professional Development (CPD) workshop was a successful step forward in the development of CPD for the engineering sector in Nepal. The agreement to establish a 'CPD Coordination Forum' ensures that a platform will remain for the NEC and NEA to move forward with the development of a national strategy for CPD with the full support of the wider engineering sector in Nepal.

1. INTRODUCTION

In the context of Nepal, the engineering sector has a critical role to play in meeting many of the Government's strategic national priorities. The engineering sector is however struggling to provide the professional expertise required to deliver these targets. Over 4,000 engineers graduate in Nepal annually, but there are very few opportunities to secure that all important first engineering job. When engineering graduates do secure work the opportunities for further development and training are generally limited, and tend to remain so throughout their careers. The high level of immigration amongst graduates and experienced professionals, further restricts the engineering capacity in Nepal.

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 working life. CPD is not simply attendance at training courses at various intervals, but is a comprehensive, and long term, approach to each engineer's own development and career progression and generally includes mentoring and support for the achievement of professional development objectives and key practical experience, along with training courses. Providing CPD for Nepali engineers is therefore of huge importance in order to provide opportunities for development of professional abilities and competence, which will in turn strengthen the engineering sector overall.

The [Nepal Engineers' Association \(NEA\)](#), the [Nepal Engineering Council \(NEC\)](#), and the [Rural Access Programme 3 \(RAP3\)](#) organised a CPD workshop on the 27th March 2015. The workshop brought together a wide range of actors from across the engineering sector and this document presents the proceedings of this workshop, along with a summary of the outcomes and follow up actions required.

1.1. BACKGROUND

The Nepal Engineers' Association (NEA) and the Nepal Engineering Council (NEC) are at the forefront of the drive to develop CPD for the engineering sector in Nepal. The NEC is the regulatory body for the engineering profession in Nepal and in terms of CPD the NEC is best placed to ensure that CPD becomes a mandatory part of the engineering profession. The role of the NEA in terms of CPD will primarily be to advocate or facilitate, and if needed to be a training provider, and to date, a great deal of progress has been made towards the establishment of a CPD training centre within the NEA as a 'Centre for Continuing Engineering Education'. This will be the first step towards the NEA's long term plans to eventually establish an 'Engineering Staff College' which would be an autonomous and independent training institution that would be responsible for delivering training courses across all engineering disciplines. Establishing such a training centre will facilitate Nepal eventually becoming a member of the 'International Engineering Alliance', formerly the 'Engineers Mobility Forum' (EMF).

In mid-2014, following a lower than expected performance by the private sector firms working to deliver the programme, RAP3 began developing a pilot CPD programme. Whilst the RAP3 CPD programme was initially established to deal with resource gaps particular to RAP3, it became clear that there was potential for the lessons from the RAP3 pilot CPD programme to support the wider development of the engineering profession. In early 2015, RAP3, along with the [Institute of Civil Engineers UK \(ICE\)](#) representative in Nepal, met with the NEC and NEA to discuss the potential for the organisations to collaborate on the development of CPD for the engineering sector in Nepal.

Following on from these initial meetings, and in order to provide the NEC and the NEA with an opportunity to consider the practical aspects of developing CPD across the engineering sector in Nepal, a field visit was organised to Parbat District to observe RAP3's pilot CPD programme in practice. The field visit took place on the 10th and 11th of March, with representatives from the NEC, NEA, ICE, DFID, and RAP3 taking part, and was extremely successful.

The workshop on CPD was organised by the NEA, NEC, and RAP3 in order to build on the findings of the CPD field visit and to move further ahead with the development of a nationwide strategy for professional development that accommodates the challenges faced by engineers working in remote and extremely poor areas of Nepal where there is limited communication infrastructure and access to mentors and role models.

1.2. WORKSHOP OBJECTIVES

The CPD workshop was organised in order to bring together a wide range of actors, from across the engineering sector, to review the issues and challenges faced in terms of a nationwide strategy for professional development and gather suggestions for the way forward.

One of the primary aims of the CPD workshop was to secure agreement amongst these key stakeholders regarding the establishment of a CPD Coordination Forum where the forum would provide a platform for the dissemination of findings from pilot CPD / intern / graduate programmes for engineers, as well as for the general coordination of CPD activities, funding, and support to the NEC and NEA.

