Safer Society

NSET Report 2014

National Society for Earthquake Technology-Nepal (NSET)

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Cover Photo (Front)
Students' Summit on Earthqauke Safety 2013, Sauraha, Chitwan

Cover Photo (Back)
Retrofitting of Adarsha L.S. School, Chiyabari, Ilam

June 2014

Book Publication Series:
NSET-097-2014

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National Society for Earthquake Technology-Nepal (NSET)

Message from the President

Shiva Bahadur Pradhanang

We are here again with the NSET Report 2014. This report presents an account of NSET's endeavors and activities towards the enhancement of disaster resilience of communities in Nepal during the past year. This year has been momentous in the sense that it marks 20 years of collaboration, commitment and partnering in disaster risk management.

NSET strongly believes that the earthquake resilience of communities can be achieved through enhancing awareness and building capacity by helping them to understand seismic risk and providing them with simple and practical methods in mitigating the risks.

NSET is grateful that its work has been recognized with the wider acceptance of concepts, methodologies and safety measures NSET has been developing and propagating in Nepal and the region.

On behalf of the NSET Executive Committee, I would like to thank all Government agencies, civil society organizations, international agencies and individuals for their initiatives and partnerships with NSET in their Disaster Risk Management Programs.

In conclusion, I would personally like to commend all the staff at NSET for their hard and dedicated work. With your continued and sustained efforts, I'm sure that NSET Vision of 'Earthquake Safe Communities in Nepal by 2020' will materialize.

Thank you!

Message from the Executive Director

Amod Mani Dixit

Our National Society for Earthquake Technology -Nepal (NSET) has completed its 20 years of service to the nation and the region. As the Executive Director and General Secretary of NSET, I congratulate the staff and our stakeholders on this occasion. I thank the members of the Executive Committee for the guidance, monitoring and for directives that have helped NSET to productively engage in the task of disaster risk management as per the aspirations of our mission, vision, objectives, strategies, tactics and values. NSET has become one of the reliable centers of earthquake risk management in the country, and is considered as a responsible institution in Asia that is focused on informal and non-formal research and capacity building in aspects of disaster risk management. We are proud at the level of trust that NSET has build up with our national and international partners, from the informal women's group of Kirtipur and Thankot to the numerous VDCs , municipalities, districts of Nepal, from the individual home-owners attending the Friday Earthquake Clinics to the officials of diplomatic missions, bi-lateral aid agencies, donor institutions, national and international finance institutions, agencies of the UN system located in Nepal or globally, national and international NGOs, private sector businesses, Nepalese diaspora and their organizations abroad. This has been achieved because of the values we pursue, the professional ethics and technical standards we adhere to, the strict financial and performance discipline we exercise, and also because of collective belief in our vision, mission and objectives. We have tried to understand the aspirations of the Nepalese and our Asian brethren to live in a world without disasters, and the aspirations of our governments to address the peoples' wishes, and also the strategies of our international development partners who have always accorded support to Nepal in our quest for development.

Twenty years ago, we started out as a small institution of five workers. We spent the little resources we had in understanding the pertinent disaster landscape, establishment and field-testing of applicable technologies, and development of documents on methodologies, standards, and training courses/curricula on aspects of earthquake (disaster) risk management for a wide range of target stakeholders. Our stakeholders and donors appreciated our efforts and provided continued support.

At present, our effort is focused on scaling up of our collective successes throughout Nepal and the region. The challenge is to learn lessons in replication, improving efficiency and reducing the costs of achieving earthquake safety. The challenge is to develop tens of thousands of trained masons, thousands of trained engineers and technicians, and hundreds of efficient project managers for effectively managing earthquake risk management programs in Nepal. The challenge is to deeply understand the aspirations of Nepal reflected in the National Strategy for Disaster Risk Management (NSDRM). The challenge is to help the government of Nepal to make achievement of earthquake safety a mission and earthquake awareness a campaign so that the knowledge and the passion for safety could reach all households in the shortest time. The challenge is to help the Nepalese private sector businesses to ensure their disaster preparedness and continued operation of services in any post-disaster situation. And so on.

