



Nepal Health Sector Support Programme III (NHSSP – III)

**A Final Report on
Health Infrastructure Capacity Enhancement Programme Outline Design Report
31st May, 2017**



Disclaimer

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Acronyms

AWPB	Annual Work Plan and Budget
CTEVT	Centre for Technical Education and Vocational Training
DHO	District Health Officer
DPHO	District Public Health Office
DRR	Disaster Risk Reduction
DUDBC	Department of Urban Development and Building Construction
EDP	External Development Partners
FMIP	Financial Management Improvement Programme
GESI	Gender and Social Inclusion
GIS	Geographical Information System
GoN	Government of Nepal
HIIS	Health Infrastructure Information System
IT	Information Technology
JAR	Joint Annual Review
KPA	Key Performance Area
LNOB	Leave No One Behind
MoH	Ministry of Health
NGO	Non-Governmental Organisation
NHSSP	Nepal Health Sector Support Programme
NRA	National Reconstruction Authority
NSET	National Society for Earthquake Technology
PCU	Project Coordination Unit
TABUCS	Transaction Accounting and Budget Control System
TNA	Training Needs Analysis

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1. Executive Summary

Capacity enhancement is a major component of the Nepal Health Sector Support Programme III (NHSSP). Capacity enhancement will be embedded across all core work streams (health policy and planning, procurement and financial management, service delivery, evidence and accountability, and health infrastructure) and give equal importance to political and technical processes needed to build resilient systems for quality health care with no-one left behind. The NHSSP's approach focuses on the sustainable and measurable transfer of skills to the Government of Nepal (GoN) and other relevant stakeholders, ensuring capacity enhancement is informed by local priorities and is built through support to organisations, systems, and people.

This report specifically focuses on the preliminary design and implementation of the NHSSP's health infrastructure capacity enhancement programme to enhance the skills and expertise of relevant government staff and the private sector. DFID's approval for the proposed health infrastructure capacity enhancement programme, as set out in this report, is required to allow the NHSSP to move forward to the detail design stage of programme content, delivery mechanism, time frame, and budget. Capacity enhancement activities for other work streams are described in more detail in the NHSSP Inception Report.

Nepal faces major capacity constraints in its efforts to rehabilitate health infrastructure after the 2015 Gorkha earthquake, as well as the regular programmatic demands to upgrade and maintain health facilities across the country. In addition, the GoN is entering a significant political and institutional change with the move to federalism; the Ministry of Health (MoH), Department of Urban Development and Building Construction (DUDBC), and reconstruction agencies will be joined by newly established decentralised structures. Health infrastructure development planning and implementation will require building capacity across federal, provincial, and local government level and the private sector to build a cadre of capacitated practitioners able to provide the technical service necessary to deliver facilities that are resilient to seismic and environmental hazards.

The proposed capacity building programme outlines a selection of modules which will be combined to form tailor-made capacity building to match demand and need from the target participant groups. The modules have been divided into two parts as core modules and additional modules. Core modules are of high priority and more specific to development of cadre of capacitated practitioners able to provide the technical service necessary to deliver facilities that are resilient to seismic and environmental hazards and the additional modules are seen as beneficial modules which can add to the value of the core modules and are to be initiated subject to successful completion of the core modules. The modules identified include:

1. Core Modules

- Policy development and evidence based planning
- Seismic retrofitting and rehabilitation, standard, and practice
- Health Infrastructure Standard Design and Guidelines 2017
- Procurement, tendering and construction management
- Health Infrastructure Information System (HIIS) users and specialists train
- Environmental adaption standard and practice

2. Additional Modules

- Medical Waste Management
- Health infrastructure development upgrade and maintenance policy

A comprehensive list of modules will be finalised at the detailed design stage after the conclusion of Training Needs Analysis (TNA) exercises and consultation with programme partners. Programme delivery will be coordinated by the NHSSP Capacity Enhancement Advisor, with oversight from the Health Infrastructure Capacity Enhancement Steering Group.

The proposed capacity enhancement programme will include a combination of delivery mechanisms, including workshop and classroom-based learning, on-the-job training, coaching, mentoring, and on-site support, in addition to facilitating a community of practice. Training will also be provided at different geographic levels.

Purpose of the Report

The Inception Period will be used to lay a firm foundation for the health infrastructure capacity enhancement programme. It will involve considerable consultation and alignment with various stakeholders. The purpose of this report is to produce an outline design for the health infrastructure capacity enhancement programme that sets out a roadmap for delivery over the following three years. Further interviews, discussions, and meetings will be conducted to ensure that there is synergy, compatibility, and robust inter-relationships between the target groups and capacity enhancement activities. This is a critical aspect of the work stream design – it has to be more than a set of individual training activities if it is to maximise development effectiveness as well as deliver value for money improvements.

This report will be followed quickly by a detailed design report which will build on and consolidate the proposals put forward, setting out activities, timeframe, and delivery arrangements that will allow for rapid implementation and programme management.

This report is intended to build a solid foundation for the health infrastructure capacity enhancement programme. It will set out clear and well-founded positions that allow key stakeholders to understand what is intended, and to make decisions appropriately. The subsequent detailed design report will

expand on the outline structure, components and methodologies of the capacity enhancement programme and guide its implementation.

2. Rationale for Health Infrastructure Capacity Enhancement

The NHSSP continues to emphasise strengthening the existing capacity within the state, non-governmental organisation (NGO), and private sectors to deliver high quality health infrastructure and services. Although previous NHSP phases did promote advances in skills and knowledge in developing health facilities, there remains a need to enhance and embed capacity to become more sustainable.

Capacity enhancement is more than the training of individuals – as well as building skill sets of individual staff, it involves strengthening procedures, operational systems, networks, and organisational relationships. The over-arching goal of the NHSSP is to produce a well-capacitated, functional, and efficient health infrastructure capacity within the MoH and DUDBC by the end of the programme, and to strengthen national capacity networking with the private and NGO sectors.