The CPD workshop was also expected to identify projects / employers with the potential / interest to pilot CPD / intern / graduate programmes and that the initial preparations can begin for the implementation of such pilots. There is huge potential for internship and graduate programmes across the engineering sector and it is hoped that during the workshop the initial planning for standard parameters for such programmes can begin. It is hoped that the CPD coordination forum would support the NEC and NEA to finalise such parameters.

The final workshop objective was to provide the NEC and the NEA with an opportunity to gain a greater understanding of the resources (both technical and financial) that are available to support a nationwide strategy for CPD for the engineering sector in Nepal, in order to support the preparation of such a strategy.

1.3. WORKSHOP STRUCTURE

The workshop included four main sessions:

- Session 1: 'Quality Engineering Education and the Role of the Nepal Engineering Council', a presentation by Er. Satya Narayan Shah, NEC Chairman
- Session 2: Nepal Engineers' Association (NEA) Vision for Continuing Professional Development, a presentation by Er. Kishore K. Jha, NEA General Secretary
- Session 3: 'Rural Access Programme 3 (RAP3) Continuing Professional Development Programme', a presentation by Siobhan Kennedy, Independent Researcher (on behalf of RAP3)
- Session 4: Panel Discussion

The presentations delivered in sessions 1-3 provided participants with an overview of some of the key aspects of CPD to consider, as well as providing examples of CPD activities which are already being implemented in Nepal. The panel discussion provided the participants with the opportunity to seek further clarification on the topics covered in sessions 1-3, and most importantly provided opportunities for suggestions to be offered for the way forward for CPD for the engineering sector in Nepal. The proceedings under each session are covered in detail in Section 2 below.

1.4. WORKSHOP PARTICIPANTS

The participants in the workshop represented a wide variety of actors from three main areas; Government of Nepal (GoN), private sector, and development. The full list of participants can be found in Annex A.

2. SESSION 1: QUALITY ENGINEERING EDUCATION AND THE ROLE OF THE NEPAL ENGINEERING COUNCIL (NEC)

2.1. PRESENTATION

The presentation on '[Quality Engineering Education and the Role of the Nepal Engineering Council](#)' was delivered by Er. Satya Narayan Shah, the Chairman of the Nepal Engineering Council (NEC). In his presentation, Er. Shah provided an overview of the findings of the workshop on the 'Issues and Challenges of Engineering Education in Nepal', that was held on the 23rd February 2015, and was organised by the NEC and the Association of Engineering Colleges of Nepal (AECON).

The 'Issues and Challenges of Engineering Education in Nepal' workshop brought together representatives of the Government of Nepal (GoN), universities (which offer engineering programmes), engineering colleges, Nepal Engineers' Association (NEA), Society of Consulting Architectural and Engineering Firms, Federation of Contractors' Associations Nepal (FCAN), Federation of Nepalese Chambers of Commerce and Industry (FNCCI), Guardians Association – Nepal, and the University Teachers' Association.

An overview was provided of the issues discussed during the 'Issues and Challenges of Engineering Education in Nepal' workshop, and the suggested recommendations to overcome these. Some of the key issues identified were as follows:

- Employers are not satisfied with the standard of fresh graduates
- Students are unhappy with the standard of engineering education
- Third level education is highly politicised
- A lack of qualified and experienced teaching staff (in some cases graduates are becoming teaching staff immediately after completing their bachelor's degree)

Some of the recommendations proposed to address these issues were as follows:

- Internships should become mandatory for engineering students / graduates
- Faculty staff development must be enforced and monitored
- The NEC should introduce a licensing examination (attempts to introduce this previously were prevented by a high court ruling)
- Introduce skill based teaching and market oriented curricula and provide improved opportunities to conduct practical work
- Establishment of Engineering Staff College
- Engineering colleges should be graded based on their performance

Er. Shah presented some of the research conducted by Dr. Deepak Bhattarai, for his paper 'Quality of Engineering Graduates: Employers' Perspective', which was presented at the 'Issues and Challenges of Engineering Education in Nepal' workshop. Dr. Bhattarai conducted a survey with both employers and engineering students to determine their perspectives on the quality of engineering graduates and engineering education respectively. The survey results indicated, as expected, that engineering graduates require on the job training following completion of their bachelor's degree in order to contribute fully to the delivery of engineering works. When responding to the survey



Er. Satya Narayan Shah, NEC Chairman, delivering his presentation during the CPD Workshop.

question 'How long you need to train graduates so that they become useful to you' the majority of employers indicated that graduates require more than a year of training. This was also supported by the findings that the majority of engineering students felt that the priority area for improving engineering education (the majority of students indicated that they are not satisfied with the quality of their engineering education) should be practical work.