NSET has tried to understand these challenges and geared its institutional capacity for strategic intervention for fulfilling its mission to assist the government and the people to achieve earthquake safety. We are doing this using a multi-pronged strategy: a) implement scaling up programs using innovative methodologies and monitoring and evaluation system, b) provide scientific back up for program implementation by conducting researches in partnership with national and international academic and

research centers, c) implement innovative programs, and d) dissemination of experiences using open access policy.

These entire tasks require dedicated professional teams. In the past twenty years, our staff has grown progressively from 5 to 100. These dedicated staff are involved in disaster awareness, training, education, design and supervision of structural and non-structural risk reduction works, documenting the process and success stories, and talking to the common Nepali understanding their wisdom and the best for replication, enhancing south-south cooperation in Asia delivering services in more than ten countries.

We have not only survived external and internal turmoil, but have also learned lessons towards sustainability of efforts. NSET has started revisiting our strategic directions including our mission, vision, objectives, modus operandi, business planning, and purpose of existence using the help from expert management consultant. We also have started auditing of our human resources capabilities and their management using the services of international expert consultants. NSET has promoted and helped establish a social entrepreneurial organization - Earthquake Safety Solutions (ESS) - for providing expert professional services in vulnerability assessment, design & supervision of earthquake-resistant construction, and consultancies in aspects of seismic vulnerability reduction.

Challenges of earthquake risk management in Nepal are enormous no doubt. We appreciate the tremendous efforts made by the Government of Nepal in channelizing national and international resources and goodwill to meet this challenge. We appreciate the assistance of international development partners, bilateral agencies and the UN system in meeting this challenge. We are thankful to the Government and the international institutions for giving us space and responsibilities. We are also thankful to the people, communities, women's group, and municipalities for their understanding, trust in our work, and their moral support through their active engagement in the programs.

NSET is all set to meet the challenges in disaster risk management in the next decade.

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NSET

About NSET

The National Society for Earthquake technology - Nepal (NSET) was established in 1993 by a group of professionals dedicated to reducing the earthquake risk of Nepal. It was registered with the Government of Nepal in 1994 as a non-governmental organization. It is a multi-disciplinary society of professionals belonging to various physical and social sciences related to aspects of earthquake risk management. NSET is the national member of the International Association for Earthquake Engineering (IAEE), and it belongs to various regional and global networks on earthquake and disaster risk management.

Vision

Earthquake Safer Communities in Nepal by 2020

Mission

Our mission is to assist all communities in Nepal to become earthquake safer by developing and implementing organized approaches to managing and minimizing earthquake risks

Objectives

NSET has a three-pronged strategy

- To sensitize, educate and facilitate all institutions to undertake organized approaches to managing and minimizing earthquake risk by transferring information, technical knowledge and skills, and helping them to mobilize resources for this purpose.
- To advocate for favourable and supportive policies, legal mechanisms, increased investments and a unified and effective national earthquake response mechanism and a system of incentives and disincentives to enable communities to become earthquake safe.
- To build a strong, well-resourced and credible institution that will be the national focal point for earthquake risk management actions, a facilitator and coordinator in the network of earthquake disaster management, and a source of all available information on the subject.

NSET's Values

NSET has been guided by its institutional beliefs, values and principles developed internally and also adopted from good practices of various institutions; local, regional and/or global. Bringing "substantial change in the application of technology to the many facets of earthquake disaster management for saving the lives of the people" has remained the guiding philosophy of NSET ever since its inception.