Consequently, the NHSSP's methodology will support the ability of the MoH and DUDBC to meet their strategic and operational targets, and to improve non-state sector capacity to provide technical competencies, particularly in retrofitting, rehabilitation, and climate change adaptations. This two-fold approach enhances resilience and sustainability – for example, it will take time to build up technical competencies (such as the design of structural retrofitting solutions) throughout state structures. At present these types of services are sourced out by the government to the private sectors or support has been received from different external development agencies. These supports have provided relevant government structures the ability to identify and specify the need for such services. The Health Infrastructure team will initiate and continue to support the Project Coordination Unit at the MoH, DUDBC, and Nepal Reconstruction Authority until such skills are developed and mainstreamed. It is evident that there is an absence of technical competencies to design retrofitting solutions throughout the state structures, therefore, until this capacity is developed and mainstreamed it is understood that the state structure will keep on procuring such services. Our rationale is supported by organisation development analysis, in which institutions and networks are seen as deeply co-related, and that networks respond to institutional effects (Owen-Smith and Powell, 2007). Over its four year timespan, the NHSSP will improve the ability of government staff to design and implement a higher standard of and more resilient health infrastructure. In areas such as seismic retrofitting, this will require specialist skill sets both to commission (institutional strengthening) and provide such services (network response). The NHSSP will support the development of such skills in public and private sectors, as well as encouraging information sharing and networking through professional relationships and associations.

This is the stimulation and support required for the formation of a community of practice (again, a form of network response), where a particular specialist sector develops and grows through interaction among its members, peer review, and learning from experience as the sector grows. This will strengthen connectivity and collective commitment, as well encouraging opportunities for innovation. A strong pool

of experienced practitioners within and outside the state will be a major asset in developing a resilient system and foundation for this sector.

The NHSSP approach to capacity enhancement has three main elements (Figure 1):

Organisations – enhancing organisational capacity by:

- Reviewing performance and strengthening inter-departmental relationships (for example, between the MoH, DUDBC, and National Reconstruction Authority)
- Supporting management and administrative structures at federal, provincial, and local government levels

Systems – enhancing systems to deliver more resilient health infrastructure through:

- Improving tools and information to enhance decision making, such as the Health Infrastructure Information System (HIIS)
- Strengthening procedures to improve efficiency (for example, better forward planning, budgeting, and procurement)

People – upskilling key staff through:

- Targeted training programmes with clear educational outcomes
- Planned programmes of skills transfer, with supportive supervision, coaching, and mentoring
- Consistent training across public and private sectors

Particular attention is required to ensure institutions, staff, and systems have the sufficient capacity to produce deliverables and take decisions to meet the requirements of each stage of the MoH and DUDBC health infrastructure planning cycle (policy codes and standards, planning, budgeting, implementation, monitoring, and feedback).

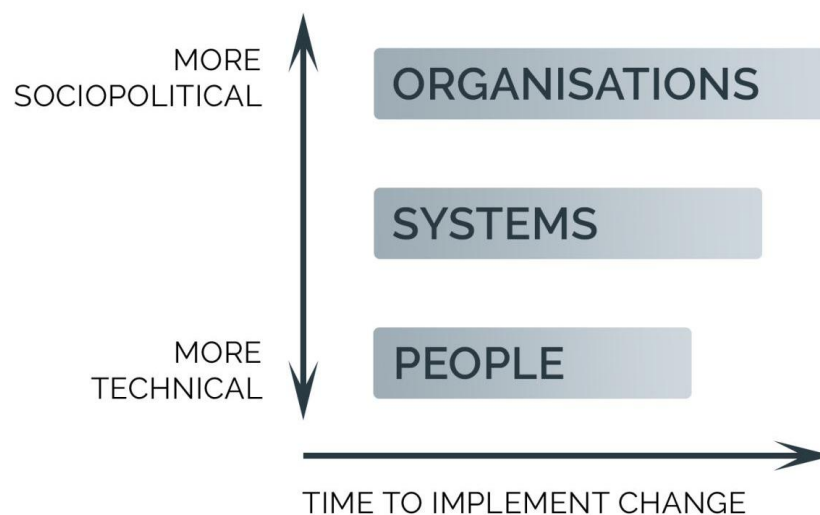


Figure 1: Capacity Enhancement Framework

As indicated by the Capacity Enhancement Framework, the NHSSP health infrastructure capacity enhancement work stream will be multi-faceted, complex, and require exemplary organisational coordination. It will involve a combination of different target groups and activities:

- Improvements in a wide range of skill sets (such as proficiency in seismic resilience and eco-efficient designs, management of transparent and effective tender procedures, evidence-based policy making, and financial management systems)
- Different target groups, including MoH management staff, DUDBC technical and regional staff, the new Project Coordination Unit (PCU) arrangements, private sector construction specialists, private contractors, relevant non-governmental structures, and students in higher education in relevant subjects
- Responding to the needs of the new federal dispensation to ensure that there is an effective transition to well-capacitated and functional organisations at sub-national level
- Ensuring that disaster risk reduction (DRR) becomes mainstreamed into GoN practice as an inherent component of governance

3. Target Groups

The health infrastructure capacity enhancement programme primarily targets MoH and DUDBC staff, followed by private sector, construction professionals, and contractors. The goal for the activity is to create a strong community of practice, across both public and private sectors, with the knowledge and competency to design and build resilient health infrastructure. Opportunities to strengthen engineering and construction higher education will also be explored in conjunction with universities and relevant institutions to introduce final year engineering students to retrofitting and climate change adaption concepts and practice. Core capacity enhancement activities focus on understanding and implementing relevant codes, standards, and guidelines for construction and maintenance of health facilities including seismic retrofitting, rehabilitation, and climate change adaption.