Er. Shah completed the section of his presentation related to the 'Issues and Challenges of Engineering Education in Nepal' workshop by emphasising that the expertise and conduct of engineering professionals are matters of public concern and that the quality of engineering education must meet the expectation of multiple groups; society, employers, parents, and the students themselves.

Er. Shah's presentation also provided an overview of the Nepal Engineering Council (NEC). The NEC was established in 1999 under the Nepal Engineering Council Act (2055) and the Nepal Engineering Council Regulations were introduced in 2000 (2057). The NEC's role as the regulatory body for the engineering sector (education and profession) in Nepal is set out in the act and regulations. The governing board of the NEC is composed of 18 members, where the Chairperson, Vice-chairperson, Registrar, and five Board Members are nominated by the Government of Nepal (GoN), the Nepal Engineers' Association's (NEA) President is an Ex officio Board Member, 5 Board Members are elected by the NEA, one Board Member is a Tribhuvan University Representative, one Board Member is nominated by the GoN from the Principals of the Engineering Colleges, and two Board Members are nominated by the NEC.

The presentation also provided an overview of NEC's major roles and responsibilities, which are as follows:

- Prepare and execute policies, plans, and programmes for the effective management, and development, of the Engineering Profession in Nepal.
- To set Norms and Standards for Engineering Colleges to adhere to, and to provide accreditation for the certificates awarded by Engineering Colleges; the intake capacity of the accredited Engineering Colleges in Nepal is 8,592 across all disciplines.
- Register all engineers (Nepalese and Non-Nepalese) who want to practice in Nepal; as of March 2015, 26,935 engineers, under 45 different engineering disciplines are registered with the NEC. The NEC is also responsible for removing engineers, who do not follow the professional ethics set by the NEC, from the register.

2.2. DISCUSSION

Er. Shah's presentation generated a lot of discussion, particularly around the standard of engineering graduates and the standard of engineering education, and there was much discussion around the survey findings of Dr. Deepak Bhattarai, which were included in the presentation. Er. Kishore K. Jha, the Nepal Engineers' Association (NEA) General Secretary, provided insight from his own graduation when the Dean of the University informed all the graduating engineers that "from today on, with degree in your hand, do not consider yourself as full-fledged engineers, rather from today on you have the license to learn engineering". This highlighted the key principle of Continuing Professional Development; as professionals learning is never complete, and engineers must continue their professional development throughout their careers. The need to provide graduate engineers with opportunities to gain experience and to develop their practical abilities was also highlighted.

There was also some discussion around the importance of introducing Professional Engineers system, i.e. providing formal professional experience recognition, beyond registration (and licensing examination) with the NEC. The point was emphasised that it is not possible to teach 'work experience', and it is practical work experience that is key to an engineer's professional development. CPD activities, combining professional experience with training days, should be seen as integral to the key objective of achieving structured professional experience in the work place.

3. SESSION 2: NEPAL ENGINEERS' ASSOCIATION (NEA) VISION FOR CONTINUING PROFESSIONAL DEVELOPMENT

3.1. PRESENTATION



Er. Kishore K. Jha, NEA General Secretary, delivering his presentation during the CPD Workshop.

The presentation on '[Nepal Engineers' Association \(NEA\) Vision for Continuing Professional Development](#)' was delivered by Er. Kishore K. Jha, the General Secretary of the Nepal Engineers' Association (NEA).

Er. Kishore's presentation provided an overview of what CPD is, defining it as a "a systematic, ongoing structured process of maintaining, developing and enhancing skills, knowledge and competence both professionally and personally in order to improve performance at work", and stressed the importance of engineers maintaining and updating their skills to meet the changing requirements of the sector. The presentation went on to highlight a UNESCO report, '[Engineering: Issues, Challenges, and Opportunities for Development](#)', which it was suggested all the participants should endeavour to read.

Er. Kishore went on to provide an overview of the 'International Engineering Alliance', formerly the Engineers Mobility Forum, and highlighted that India and Sri Lanka are full members of the alliance, and Bangladesh and Pakistan are provisional members. The presentation described the process involved in becoming a member of the International Engineering Alliance and highlighted the importance of having a CPD programme in place in order to meet the requirements of this process. The presentation also briefly covered the process to become a signatory to the APEC Engineer Competence Agreement and the Washington Accord which provide international recognition for the education qualifications awarded in each country.