NSET stands by these values

NSET:

- Is concerned with the ever-growing earthquake risk in the country, and is deeply convinced in the possibility of making a change despite the generally adverse economic condition of the country, and is determined to achieve reduced earthquake risk in Nepal with time.
- Firmly believes that Nepalese initiatives are primary for achieving any risk reduction. International assistance can, at best, help the local initiatives.
- Will act as a working platform for all, national or international, irrespective of caste, creed, religion, age, gender, race, to contribute towards reduced earthquake safety in the country.
- Will not endorse political parties or candidates, political philosophies or policy issues other than those directly related to the primary mission of reducing death and injury from earthquakes in Nepal, but will engage in political processes, as necessary, to advance earthquake safety.
- Will operate as a NGO governed by highest ethical/professional standards, uphold the principles of integrity, including transparency and accountability in the use of funds, and decisions regarding projects, people and remuneration.
- Will not confront or compete with any individual or organization, but will facilitate the work of other organizations and will help them and individuals develop the skills needed for earthquake risk mitigation; will participate developing network and synergy.
- Is non-judgmental. It understands the overriding national developmental priorities such as basic and primary health, education, infrastructure, etc. but firmly believes in the benefits of integrating mitigation in development efforts. Therefore it will try to influence new investments by multilateral and bilateral agencies to consider earthquake -resistance adequately in their investments in Nepal.
- NSET will seek, translate and transfer foreign and domestic knowledge and research results to the earthquake problem in Nepal, as also to bring state-of -the -act earthquake technology to Nepal.

Crafting NSET Vision, Mission, Objectives and Strategic Directions

The existing vision, mission, strategic objectives and values of NSET were crafted in 1999 through a series of consultation process with regional and international experts; as well as with the key stakeholders in Nepal.

Though NSET was conceptualised in 1993 and formally registered in 1994, its structure and organizational strategy in the form of vision, mission, and strategic objectives were formulated only in 1999 through a strategic planning exercise. Although by that time NSET was already successful to carve its space in the society as a key organization for supporting earthquake risk management in Nepal but NSET's operation was not much systematised strategically. The management of NSET realized the need to establish NSET as an international standard Nepalese NGO, a model of an efficient organization with well spelled out vision, mission, objectives, values and business plan.

Noted international experts Dr. Thomas Tobin, Dr. Shirley Mattingly and Dr. Brian Tucker – the stalwarts, who were part of the broader development of earthquake risk management concepts in the US, assisted the management of NSET in exploring the

optimum modus operandi. Together with NSET Board members and the staff, the international team of experienced scientists. the US team reviewed the business strategies of mainly three US -based institutions namely, Seismic Safety Commission (SSC) of California, US Forestry Service (USFS), and GeoHazards International (GHI) as models for NSET to emulate.

Seismic Safety Commission of California (SSC) is a high caliber non-profit organization working for promoting seismic safety. Two Congress-men from the California State sit in the board of SSC as ex-officio members. This signifies the status and importance of SSC in California. For NSET, it was encouraging to note that Tom Tobin already served as the Chair of SSC and brought in huge experience of institutional development, Shirley as Bill Clinton's appointee as the Director of one of the FEMA regions of USA and as the Emergency Manager of the City of Los Angeles, and Brian Tucker was on a mission to assist developing countries of Asia and the Latin America in natural hazards reduction for which he established the non-profit GeoHazards International (GHI). USFS is a pioneer businesslike federal agency with extensive roles and accountability to the people in the US.

In addition, business model and strategies of 10 other similar institutions working in DRR and environmental studies from the Latin America, Europe and West Asia were considered and surveyed. Based on such review, the team of international experts outlined draft alternate strategies and business models for NSET. Karuna Management – a Nepalese business consultant assisted NSET in streamlining the progress in strategy formulation.