Target groups, needs, and modules may be modified or supplemented depending on the outcomes of the relevant TNA exercises. The establishment of the MoH PCU structure will introduce a new and important delivery agent into this institutional arrangement. The PCU has the high-profile mandate of implementing the Integrated Health Infrastructure Project 2016-2023, which aims to redress the damage of the 2015 Gorkha earthquake and continue the roll-out and improvement of health facilities across Nepal.

In addition, the creation of the new federal sub-national structures of government will have an impact upon the size and nature of the target groups and consequent training programme content.

3.1 MoH, Project Coordination Unit, and DUDBC

The MoH and DUDBC need strong internal capacity to formulate policy and implement the technical function necessary to design, plan, and deliver the country's health infrastructure. The Joint Annual Review (JAR) 2014/15 recommended capacity enhancement in technical areas for the DUDBC central office and district staff, and this need was confirmed by subsequent experience through the post 2015 Transition and Recovery Programme. The main target group of the capacity enhancement programme is the MoH, PCU, and government staff from other relevant departments, in addition to DUDBC staff at national and subnational levels (Figure 2).

The DUDBC is the main government department responsible for planning, design, implementation, construction, and monitoring of national public health infrastructure. The new federal system restructuring is underway and will impact on MoH and DUDBC functions and staff establishments, which in turn may alter the number and composition of potential target group.

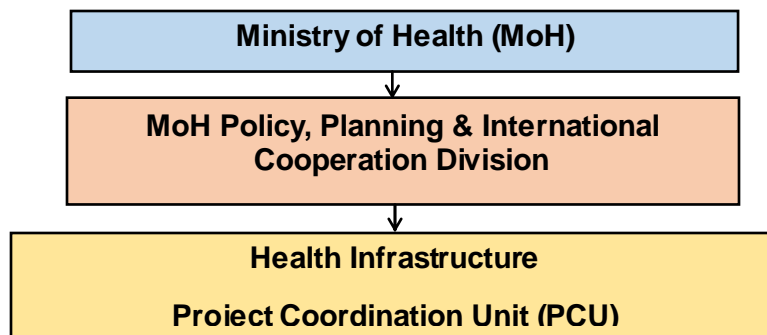


Figure 2: Health Infrastructure Reconstruction Project – Institutional Arrangements

In addition to its centrally located staff, the MoH also has officials distributed at sub-national level through its network of District Health Office (DHO) and District Public Health Offices (DPHO).

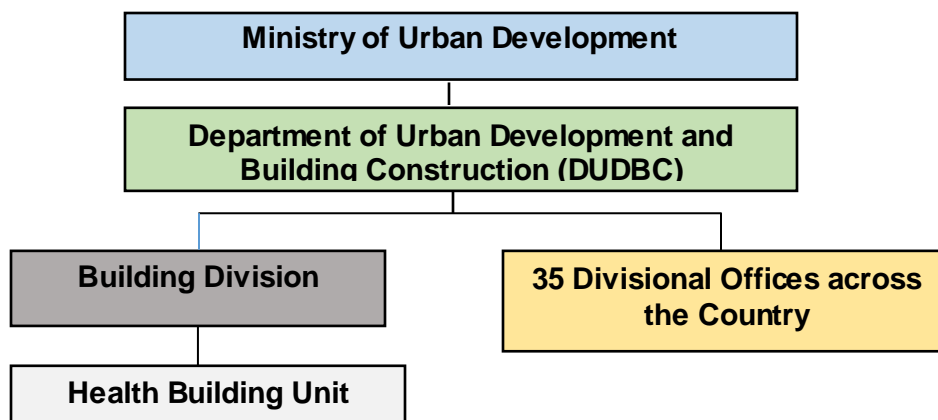


Figure 3: Organisational Chart of DUDBC Related to Health Infrastructure

The DUDBC has 35 division offices which will be restructured under the new federal arrangement, involving an estimated target training group of approximately 70 technical staff. At present, these arrangements are yet to be finalised. Consequently, the health infrastructure capacity enhancement programme design has to be prepared in line with existing structures and staffing arrangement. These will be kept under review and the programme adjusted, within the parameters of the RHITA ToR, as new organisational arrangements are put in place.

It is envisaged that training in policy development and evidence-based planning will be delivered primarily for MoH and DUDBC senior management, and depending on the outcome and effectiveness of this activity stream, it may be rolled out to further participants. Technical skills development will be provided to the MoH and DUDBC staff responsible for conducting the technical design, site planning, supervision, and procurement processes. Information Technology (IT) officers will receive training in the use of the improved HHS and Geographical Information System (GIS).

3.2 Private Sector Construction Professionals

Private sector construction professionals (including engineers, architects and quantity surveyors) are contracted to supplement the work of the DUDBC technical staff. There is a need to ensure that professional standards for public sector health infrastructure work are compatible between the state and private sector. This is particularly important in areas of innovation, such as retrofitting and climate change adaptation. It is also necessary to secure the quality of work delivered by private construction professionals and designers. Private construction professionals and designers will receive capacity enhancement training to build their technical ability to ensure health infrastructure is more resilient to future environmental and seismic hazards. Particular attention will be paid to transferring skills in design and implementation of seismic retrofitting and rehabilitation techniques, understanding of and compliance with health infrastructure guidelines, and building adaptation to deal with climate change-induced hazards.

3.3 Construction Contractors

Construction contractors are required to perform against the specifications, bills of quantities, and time frames set out in contract documents for capital works. Quality assurance and inspection is required at every critical stage in the construction process. In this way, the contractors have to know the construction quality specified in the design and have to construct accordingly in the construction site. The capacity of the contractor should be such that the specified work can be completed with prescribed quality of design within the stipulated timeframe. Such capacity enhancement training will also be provided to construction contractors in preparation for the tender process. Contractors will be expected to monitor the work of artisans and masons to meet the specified quality of construction at each stage of the project.

It is envisaged that information sharing sessions will be held to expose contractors to the new standards and approaches being developed for health infrastructure development, retrofitting, and rehabilitation and responses to climate change. Particular attention will be paid to ensuring contractors are familiar with standards, designs, materials and techniques that may be specified in contract documents.