The second part of the presentation went on to describe the South Asian context in terms of CPD. Er. Kishore was part of a team from the NEA who conducted visits to other South Asian Association for Regional Cooperation (SAARC) country engineering institutes. Er. Kishore's presentation focused on the Indian and Bangladeshi contexts, providing an overview of the Engineering Staff College India (ESCI), which has been running for over 25 years and is financially sustainable, and the Engineering Staff College Bangladesh (ESCB). Er. Kishore also provided the example of the Nepal Administrative Staff College (NASC), highlighting that whilst it provides training for a different sector, there is strong opportunity to learn from how NASC has been developed and is managed.

The next part of the presentation provided an overview of the current situation in Nepal in relation to CPD for the engineering sector. Er. Kishore highlighted the large number of training institutes that already exist in Nepal and that are already providing training courses to engineers, but in general there is no accreditation of the training courses. Er. Kishore explained that the NEA are considering establishing the Engineering Staff College as an umbrella organisation, under which all the existing training institutes could be managed. This would allow for optimum use of the existing training infrastructure in the country and would strengthen accreditation.

The final part of the presentation introduced the proposed framework for the Engineering Staff College. The Engineering Staff College (ESC) is intended to be established as an autonomous institution thru an Executive Order or as a Not for Profit Company. The ESC will have a Board of Management, the structure of which will be based on the lessons learnt from other SAARC countries, including India, Bangladesh and Pakistan and Sri Lanka. The proposed structure of the Board of Management will include NEA and NEC representatives, as well as GoN,

private sector (FCAN and SCAEF), and the Executive Director of the ESC (who will be appointed by the Board of Management and will be responsible for the administrative and technical management of the ESC). The financial management of the ESC shall follow a public private partnership model.

Er. Kishore explained that whilst the NEA are working to establish the ESC, training courses will initially be made available at the NEA offices through the 'Centre for Continuous Engineering Education'. It is hoped that these training courses will begin in approximately one month, and the NEA will notify all stakeholders of the trainings available.

3.2. DISCUSSION

There was discussion around the timeline for the NEA's 'Centre for Continuous Engineering Education' to begin delivering training programmes. Er. Kishore explained that the NEA hope to be in a position to deliver courses from late April onwards. Er. Kishore went on to explain that the NEA are working with many different organisations / experts to develop training courses on a range of topics. Some examples of the key areas where the NEA hope to be able to deliver training courses very soon are Geographical Information Systems (GIS), Energy and Environmental Management, Disaster Management, and Road Safety.

There was also some further discussion around the proposed introduction of a professional membership qualification under the NEC, given the importance of such qualification in terms of the international frameworks presented by Er. Kishore. It was suggested that such professional membership qualification be considered an add-on to standard registration and that it would focus on the professional work experience that an engineer has gained, and how they have progressed, throughout their career. It was also suggested that such structured professional experience, leading towards a professional membership qualification, can only be provided through collaboration between employers and the NEC, where the NEC can provide a framework, or guidance, under which structured professional experience can be achieved.

4. SESSION 3: RURAL ACCESS PROGRAMME 3 (RAP3) CONTINUING PROFESSIONAL DEVELOPMENT PROGRAMME

4.1. PRESENTATION



Siobhan Kennedy, Independent Researcher, delivering her presentation (on behalf of RAP3) during the CPD Workshop.

The presentation on the '[Rural Access Programme 3 \(RAP3\) Continuing Professional Development Programme](#)' was delivered by Er. Siobhan Kennedy, an independent researcher, on behalf of RAP3. This presentation provided an overview of the RAP3 CPD, internship, and graduate programmes.

The presentation provided a brief overview of the RAP programme which has been running since 1999 and is funded by UK Aid. Phase 3 of the RAP programme (RAP3) is focused on improving access across 14 districts of Nepal and has three main components; Local Road Network Asset Management (maintenance, improvement, and construction of the rural road network), Social and Economic Development (using improved road access as an entry point to develop market systems), and Institutional Capacity Building and Policy Harmonisation (under which the management of the CPD programme falls).

Before expanding on the contents of the RAP3 CPD programme, Er. Kennedy presented a brief summary of why RAP3 has decided to develop and implement a CPD programme, explaining that following the [Nepal Road Sector Assessment Study](#), RAP3 increased efforts to further engage private sector actors in the programme but unfortunately the performance of the private sector actors was lower than expected. A workshop was held with the private sector actors in June 2014, and in this workshop the need for competency based, structured development opportunities was identified. Based on this, RAP3 began to develop the CPD programme which was rolled out in late 2014.