NSET organized a Strategic Planning Workshop during June 11 – 13, 1999 to look into the propositions in the Nepalese context, evaluate the underlying potentials, review the suggestions made by international experts and recommend strategic directions for NSET. The workshop was attended by around 40 key officials from different government institutions, professional societies, donor agencies and other non-government organizations. Senior officials from Ministry of Home Affairs (MOHA), Ministry of Housing and Physical Planning (MHPP), Department of Building (DOB), Department of Mines and Geology (DMG) also attended and provided directions during the workshop. Outline of draft vision, mission, strategic objectives, values and business model for NSET was recommended from the inputs of the workshop. The facilitation of workshop and framing of the strategies was done by Mr. Rabi Pradhan and Mr. Sahadev Mahat of Karuna Management. Subsequently, a team of Nepalese experts, Mr. Anil Chitrakar and Mr. Bhusan Tuladhar gave a final shape to the vision, mission, strategic objectives and value systems of NSET.

NSET Management Board subsequently reviewed the draft critically and accepted the strategies unilaterally. The whole exercise of strategy visioning for NSET lasted about nine months.

Till date, NSET is still guided by the Strategic Visions formulated in 1999. The strategies have fundamentally been successful in driving NSET to its present day position.

Revisiting NSET Vision, Mission, Objectives and Strategic Directions

NSET is completing its 20 years of establishment this year. Having gone through a glorious journey which despite dotted by periods of turmoils, was persistent, objective oriented, and logical, we could achieve most of what we wanted, albeit incrementally. We now have rich experience, we feel the pulse of time, we fully understand the aspirations of people to eliminate natural hazard risks and also the opportunity provided by the advancement in science and technologies for use in this pursuit of ours. We have concluded that we need to revisit our goal and vision, our modus operandi vis-à-vis the roles, responsibilities and also accountability, both actual and perceived, and the expectations of the people, communities and our stakeholders and partners. The Government of Nepal has embarked upon a massive program of disaster preparedness and emergency response planning and risk reduction building upon NSDRM and international consensus. This changing environment also asks for readjusting our goals, sharpening our strategies, refining our approach and improving our business models for enhancing our efficiency and reducing the costs of operations.

With this background, on the occasion of 20th years of NSET, we have embarked upon a process of retro- and introspection, soul searching, refining our strategies. We are asking ourselves the difficult "WH" questions and trying to answer these collectively and with our stakeholders.

As a start, NSET organized a workshop among its management team members – core decision makers at strategic, departmental and program level for conducting organizational self-assessment for building a unified understanding about the possible answers to “WH” questions related to NSET’s organization, strategies, operations, policies, capabilities, strengths and weaknesses.