3.4 'Fresh Engineer', Engineering Teachers, and Students

Module content and suitable educational material developed under the capacity enhancement programme will be supplied to participating educational institutions. These could be incorporated into current curricula and targeted towards specific cohorts such as final year engineering students. 'Fresh engineers' (newly qualified graduate engineers) are another potential cadre that could be exposed to this training, introducing such skills sets at an early stage in their careers.

4. Areas for Health Infrastructure Capacity Enhancement Activities

The NHSSP focuses on the enhancement of existing capacity within the state, NGO, and private sector. The aim is for these actors to deliver high quality health infrastructure and services in the areas of policy development, technical skill enhancement, procurement and financial management, and the maintenance of health infrastructure. It also aims to build their capacity in the planning, programming, and budgeting cycle, including the GoN Annual Work Plan and Budget (AWPB) process and use of HIIS.

4.1 Core Areas for Capacity Enhancement Activities

4.1.1 Policy Development

This activity stream targets the improvement of policy development in the MoH through the implementation of an evidence based approach. It seeks to strengthen integrated policy, planning, and budget making for the programming, operation, and development of health infrastructure.

4.1.2 Technical Skill Areas

The MoH and DUDBC technical staff will be introduced to the new codes, standards, and approaches to retrofitting and climate change adaptations. This programme will provide extensive and integrated training events to strengthen the target audience's health infrastructure knowledge and skills, as detailed in the following sections.

4.1.3 Health Infrastructure Standard Design and Guidelines 2017

The MoH has recently approved the Health Infrastructure Design Guideline (2017). These guidelines are the key foundation document for design, construction, and maintenance of health facilities, ranging from site planning, and use of materials, fixtures and fittings, as well as specialist aspects such as installation of medical gases. The guidelines also cover design and build for specialised health units,

including intensive care, accident and emergency, x-ray, obstetric and neonatal care, pathology, and mortuary.

This particular module will help DUDBC, PCU, and other targeted groups to understand the functional retrofitting requirement of the health facility designs and will help them apply the skills both in retrofitted facilities' and new facilities' design and construction.

4.1.4 Retrofitting and Rehabilitation (Structural and Non-structural) of Hospital Infrastructure

The NHSSP retrofitting and rehabilitation work stream involves the design and development of new national codes and standards for seismic retrofitting of existing health facilities. These will relate to both structural and non-structural aspects, and take account of the specific requirements of health infrastructure. These areas of skills training will target both public and private sector engineers to ensure compliance and equal standards of implementation. Attention will be paid to ensuring that these standards and techniques are also communicated and training is provided to masons as appropriate.

4.1.5 Procurement, E-tendering and Financial Management

The preparation of tender documents, necessary steps for conventional tendering, and modern e-tendering along with necessary actions to improve transparency and zero-corruption in the tendering process would be included in the training. The DUDBC has previously instituted training on the use of e-tendering. This module will link procurement, e-tendering, and financial management for government officials and contractors with particular emphasis on health infrastructure contracts.

4.1.6 Health Infrastructure Information System (HIIS)

The HIIS is a GIS used to capture, present, and analyse data on health facilities across the country. It is used for planning the continuous improvement of the health infrastructure network including health care needs, distribution, and location. The HIIS is being developed to improve its scope and range of system to provide more information and analysis. This module will target government system operators and managers to improve their ability to use this system and identify opportunities for increase connectivity and networking.

4.1.7 Climate Change and Health Infrastructure Framework

One of the activities of the Nepal Health Sector Support Programme III (NHSSP III) is to study and produce a report on the Climate Change and Health Infrastructure Framework that will inform the current policy environment.

Climate change has significant implications for the MoH in terms of health service delivery and forward planning. The health infrastructure network has to deal with current impacts as well as the need to continuously be able to take account of additional climate change-related threats and incorporate strategies to strengthen key functions that respond to such risks. Ensuring that health infrastructure is

more resilient to environmental shocks will require the development of specific policies and guidelines by the MoH. This module will support in developing capacity of all the concerned stakeholders to institutionalise and adopt the climate change policies and related infrastructure framework.

4.2 Additional Areas for Capacity Enhancement Activities

The core areas of capacity enhancement form the priority of the programme and additional areas of capacity enhancement will be carried out in addition to successful completion of the priority capacity enhancement activities.

4.2.1 Medical Waste Management

Healthcare facilities should have a medical waste management policy and plan. The policy should detail objectives and operational requirements, including specifications for new-build or upgrading of an existing system. Standard operating procedures, training, and other guides can set out the roles and responsibilities for employees undertaking in medical waste management tasks.

4.2.2 Health Facility Maintenance and Repair

The NHSSP infrastructure team is in the process of formulating new policies and procedures for the regular maintenance and repair of health infrastructure. This is an essential skill set for planning and implementing cyclical maintenance programmes to prolong the effective life of health facilities.

4.3 Indicative Programme

The table below illustrates an indicative health infrastructure capacity enhancement programme, illustrating modules applied across the main target groups (Table 1).

Capacity Building Activities	MoH Staff	DUDBC	Construction Contractors	Construction Professionals
Policy development and evidence-based planning training course	Management Division	Not applicable	Not applicable	Not applicable
Earthquake retrofitting and rehabilitation standards and practices training course	Management Division / PCU	Health Buildings Unit and Regional staff	Construction Contractors (pre-qualified / on-demand)	Construction Professionals (pre-qualified / on-demand)
Environmental adaptations standards and practices training course	Management Division / PCU	Health Buildings Unit and Regional staff	Construction Contractors (pre-qualified / on-demand)	Construction Professionals (qualified / on-demand)
Rational planning and health facility location	Management Division / PCU	Health Buildings Unit and Regional staff	Not applicable	Not applicable
Policy for Health Infrastructure Development, Upgrade and Maintenance	Management Division / PCU	Not applicable	Not applicable	Not applicable
HIIS – information sessions and preparation for hand-over to MoH	Management Division and Physical Asset Management Unit	Health Buildings Unit and Regional staff	Not applicable	Not applicable
Technical skills development training course	Not applicable	Health Buildings Unit and Regional staff	Not applicable	Not applicable
Mentoring / support help-line	Management Division	Health Buildings Unit and Regional staff	Not applicable	Not applicable
Retrofitting / rehabilitation / environmental adaptations information sessions and on-demand training	Not applicable	Not applicable	Construction Contractors (invited to sessions and on-demand)	Construction Professionals (invited to sessions and on-demand)
Hospitals contracts and bid process information sessions	Not applicable	Not applicable	Construction Contractors (invited to sessions)	Construction Professionals (invited to sessions)
Procurement Improvements and Enhancing Transparency	Management Division and Physical Asset Management Unit	Health Buildings Unit and Regional staff	Construction Contractors	Construction Professionals