The presentation went on to provide an overview of the RAP3 CPD programme which has three main components that are as follows:

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 in order to remain working on the programme. The 'LRN Engineering Course' covers all aspects of the LRN annual programme cycle, and the training materials can be found on the RAP website here <http://www.rapnepal.com/lrn-engineering-course-materials>.
2. On the Job Training: Under the 'On the Job Training' CPD component refresher training sessions are delivered by the RAP3 District Team Leaders (DTLs) / Engineering Officers (EOs) before each work component starts on the relevant modules from the 'LRN Engineering Course'. For each module a short exam must also be completed by all the participants. There is no 'pass' or 'fail' mark associated with these exams and they are simply an indicator of the level the participants have reached following each training session. The practical experience gained under each work component is the main focus of the 'On the Job Training' CPD component and there are considered to be three different levels at which the programme participants are involved in the practical implementation of the works; 1. Observing the work being completed by others, 2. Completing the work under the supervision of others, or 3. Managing the work.

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 across a wide variety of approved mechanisms e.g. e-learning courses, self-learning using textbooks, work shadowing, etc.

The presentation went on to explain how participants must document their achievements under each of the three components in the relevant section of their [CPD Log Book](#) and the records in the CPD Log Book must be supported by the participants own records in their 'Day Books' (daily diaries). It was explained that the participants' records in their CPD Log Book are reviewed annually and CPD credits are awarded based on the activities that have been completed. Based on the number of credits achieved different levels of CPD certification will be awarded.

The presentation then introduced the two different types of internship programmes which RAP3 is running; one for recent pass-outs from CTEVT Technical Colleges, and one for recently graduated civil engineers. The CTEVT technician internships provides one Inspector of Works (IoW) and one Senior Technical Supervisor (STS) a 12 month internship in each of the 14 RAP3 districts (i.e. 28 interns each year). The internship programme for civil engineers provides 14 fresh graduates, one per RAP3 district, 6 month internships twice a year (i.e. 28 interns per year).

The RAP3 Graduate programme provides a limited number of places every 6 months for exceptional interns who wish to progress in the transport sector. The graduate programme represents a significant step up from the internship programme and is based on the Institute of Civil Engineers, UK (ICE) model.

The benefits of CPD for both RAP3 (employers) and the participants in the CPD programme (employees) were then discussed. The key benefit for both employer and employee was found to be the fact that the CPD activities are built into the day-to-day work of the participants. Er. Kennedy also highlighted the value for money aspect with one RAP3 CPD training day costing approximately 750 NPRs, where one RAP3 formal training day can cost 7,500 NPRs or more.

Finally, Er. Kennedy concluded the presentation with a brief overview of the CPD field visit to Parbat District with the NEC, NEA, ICE, and DFID on the 10th and 11th of March. 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 RAP3's pilot CPD programme in practice. The field visit was extremely useful, and the field visit team discussed the CPD programme at length with all the participants in the programme. The field visit team also discussed the CPD programme with the Local Development Officer (LDO) and District Technical Office (DTO) Chief, as well as the RAP3 District Team Leader (DTL) who is responsible for delivering and managing the CPD programme in the district.

4.2. DISCUSSION

The first discussion point regarding the presentation of the RAP3 CPD programme was how internship and graduate programmes can be offered to the 1,000s of engineers graduating each year. Er. Kennedy, stressed that RAP3 is one programme that is offering 28 civil engineers internships each year, and that is the limit of the number of internships RAP3 can provide, and an increased number of places in such programmes could only be possible if similar internship / graduate programmes were offered by employers across the sector.

The sustainability of the RAP3 CPD programme was also discussed, with several of the workshop participants wondering how the RAP3 CPD programme would continue beyond the programme itself. Bill Seal, the RAP3 Engineering Team Leader, stressed that the RAP3 CPD programme is specific to the delivery of the RAP3 programme but the general approach used could be expanded to other programmes and employers. It is for this reason that RAP3 is collaborating with the NEA and NEC to support the development of a long term, nationwide strategy for CPD for the engineering sector.