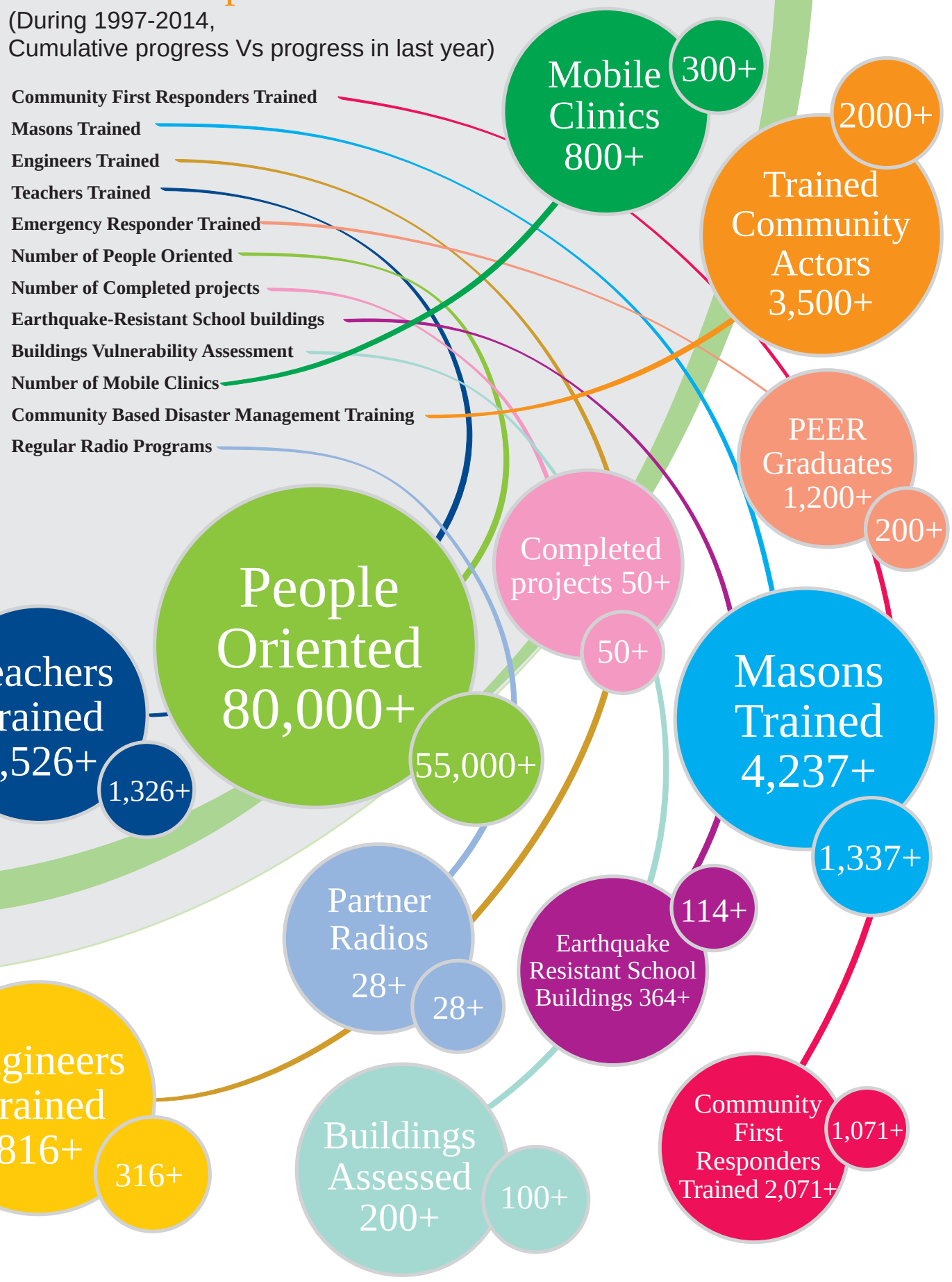
The workshop titled “Organizational Strategic Assessment” held during June 7-8, 2014 focused to assess understanding of organizational core and build unified understanding related to the same, to assess gap in Vision, Mission, Objective, Strategies and Tactics on the basis of organizational learning gathered so far and in relation to emergent environmental issues with respect to the field of Earthquake Risk Management (ERM), to assess Strengths and Weaknesses of the organization and prioritize them in order of their relevance to achievement of its current strategic objectives, to assess Opportunities and Threats and prioritize them in order of potential and degree of severity, utilizing the findings and analysis done to evaluate current strategies and devise better strategic choices, to identify Critical Success Factors (CSFs) for achievements of its vision, mission and strategic objectives and what should be Key Performance Indicators (KPIs) that the organization and its team should strive for, to assess the organizational design and its effectiveness in achievement of organizational goals/objectives; and also to find the areas of improvements in organizational capabilities and cascading them to capabilities of individual departments/projects/teams.

The process was facilitated/ moderated by Sohan Babu Khatri from Three H Management, a 360 degree management consulting firm. The team is now consolidating the findings and results into a Final Report, and that we hope will guide us further in our pursuit of incremental improvements.

To spearhead towards the same process, but as a part of, NSET has already started to carry on Human Resource Audit of the organization by Third Sector Partners, a management consulting group from India. The outcomes and recommendations of this process are to serve revitalise the strategic walk of NSET.

NSET Accomplishments

(During 1997-2014,
Cumulative progress Vs progress in last year)



Looking back at the year 2013-2014

The year 2013-2014 saw NSET conduct many important and worthwhile activities. With valuable support and collaboration from partner organisations and donors, we have been undertaking activities to foster safety and prevent loss of life from earthquakes. This past year included many significant achievements and critical steps on the path to earthquake risk reduction.