Table 1: Capacity Enhancement Activities and Participant Target Groups

As identified in Section 3 above, an effective capacity enhancement programme responds to the identified needs at organisational, systemic, and individual skill levels in an integrated and structured fashion. Table 2 demonstrates how the range of modules (so far identified) provide a spread of interconnected activities across this framework.

Framework Level	Capacity Enhancement Activities
Organisations	<ul style="list-style-type: none"> • Policy development and evidence-based planning training course • Earthquake retrofitting and rehabilitation standards • Environmental adaptation standards • Policy for health infrastructure development, upgrade and maintenance
Systems	<ul style="list-style-type: none"> • Health infrastructure information system – information sessions and preparation for handover to MoH • Mentoring / Support helpline • Procurement improvements and enhancing transparency
People	<ul style="list-style-type: none"> • Earthquake retrofitting and rehabilitation practices training course • Environmental adaption practices training course • Rational planning and health facility location • Technical skills development training course • Retrofitting/ rehabilitation/environmental adaptations information sessions and on-demand training • Hospital contracts and bid process information sessions

Table 2: Capacity Enhancement Framework Levels and Indicative Activities

5. Motivation and Participation

It is risky to take the active and effective involvement of participants in in-house training programmes for granted. Forward planning is required to ensure that programme implementation is tailored to maximise attendance and participation. The NHSSP capacity enhancement programme will mitigate this risk by taking into account the following aspects of programme design:

- Securing prior approval from senior management in the MoH and DUDBC (as well as buy-in from the relevant human resources officials) in relation to which groups of staff are involved, and ensuring the programme schedule takes into account the need for continued operations in their source section; this may involve rostering of staff participation and repeating training modules where required
- Paying attention to the location of training venues to ensure that they are easily accessible to participants (including those that use public transport)
- Ensuring that capacity enhancement events are scheduled in such a way not to prejudice the involvement of women and other disadvantaged persons or groups
- Investigating opportunities to tie module design to continuing professional development, thus encouraging participant motivation and willingness
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6. Capacity Enhancement Methodologies

Participant support and ongoing reinforcement of training are essential to ensure that training inputs are assimilated and incorporated into practice and participation in the Programme Steering Group should expose departmental senior management to the need for this support. The final programme design and experience from the various module pilot exercises will confirm those areas and modalities of this support. Programme implementation must also pay attention to ongoing support for the emergent community of practice to maintain periodic meetings and experience exchange between participants, as well as coaching and mentoring by more experienced and suitable in-house professionals. The establishment of an active and engaged community of practitioners is critical for future sustainability and embedding of new standards and techniques.

The NHSSP health infrastructure capacity enhancement programme will pay particular attention to the methodologies applied to increase learning effectiveness. It will be designed to reflect the following key aspects:

- Structuring to focus on real challenges and situations relevant to Nepal and participants' real-life professional needs.
- Learning activities and case studies used will be selected to illustrate and link to real challenges being experienced, rather than hypothetical illustrations
- A range of different kinds of activities will be used to accommodate different learning styles, including challenging individual work as well as collaborative group work, activities that generate a physical output and those that engage discussion, site visits, and traditional presentations.
- Learning activities will engage participants' experience and provide opportunities to contribute and share their knowledge and experience.
- Peer learning will be encouraged through the programme, building on the experiences of the selected participants.
- The transfer of learning to the workplace will be built in through application tasks and assignments followed by peer review or reflection sessions.

Given the geographic scope of the programme, as well as the extent of the curriculum, cost effective options for delivery such as e-learning, blended learning, and distance learning will be investigated in more detail in the detailed design stage of the programme.

However, given the Nepal context, considering Information and Communication Technology (ICT) bandwidth constraints, the programme should be largely face-to-face in the form of courses, workshops, and peer review sessions where participants can actively engage and collaborate around shared challenges and case studies. Wherever possible, workshops shall be organised closer to the bulk of participants, to reduce travel cost and effort. Furthermore, the possibility of merging different modules together depending upon relevance to the identified groups will also be considered. Government

forums including regional reviews and annual reviews will also be used for many of the capacity building activities.

Participants will be expected to complete preparation activities before attending learning events. These may include pre-reading, research, or engaging with a website, multimedia, or other resources.

7. Approach to Detailed Design

Ensuring buy-in and support from the MoH and DUDBC management will be the essential starting point for the detailed design of the health infrastructure capacity enhancement programme. Particular attention needs to be paid to conducting the TNA in both departments, since this will involve not only checking the skills-sets of individual officials, but also assessing the operating environment that supports the application of these professional skills. Key components in the detailed design are:

- A Health Infrastructure Capacity Enhancement Steering Group will be established, comprising the relevant management officials from each department. This group will:
 - Provide comments and inputs on programme content in the initial stages of the design process
 - Respond to the TNA findings
 - Provide oversight capacity on programme implementation and performance against targets of the delivery strategy
 - Identify potential participants in the relevant departments
 - Monitor the progress of establishing the PCU and the reorganisation of DUDBC divisional office function
- The TNA will assess the following areas:
 - Skills sets of the identified potential participants in the MoH and DUDBC; this measures individual competencies and helps identify needs to be addressed and suitable approaches
 - Operating environment to facilitate application of skills and support continuing technical development
- Based on the TNA, the programme content will be finalised, building on the modules identified in the indicative training plan and supplementing where necessary. Specific training content on retrofitting has already been developed and tested in the Nepali context (such as the materials developed by National Society for Earthquake Technology [NSET]), and subject to permissions, can be adapted for use within the NHSSP programme.