5. SESSION 4: PANEL DISCUSSION

The final session of the half day workshop was a panel discussion and the members of the panel were as follows:

- Jeevan K. Shrestha, DG, DoLIDAR (Workshop Chairperson)
- Satya Naryan Shah, Chairman, NEC
- Kishore K. Jha, General Secretary, NEA
- Suman Baidya, Infrastructure Adviser, DFID Nepal
- Bill Seal, Engineering Team Leader, RAP3 (ICE member)
- Siobhan Kennedy, Independent Researcher

The objective of the panel discussion was to provide the workshop participants with the opportunity to seek further clarification on the different aspects of CPD covered in the three presentations, and to provide suggestions for the way forward for CPD for the engineering sector in Nepal.



The panel members, from L-R: Kishore K. Jha, NEA General Secretary, Satya Narayan Shah, NEC Chairman, Jeevan K. Shrestha, DG DoLIDAR, Suman Baidya, Infrastructure Adviser DFID, Bill Seal, Engineering Team Leader RAP3, and Siobhan Kennedy, Independent Researcher

The first discussion point was around the NEC's strategy for carrying out Continuing Professional Development (CPD), given that this is a key area for the NEC because of its role as the regulatory body for the engineering sector. Er. Shah (NEC Chairman), responded on behalf of the NEC, and informed that there are different categories of registration with the council; general, professional, and foreign engineer. As part of the efforts of the NEC in relation to CPD, it is intended that the qualification and competency of engineers, based on their experience and skills will be incorporated into the application for membership of the council and the inclusion of a licensing examination is being reviewed. However, in the case of the general membership category, the Supreme Court has already rejected the NEC's proposal to incorporate a licensing examination into the registration process so it is likely that the licensing examination will only refer to the professional membership. The NEC has sent a proposal to parliament to amend the NEC Act in order to include licensing exams in the registration process. In terms of the overall strategy for CPD the NEC is trying to gain experience, for example through the field visit to observe the

RAP3 CPD programme in Parbat District, and lessons learned from such pilot CPD programmes will be extremely useful to the development of a nationwide CPD strategy. The NEC's aim is to bring Nepali engineers to a level on par with engineers from other parts of the world. Er. Shah also stated that there may be potential for the Council to accredit the RAP3 CPD programme and this will be discussed by the board members.

Bill Seal, the RAP3 Engineering Team Leader, emphasised the need to focus on providing opportunities for engineers to take part in structure professional experience. Mr. Seal stressed the importance of on the job training with experience mentors, and suggested that professional membership qualification be introduced as a separate add-on to standard registration, where the professional membership qualification can take a number of years to achieve and is based on work experience gained.

The NEC were then asked how they will coordinate with the RAP3 CPD programme in a sustainable manner, with a particular focus on how they can expand the opportunities for fresh graduates to gain practical experience. Er. Shah explained that RAP3 is running a CPD programme in order to deal with capacity gaps specific to the programme. NEC's aim is to gather lessons learned from such CPD programmes, and extract from these lessons learned different ideas on how to develop a CPD programme for all engineers that is suited to the context. NEC are hoping to change registration with the council so that certain skills and experience must be achieved before being eligible for registration, this is the primary reason for the Nepal Engineers' Association (NEA) initiating efforts to establish an Engineering Staff College or Centre for Continuous Engineering Education which would support CPD. The NEC needs to review how training certificates awarded through the Engineering Staff College or Centre for Continuous Engineering Education would be accredited in the registration process.

More information on the RAP3 programme, and how the CPD is carried out was requested by the participants. Maheshwor Ghimere, the RAP3 Coordinator with DoLIDAR, explained that the RAP3 programme is focused on Local Road Network (LRN) asset management, using the GoN planning tools; Annual Road Asset Management Plan (ARAMP) and District Transport Master Plan (DTMP). Mr. Ghimere explained that during phase 2 of the RAP programme (RAP2), engineers were hired directly by RAP but in RAP3 the focus on supporting the private sector saw an increase in the number of consultants involved, but unfortunately their performance was much lower than expected. It was for this reason that RAP3 decided to introduce an internship and graduate programme, and to provide training throughout the annual work cycle to the District teams. Michael Green, the RAP3 Programme Manager, emphasised the value for money aspects of the RAP3 CPD programme where one CPD training day costs approximately GBP 5 (750 NPRs) and one RAP3 formal training day can cost GBP 50 (7500 NPRs) or more. It was also for this reason that RAP3 sought out the opportunity to collaborate with the NEC and NEA to support the development of the engineering profession.