Chapter 1

Reducing Earthquake Risk and Building Resilience of Communities

Nepal's earthquake risk continues to rise due to human actions. Rapid urbanization, poor quality construction, ignorance of the building code, lack of preparation and general awareness levels among the population all contribute to increasing the earthquake risk. But what is caused by human actions can also be remedied through human actions. NSET's Nepal Earthquake Risk Management Program (NERMP) seeks to reduce this risk through a variety of activities.

The Nepal Earthquake Risk Management Program (NERMP) being implemented by NSET with funding support from U.S. Office of Foreign Disaster Assistance USAID/OFDA seeks to achieve improved earthquake safety and disaster resilience in the country.

The current Stage II of NERMP is a follow up and continuation of the earthquake risk management efforts that were initiated in 1997 in the form of the Kathmandu Valley Earthquake Risk Management Project (KVERMP). The program allows NSET to provide technical support to the efforts of communities and other agencies wishing to invest in ERM in different parts of the country.

The program aims to contribute to enhancing earthquake disaster resilience of Nepal through increasing disaster awareness of people, communities and institutions, and enhancing the capacity for implementing disaster risk reduction measures; reducing disaster risk of urban areas, public infrastructure and critical facilities through risk assessment, risk reduction planning and implementation. Enhancing emergency response capacity and institutionalization are the areas the program has been working on. The program has so far reached approximately 170,000 people including engineers, architects, technicians, construction stakeholders, students, parents and common citizen as its direct beneficiaries.

Key Approaches adopted by NERMP II

Firstly, rasing awareness of people and all stakeholders on root cause of earthquake risk in Nepal and possible ways of mitigating the risks.

Secondly, implementing activities using existing local capacity with active participation of the local communities and local leaders.

Thirdly, promotion of international standards and collaboration coordination with other stakeholders and;

Finally, emphasizing institutionalization of the methodology, processes and successes for the long-term sustainability of DRR.

Earthquake Awareness Programs

A fundamental step towards earthquake preparedness is increasing awareness. As knowledge increases, misconceptions and fear decrease. NSET employs many mediums in order to spread earthquake awareness; this includes orientation presentations, radio and television programs, earthquake mobile clinics, shake table demonstrations, Earthquake Safety Day, earthquake vulnerability tours, free Friday house-owner consultations, print media and street drama.

Shake Table Demonstration

The Shake Table is a low-tech, innovative tool that is highly effective in educating the everyday person about the behaviour of buildings during earthquakes. It is a simple shaking platform with two identical models of traditional buildings, one with earthquake-resistant technology and another without it. The table is shaken mechanically, simulating an earthquake. The resulting damage and collapse of the weaker building vividly demonstrates the value of earthquake-resistant building construction. The demonstration educates people on the technology and also convinces them of the feasibility of technology options, including their affordability.

Friday Free Earthquake Clinic

Every Friday afternoon, NSET provides free consultations to house owners and potential house-owners who would like to consider earthquake-resistant techniques, either in new construction or by retrofitting an existing building. NSET's engineers look over the building design, evaluate the issues with the house-owner, and provide recommendations for improving the earthquake performance of the building.

Orientation programs

NSET's staff regularly conducts talks and interactive presentations for groups all around Nepal to increase earthquake awareness. Audiences vary widely from village and community groups, organisations, schools, businesses, media personnel and many more. These presentations cover the science of why earthquakes occur, what are the risk reduction strategies and what you can do to prepare yourself.

Earthquake Mobile Clinics

Earthquake Mobile Clinic (EMC) is an innovative approach to increasing earthquake awareness and the degree of implementation of the building code. NSET engineers and construction technicians go out to building sites and provide advice on earthquake-resistant building construction.

Vulnerability Tour to City Core (Earthquake Walk)

To raise awareness of the seriousness of unregulated urbanisation without consideration of the building code and earthquake risk, NSET conducts vulnerability tours through the dense city cores of Kathmandu, Patan and Bhaktapur. The tour highlights the seriousness of poor construction techniques and the consequences of this in the event of an earthquake.