- Particular technical areas – such as retrofitting and rehabilitation design and implementation – lend themselves to on-site training experience. Where appropriate, specific health infrastructure projects will be identified to demonstrate such examples, and will be incorporated into the programme.
- The training delivery mix will then be confirmed for each participant group, taking into account the outputs of the capacity enhancement methodology process. This could lead to a combination of a variety of delivery mechanisms, including workshop and classroom-based learning, on-the-job training, coaching, mentoring, and on-site support.
- The various modules will be consolidated and piloted, moving on to implementation with priority beneficiary groups.

The detailed design exercise will pay particular attention to the principle and operational implication of gender and social inclusion (GESI) and the “Leave No One Behind” (LNOB) approach in both module content and programme delivery logistics.

8. Delivery Options

There are a number of high quality and relevant resources already available from the NHSSP partners and External Development Partners (EDP), including the Health Research and Social Development Forum (HERD), Miyamoto International, the National Society for Earthquake Technology (NSET), and the Centre of Resilient Development (CORD), MRB and associates, as well as relevant UN and international development agencies. Suitable material has already been identified in the process of formulating modules in the health infrastructure capacity enhancement programme. Learning events could be facilitated by subject matter experts from the NHSSP infrastructure team as well as EDPs and contractors. Particular attention will be paid to incorporating specific learning objectives and educational outcomes in each module. Development costs for modules and facilitation will be built in to the budget for the production and implementation phases of this programme.

8.1 Programme Design

The delivery of the health infrastructure capacity enhancement programme is designed to be demand-responsive. Modules, training materials, and adult education methodologies will be matched against the requirements of different participants groups, as identified by results from the respective TNAs.

Given the scale of the training required, the wholesale delivery of all aspect of the programme by the NHSSP Health Infrastructure team is unlikely to be effective or cost efficient. It is envisaged that delivery agents will be appointed to implement specific aspects of the programme.

- Module design: This involves the production of module content taken from information generated by the infrastructure work stream such as policy standards, retrofitting methods, the HHS database, and climate change adaptation. These materials are adapted to be understandable

in the training context and learning objectives will be generated for each module. Options for translation of materials (including full translation or summary translations) will be considered for each module. Specific outcomes and learning objectives for each module will be included at the detailed design stage, after further consultation with programme partners and practitioners.

- **Materials and presentation:** The module content will be produced as specific educational material and products. These will include presentations, multimedia, participant's handbook, manuals, and facilitator guides.
- **Delivery logistics:** This aspect of the programme involves administration, cost and value for money, and the practical delivery of training events. Key components are:
 - Participant identification, selection, notification, and registration
 - Venue identification and booking
 - Transport and accessibility for participants
 - Event management
 - Event facilitation and ensuring achievement of training objectives
- **Impact evaluation:** A suitable independent organisation with experience in capacity enhancement measurement will be identified to conduct the annual impact evaluation of the key participant groups in this programme.

8.2 Contract Packaging

Flexibility and efficiency in delivery will be essential for the successful targeting and implementation of training events. To this end, options for contracting out the whole or relevant sections of the programme will be considered. In all cases, the infrastructure technical team will essentially design, organise, manage, and support the events in a resource capacity. Contract packaging will be considered if any events requiring special techniques or skills have to be organised, if specific facilitation skills are required, if special events have to be managed, or if support is required to prepare some of the modules as demanded by TNA. Once the TNA process is over, clearer options will be identified and implemented. Possible combinations for contract packaging include:

- **Material design:** The use of specialist educational material design and production companies (design and print) inputs will be provided by the infrastructure team.
- **External expertise and support with content and learning objectives development,** such as peer reviewing, comments, discussion forums leading to the formulation of structured module content, and measurable learning objectives
- **Geographic grouping of training event delivery:** Contract packaging to reflect special delivery requirement including events at provincial, districts and local level. Training events will be held closer to places of work, in areas of need, and not necessarily concentrated in major

metropolitan centres. Clustering events to avoid long distance travel and overnight accommodation for participants will also be explored.

9. Indicative Health Infrastructure Capacity Enhancement Programme

Table 3 illustrates a preliminary distribution of health infrastructure capacity enhancement activities by timeframe and work stream. The capacity enhancement activities include training events, seminars and workshops, working sessions for consultation, information sharing and peer review, orientation meetings, on-site training, and sharing of findings of the assessment.

A total of 39 training events are been scheduled for the Policy Development work stream; 86 for Capacity Development work stream and 48 training events for Retrofitting and Rehabilitation work stream.

This time frame and training event schedule will be further elaborated and costs calculated at the detailed design report stage.

Table 3: Indicative Health Infrastructure Capacity Enhancement Programme

Activity Description	Number of Training Events
KPA1: Policy Development	
1st year	18
2nd year	12
3rd year	4
4th year	5
KPA2: Capacity Enhancement work stream	
1st year	10
2nd year	24
3rd year	38
4th year	14
KPA3: Retrofitting and Rehabilitation work stream	
1st year	25
2nd year	12
3rd year	11

The current NHSSP work plan envisages the following targets:

- Eight training events for the MoH and DUDBC staff in policy development and technical skills
- At least 120 MoH and DUDBC staff trained in skills development/capacity building programmes by 2020

- Eighty capacity enhancement events for private sector construction contractors and construction professionals with at least 800 participants in total
- A programme of training for MoH and DUDBC staff in implementation and operation of Financial Management Improvement Programme (FMIP), AWPB, and TABUCS leading to a minimum of 780 DUDBC/MoH staff trainings undertaken. Responsibility for delivering these activities falls under the NHSSP financial management assistance, and is not a specific item under the health infrastructure work stream.