Suman Baidya, Infrastructure Adviser DFID Nepal, informed that strengthening the engineering sector is one of DFID's key priorities as it is essential for ensuring sustainable development and aid effectiveness in Nepal. Dr. Baidya stated that the CPD workshop should be considered the beginning of the conversation and suggested that a CPD Coordination Forum is required to ensure the conversation continues. Dr. Baidya emphasised that one or two programmes cannot cover everything and all stakeholders will have to come together to ensure a coherent CPD strategy can be implemented for the whole engineering sector. Dr. Baidya suggested that a CPD coordination forum be established in order to continue the efforts started during the CPD workshop. This suggestion was well received by all participants and there was a general consensus that such a forum should be established. It was also suggested by Mr. Green (RAP3 Programme Manager) that some of the panel members should form a 'working group' to take forward the suggestions from the CPD workshop and present findings and proposals at the CPD coordination forum. There was also a general consensus from all workshop participants on this suggestion.

Kishore K. Jha, General Secretary NEA, acknowledged that RAP3 has started a pilot CPD programme and there are opportunities to learn from this experience, and there may be other donors who can support similar activities. Er. Kishore highlighted that regulating and managing all CPD activities is very challenging and cannot be the

responsibility of only the NEA and NEC but stated that it is critical for such organisation to support these small initiatives and avoid duplication. Er. Kishore went on to emphasise that there has to be a joint effort to make CPD sustainable and employers must provide employees with opportunities for professional development and employees must be motivated and committed to making the most of such opportunities.

It was suggested that DFID/RAP3 could support the collection of baseline data and information in relation to CPD. The baseline study would assess the standards of existing training centres, map training courses and accreditation systems, assess training needs, etc. It was pointed out that without having a clear view of the current situation it will be very difficult to develop a comprehensive, nationwide CPD strategy. Er. Shah informed that this was a very useful suggestion and would be discussed by the NEC board who would be interested in seeing this type of study carried out.

The importance of the CPD log book was highlighted and RAP3 were asked to provide details of how the RAP3 CPD log book format was developed. The need to have a standard format for the CPD log book was also raised. Structured work experience apart from only training. Er. Shah agreed that the RAP3 CPD log book format can be revised to develop a format appropriate for a nationwide CPD programme and stated that the NEC board will discuss the potential to include a CPD log book as part of the registration for the professional membership category. It was suggested that introducing a CPD log book for all engineers to maintain would be a straightforward step that could be carried out prior to the Act being amended which will lead to the adjustment of the process for registration with the NEC and Er. Shah agreed. Er. Kennedy responded on behalf of RAP3 to inform that the RAP3 CPD log book had been developed based on the ICE (UK) and Engineers Ireland's formats, but had been revised to suit the programme and the context.

The need for CPD in the IT sector was raised and it was suggested that there is a need to review how to manage IT professionals in terms of CPD, in particular due to the huge financial investment in the IT sector in Nepal. Er. Shah stated that for IT professionals on the job training working with experienced professionals, is a very important part of CPD. Er. Kishore acknowledged that there are very few institutions focusing on IT professionals and that an increasing number of Nepali IT professionals are seeking employment overseas and those that remain in Nepal are generally either unemployed or start their own business. Er. Kishore explained that the NEA supports these small, local businesses through the Business Incubation Centre, coordinating with senior IT professionals.

The final question, which was posed to DFID, requested further information on what DFID are interested in funding in relation to CPD. Dr. Baidya, reiterated that public and private institutional strengthening and CPD are DFID priorities but stressed that DFID will not directly manage such activities but will provide such support through the DFID funded RAP3 programme. Er. Shah stressed that from the NEC point of view institutional strengthening of both the NEC and the NEA is vitally important. Er. Shah went on to stress that for CPD to be effective it is necessary to consider how CPD can be sustained and implemented in the private sector.

The Workshop Chairperson, Jeevan K. Shrestha (DG, DoLIDAR) provided closing remarks in which he summarised the information that had been presented during sessions 1-3, and emphasised the importance of CPD. Mr. Shrestha highlighted the positive impact of the workshop on his own understanding of CPD, and the RAP3 CPD programme. Mr. Shrestha stressed the Government of Nepal's commitment to supporting the efforts of the NEC and the NEA to develop and implement a nationwide strategy for CPD for the engineering sector, before officially declaring the workshop finished.