Capacity Building for Earthquake Resistant Construction

Training as a capacity building tool has been a core activity of NSET since its inception, and capacity building initiatives are part of most NSET projects and programs. NSET has been implementing various earthquake risk reduction training programs aimed at diverse target audiences. NSET employs ready-to-use modules for training masons, contractors, technicians, junior engineers, engineers, schoolteachers and policy and decision makers.

Non Structural Mitigation

Casualties during earthquakes are caused not only due to structural damages, but also due to damages of non-structural elements. Non-structural elements in a building are those contents which do not take any load of the building and contents. The examples of non-structural elements are: cupboards, false ceilings, racks, wall-mounted photo frames, glass windows etc. Placing non-structural elements appropriatly and securely in buildings is also important aspect of earthquake safety. Fixing, anchoring, tieing non-structural objects securely are some examples of non-structural safety. NSET has been promoting non-structural mititgation for private buildings and also for public buildings such as schools, hospitals and offices. Non-structural mitigation can be done in a very nominal cost investment.

"Do it Yourself Guide" on Non-Structural Earthquake Risk Mitigation

NSET has prepared a basic guidelines in the form of a "Do it Yourself Guide" on non-structural earthquake risk mitigation addressing the typical residential buildings of Nepal. It is an illustrative booklet with the necessary theoretical descriptions and sufficient practical tips and illustrations on non-structural hazard assessment, planning non-structural mitigation activities including calculating the costs required. The guide also includes the steps of anchoring and fastening non-structural elements to the wall or ceiling of a building. This guideline is very useful to house-owners who are used to carry out minor repair and maintenance works.

Seismic Vulnerability Assessment and Retrofit Design of Buildings in Nepal

Nepal, and the Kathmandu Valley in particular, are extremely vulnerable to earthquake disasters because of the rapid increase in the haphazard development of buildings, poor soil condition and the impending threat of a large earthquake. Numerous studies report that excessive loss of life and property will result from a large earthquake in Nepal. This potential devastation must prompt immediate attention to earthquake disaster management. The basic principles of disaster risk management involve risk assessment, risk identification, development of mitigation measures and the implementation of solutions for sustainable development. In this regard, NSET is conducting seismic vulnerability assessment and retrofitting of buildings, with the aim of imparting awareness and reducing vulnerability. The buildings include load bearing masonry and reinforced concrete frame building systems, which are the most common building types in Nepal, for both public and private buildings.

Present practice shows that the seismic evaluation of the buildings is generally conducted for two reasons in Nepal. The first reason is to know the reliability of the existing building at an expected level of earthquake shaking i.e. MMI IX intensity. These are basically the requirements of expatriates from diplomatic agencies and INGO's before renting the building. The second category of evaluation is for the purpose of strengthening an existing weak structure. This involves a detailed seismic

Key Activities and Achievements under NEPMP

- Orientation on earthquake awareness
  - 30 orientation programs, 1394 persons benefited including 333 female
  - 5 Orientation programs to construction stakeholders, 421 benefitted
  - 16 orientations on and earthquake drills – 13 schools (2160 students, teachers & parents)
- Training Programs for different target groups on earthquake-resistant construction technology
  - 8 trainings for masons - 141 masons trained including 6 female
  - 5 on-the-job training to the local mason on earthquake safer construction conducted during structural improvement process (93 local masons, 4 Female)
  - 1 training conducted for engineer/architects – 33 engineers trained
  - 3 Other trainings
- Training courses for enhancement of emergency response capacity
  - 37 Light Search and Rescue (LSAR) training (886 persons),
  - 6 Basic Emergency Medical Response (BEMR) (121 Persons)
  - 1 Damage Assessment Training (DAT) 1001 (25 Persons)
- Other Training Program
  - Workshop for senior media professionals on "Building Construction Practices: Status, Challenges and Opportunities" conducted - 50 journalists participated
- 3 different publications on Earthquake Safety
  - Brochure on "Earthquake Go Bag"
  - Brochure on Household Emergency Kit
  - Earthquake Safety Day Poster
- 26 Earthquake Mobile Clinics (EMC) covering 269 Households in 3 districts of Kathmandu Valley