However, these targets will be kept under review and revised, if necessary, during the course of implementation and in response to the findings of the Annual Impact Evaluations.

10. Impact Indicators

There will be consistent monitoring and evaluation of health infrastructure capacity enhancement activities. Basic performance indicators include training event attendance registers, and completion reports. There will be Annual Impact Evaluation exercises to assess the overall improvement in performance in the target areas, including value for money assessment, as appropriate. Impact indicators and impact assessment tools will be developed which may be different for each types of training programme and will be identified at the detailed design stage of the programme.

Possible indicators:

- Retrofitting training: widespread incorporation of retrofitting designs and techniques in health infrastructure upgrading programmes
- Allocation of budgets by the concerned sector for retrofitting works
- Number of health facilities designed adhering to the seismic resilient codes and complying with, the MoH standards designs and implementation guidelines for permanent construction of health facilities
- Number of professionals better equipped to undertake seismic retrofitting works
- Work performance change in the construction of health facilities (Increase in number of retrofitting designs completed by DUDBC/PCU within the stipulated timeframe and efficient management of similar construction projects)
- HIIS training will be assessed in terms of data usage from the online system and data submission into the system. The online system will track the number of logins and system usage which will reflect the usage of the HIIS and GIS.
- Increased number of events held by Health Infrastructure Community of Practice groups
- Number of contractors competing and qualifying for retrofitting works compared to previous bidding processes before the interventions
- Number of tendering procedures successfully completed to an acceptable standard, compared to the number without interventions
- Improved maintenance procedures and practices in health facilities

To support the impact evaluation following process will be completed for each training;

- Needs assessment before each training programme
- Establishment of performance indicators for each training programme
- Records will be maintained on the number and types of training programmes held
- Records will be maintained on the number of people from each identified group that have been trained
- The types of methods used for the training and training materials
- How the training materials were developed
- The types of feedback that were received from participants in each training
- Feedback received on the knowledge change (tools will be developed as required)

A suitable independent organisation with experience in capacity enhancement measurement will be identified to conduct the annual impact evaluation of the key participant groups in this programme. We are proposing annual independent evaluations, which are generally recommended as a good practice.

Impact evaluation would therefore measure whether these learning objectives have been assimilated and are being put into practice.

However, there will need to be some flexibility in designing these measures – for example, to test whether an engineer has learned how to design retrofitting solutions for a hospital could be tested in practice only if s/he has actually been given such an assignment. Consequently, the impact measure may then have to take another form, such as an oral or written test or questionnaire with consent from the respective government organisation, and the government leading the process. Therefore, tools for measuring the impact for each type of training will be designed and implemented as appropriate.

11. Actions and Recommendations

This outline health infrastructure capacity enhancement programme design needs to be further refined and approved by the key institutional stake holders ahead of moving forward to the detailed design stage. It is recommended that the following actions to take the programme into its next stage are approved:

- The report will be circulated to the stakeholders identified in Section 13 for consultation and feedback.
- A consultative workshop will take place with these stakeholders to discuss and assimilate their viewpoints into the programme refinement process.
- A Health Infrastructure Capacity Enhancement Steering Group will be established, comprising relevant representatives from each department and stakeholder organisation. This group will provide comments and inputs on programme content in the initial stages of the design process.
- Subject to managerial approval, and with the support of the steering group, the TNA exercises will be initiated in the relevant departments with the identified target groups.

- TNA findings will be analysed, reported to steering group and departmental management for consideration, and the findings used to guide the detail design of modules and training arrangement.
- The Steering Group will continue to act in an oversight capacity to receive and comment on the detailed design report for this programme.

A preliminary work programme and Gantt chart for the period May 2017 to February 2018 is set out in Appendix B.

12. Target Audiences and Dissemination

Key stakeholders and the primary audience for this report will be the MoH, Nepal Reconstruction Authority (NRA), DUDBC, and Department for International Development (DFID). In addition, the report will be disseminated to the Nepal Engineering Council (NEC), Nepal Engineering Association, Centre for Technical Education and Vocational Education (CTEVT), EDPs, and relevant higher education institutions and NGOs.

Group consultation and interaction will also be used to test reactions and build support, and a dissemination workshop should be considered to this end.

Potential Risks

Potential Risk	Mitigation Actions
Difficulties in identifying suitable MoH and DUDBC staff, and securing their participation in the capacity enhancement programme	<ul style="list-style-type: none"> • Earliest possible engagement with MoH and DUDBC management to explain purpose, duration, and benefits of the capacity enhancement programme • Include relevant MoH and DUDBC managers in Programme Steering Group
Slow implementation of Training Needs Analysis in the MoH, DUDBC, and private sector impedes development of module content	<ul style="list-style-type: none"> • Earliest possible engagement with MoH and DUDBC management, Engineering Council and Contractors Association to secure buy-in, approval for TNAs, and identify a representative sample of companies
Possible wide geographical spread of participants (particularly in former DUDBC District offices) makes scheduling difficult	<ul style="list-style-type: none"> • Advance planning with Programme Steering Group to confirm participant numbers and locations and allow for accurate scheduling
In the current context of federalism, most of the local government will try to make their engineering units operational and implement infrastructure development projects through	<ul style="list-style-type: none"> • We must be open to this options and my need to include them in the capacity development programme

them	
DUDBC's structure in the federalism is not confirmed yet. This may lead to change in the delivery part of the capacity development programme	Consider during TNA and keep some flexibility in the event management