6. OUTCOMES

The workshop was a very successful first step towards building a coherent and comprehensive nationwide strategy for Continuing Professional Development (CPD) for the engineering profession. The workshop clearly demonstrated the importance of CPD and the necessity of implementing such a nationwide strategy, and increased the knowledge and awareness of CPD amongst all participants. The workshop also provided an important opportunity to review the various ways in which CPD can be delivered and to look at practical experiences and lessons learned from CPD activities which are already running in other countries, and in Nepal.

The key outcomes of the workshop were as follows:

- A consensus was reached amongst all participants that the proposed '**CPD Coordination Forum**' should be established. All workshop participants agreed that the CPD workshop was an initial step, and that establishing the coordination forum is an essential step to ensuring coherence across the sector, and continuing to review and develop ways to provide professional development opportunities across the engineering sector. The members of the coordination forum would ideally represent the wide range of the engineering sector, and include GoN institutions, private sector actors, and development partners. It is proposed that the NEA and NEC will lead the coordination forum and RAP3 will act as the secretariat.
- A consensus was also reached amongst all participants that a '**CPD Working Group**' should be formed with some of the panel members becoming the members of the working group. It was proposed that the working group will work together to review issues, challenges, opportunities, and suggestions as put forward by participants in workshop and will present findings and proposals at the CPD Coordination Forum
- The workshop also generated interest and discussion amongst the employers present (GoN, development, and private sector) regarding the possibilities of providing CPD programmes to their staff, and / or introducing internship and / or graduate programmes. The CPD coordination forum will provide a very strong platform to support employers who wish to pilot such activities.

7. CONCLUSION

Given the short duration of the workshop, it was not possible to fully achieve all the objectives. The Continuing Professional Development (CPD) workshop was however found to be a successful starting point in the move forward towards a coherent, nationwide approach to CPD for the engineering sector in Nepal. The establishment of the CPD coordination forum following on from the workshop will ensure that the Nepal Engineers' Association (NEA) and the Nepal Engineering Council (NEC) continue to receive support for their on-going efforts on CPD and that employers interested in conducting CPD activities can continue to work with NEA and NEC to receive guidance and support for the implementation of such activities, as well as providing feedback and lessons learned from activities carried out.

ANNEX A: WORKSHOP PARTICIPANTS

Name	Designation	Organisation
Aman Jonchhe	Programme Management Specialist/TL	SDC
Basudev Lohani	DDG, Institutional Strengthening	Department of Irrigation (DoI)
Bill Seal	Engineering Team Leader	RAP3
Dhruba Thapa	President	Nepal Engineers' Association (NEA)
Dil Prasad Shrestha	Executive Director	MITRA
Dilli Sitaula	Deputy Programme Manager	RAP3
Ganga Bdr. Basnet	Coordinator, RTI SWAp	DoLIDAR
Hare Ram Shrestha	President	SCAEF
Hari Ram Dahal	Engineer	Nepal Red Cross Society (NRCS)
Jamedan Bhatta	NEC Board Member	Nepal Engineering Council (NEC)
Jeevan K. Shrestha	Director General	DoLIDAR
Kishore K. Jha	General Secretary	Nepal Engineers' Association (NEA)
Krishna S. Basnet	Executive Member	Nepal Engineers' Association (NEA)
Laxman K.C.	Chairperson, Implementation Committee, NEA CCEE	Nepal Engineers' Association (NEA)
Maheswor Ghimere	RAP3 Coordinator	DoLIDAR
Murali Gopal Ranjit	Managing Director / Member, Implementation Committee, NEA CCEE	MTEEC / Nepal Engineers' Association (NEA)
Nishesh Shakya	Executive Director / Member, Implementation Committee, NEA CCEE	IPTM Nepal / Nepal Engineers' Association (NEA)
Pramila Subedi	NRRC Secretariat Associate	NRRC
Puspa Raj Panthi	Civil Engineer	National Society for Earthquake Technology-Nepal (NSET)
Rabindra Nath Shrestha	Joint Secretary	MoPIT

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Rameshwar Pd. Kalwar	Officiating Director, Nepal Electricity Authority Training Centre	Nepal Electricity Authority
Satya Narayan Shah	Chairman	Nepal Engineering Council (NEC)
Siobhan Kennedy	Independent Researcher	
Suman Baidya	Infrastructure Adviser	DFID
Uma Shankar Sah	SDE	DoLIDAR
Umesh Jha	Deputy Director General, Planning and Design Division	DoR
Vijay Chandra Khatiwoda	Senior Divisional Engineer	DWIDP