Appendix A: List of Interviewees

SN	Name	Section/Organization	Designation
1	Sunil Khadka	NHSSP	Lead Advisor, Health Infrastructure
2	Gyanendra Shakya	NHSSP	Senior Architect
3	Nabin Malakar	NHSSP	Senior Engineer
4	Rajuman Manandhar	Building Division, DUDBC	Deputy Director General
5	Manoj Nakarmi	Building Code Section, DUDBC	Section Chief Senior Divisional Engineer
6	Binod Neupane	Nepal Engineering Council	Vice Chairman
7	Parikshit Kadariya	CLPIU, Ministry of Urban Development (MoUD)	Deputy Project Director
8	Dr. Rekha Shrestha	R and R Consultancy	Managing Director
9	Tek Bahadur Malla	Technical Division, CTEVT	Director
10	Manoj Neupane	Research Division, CTEVT	Deputy Director
11	Mahesh Bhattarai	Enhanced Skills for Sustainable and Rewarding Employment (ENSSURE), CTEVT	Director
12	Suman Pradhan	Building Code Implementation in Municipalities of Nepal, NSET	Programme Manager

Appendix B: Indicative Work Programme May 2017 – February 2018

Indicative Work Programme May 2017 – February 2018

Subsequent to the approval of the Health Infrastructure Capacity Enhancement Programme Outline Design by the end of June, continued programme development will be implemented in the following steps:

- Circulation of the report to the stakeholders identified (Section 12) for consultation and feedback June to July 2017
- A consultative workshop will take place with these stakeholders to discuss and assimilate their viewpoints into the programme refinement process. July 2017
- A Health Infrastructure Capacity Enhancement Steering Group will be established, comprising relevant representatives from each department and stakeholder organisation. This group will provide comment and inputs on programme content and operation. The Steering Group will meet on a regular monthly basis to receive progress reports, and where necessary assist in overcoming blockages to progress. July 2017 onwards
- Consultations with suitable higher education institutions will be held to explore alignment of course materials with university curricula and higher education requirements. July 2017 onwards
- Subsequent to management approval, the TNA for relevant MoH and DUDBC staff will be conducted in July 2017. This exercise will also be used to identify and confirm target groups and participant numbers more precisely. TNA findings will be analysed, reported to the Steering Group and departmental management for consideration, and the findings used to guide the detail design of modules and training arrangements. August 2017
- Assuming the selection of two hospitals is confirmed, the Health Infrastructure team will begin structural and non-structural assessment of building blocks and plant. This phase will also be used to improve skillsets for selected MoH and DUDBC technical staff in specific aspects (for example, skills in geo-technical assessment and materials testing) as well as exposing them to the overall assessment process. August 2017
- The TNA for construction professionals and contractors will also be undertaken in August 2017, following further consultation with professional bodies such as the National Engineering Council and Nepal Contractors Association. Attention will be paid to securing a representative sample of companies in which the TNA can be conducted. August 2017

- Drawing on the analysis from the three TNAs, and inputs from the Steering Group, the Detailed Programme Design Document will be delivered in September 2017.
- The in-house capacity of the Health Infrastructure team will be supplemented by appointing specialist short-term technical assistance (STTA) for the module and materials design, as well as the training event and programme implementation. This may be tendered as a single contract or packaged as separate components. September 2017
- The Capacity Enhancement STTA specialists will develop the educational materials and module structure, as well as planning the programme delivery and logistics arrangements. September to November 2017
- The Policy and Evidence-based Planning module design can be fast-tracked, given it is less technical than the construction-related modules, and be piloted in November 2017. Based on this experience, module content, materials and training activities can be modified, if necessary. November 2017
- December 2017 will see the testing and modifying of the main modules so far identified: Health Infrastructure Technical Skills, Policy & Planning, Procurement Retrofitting Standards & Method, Earthquake and Disaster Risk Reduction, and Climate Change adaptation. To be time-efficient, modules will be revised on a rolling basis, rather than waiting until all are completed. December 2017
- From January 2018 onwards the Health Infrastructure team will roll out the finalised modules, including Policy & Evidence-based Planning, Health Infrastructure Technical Skills, Policy & Planning, Procurement Retrofitting Standards & Method, Earthquake and Disaster Risk Reduction, and Climate Change Adaptation January 2018 onwards
- The information sessions for contractors and construction professionals will also begin in this period, drawing on material developed from the core training programme and adopted as required for private sector participants. January 2018 onwards
- There will be a specific exercise to support pre-qualified construction contractors and professionals in understanding the technical requirements of the hospitals retrofitting, rehabilitation and climate change adaptation contracts. January 2018 onwards

Indicative Work Programme Gantt Chart May 2017 – February 2018

Indicative Work Programme										
Activities	Inception		Remainder 2017						2018	
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Production of Outline Design Report		PD								
Consultative workshop										
Formation of Coordination Committee & monthly meetings										
MoH and DUDBC TNA complete and analysed				PD						
DUDBC two hospitals on-site seismic assessment training				PD						
Construction professionals TNA complete and analysed				PD						
Construction contractors TNA complete and analysed				PD						
Completion Detailed Design Report and Action Plan										
Module Design STTA appointed										
Training Services STTA appointed										
Policy and Evidence-based planning module piloted and revised							PD			
Health Infrastructure Technical Skills module piloted and revised										
Health Infrastructure Policy and Planning Skills piloted and revised										
Health Infrastructure Procurement piloted and revised										
Retrofitting Standards and Method piloted and revised										
Earthquake and DRR module piloted and revised										
Climate Change adaptation module piloted and revised										
Policy and Evidence-based planning training conducted										
Health Infrastructure Technical Skills training conducted										
Health Infrastructure Policy and Planning Skills training conducted										

Activities	Inception		Remainder 2017						2018	
	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb
Health Infrastructure Procurement training conducted										
Retrofitting Standards and Method training conducted										
Earthquake and DRR training conducted										
Climate Change adaptation module training conducted										
Construction professionals training activities conducted										
Construction contractors training activities conducted										
Construction contractors hospitals tender support										

PD: Payment Deliverable

References

Owen-Smith J and Powell WW (2007) Networks and Institutions, in *The Sage Handbook of Organisational Institutionalism*.