Fig1: Conducting shear test

evaluation and producing a retrofit design to improve the behaviour of the building at the expected level of ground shaking, so that the safety of the occupants is ensured. So far, the interest in this category is from the external sources and donor agencies working in disaster risk reduction rather than from house-owners or the management of public buildings.

In the year 2013 - 2014, more than 100 buildings were assessed. Assessment results show that masonry buildings are abundantly non-compliant to construction standards with respect to seismic consideration. Similarly, fifty per cent (50%) of RC frame buildings assessed were also found to be non-compliant. The buildings of both construction techniques lack strength and ductility. Those buildings that are obviously vulnerable as seen from the drawings and construction period (such as unreinforced masonry load bearing structures) are advised to undergo detailed quantitative analysis for seismic strengthening of the building. Assessed buildings are mostly engineered, reinforced concrete frame building systems. The major deficiency of the buildings is due to irregularity in the structural shape and system. Architects and engineers are commonly found to not understand the basic principles of earthquake resistant design of the building. To combat this problem, a massive awareness campaign among building owners, and capacity building of designers is necessary.

- 36 house owners benefited from Friday Free Earthquake Clinics (FEC)
- Seismic vulnerability assessment of 25 residential and office buildings of different institutions
- Seismic Vulnerability assessment and retrofit design of Keisar Mahal started
- Non Structural Mitigation in 29 households in two communities
- 28 Earthquake walks (Vulnerability Tour) to Core City Areas of Kathmandu and Patan
- Disaster Safety of 6 communities, 4 at VDCs and 2 at Municipal Wards is being enhanced through awareness campaigns, trainings, and institutionalization of the method
- Series of interactions with Constitution Assembly Members, Government authorities and Media to draw attention for prioritizing DRM issues
- School Earthquake Safety Program (SESP) implemented in 3 more schools
- Hospital Earthquake Safety Program (HESP): non-structural and functional capacity assessment including Emergency WASH (Water, Sanitation and Hygiene) in 2 hospitals and structural, non-structural, and functional capacity assessment with emergency WASH in 3 Health Institutions
- Improvement of WASH facility at 2 IDP sites -TU Kirtipur and NARC continued with an additional deep tube well at Kirtipur
- Urban / Earthquake Risk Atlas of Nepal for 58 municipalities
- Assisting municipalities for preparing Municipal Level Disaster Risk Management Master Plan
- Distribution of 173 Go Bags to families and institutions for earthquake preparedness

Seismic Vulnerability Assessment and Retrofit Design of Historical Buildings of Nepal

NSET is conducting “Seismic Vulnerability Assessment and Retrofit Design of Kaiser Mahal Building” as per the tripartite agreement signed among the Department of Money Laundering Investigation (DMLI), Ministry of Finance; Kathmandu Valley Development Authority (KVDA); and NSET. Similarly on request of Ministry of Home Affairs (MOHA) and Nepal Police, NSET is conducting the “Seismic Vulnerability Assessment and Retrofit Design" of Charkhal Building as well.

Both are historical buildings built in late 19th century and regarded as part of the cultural heritage of Nepal thus preservation of its architectural and archaeological values is vital.

Fig2: Kaiser Mahal

Fig3: Conducting shear test at Kaiser Mahal

Fig4: Charkhal building

Fig5: Conducting shear test at Charkhal buidling

NSET has been conducting seismic vulnerability assessment and retrofit design of buildings for over ten years. Recent experience shows that new construction is improving in Kathmandu Valley, but not to the extent of meeting the building code requirements. The incorporation of seismic safety in new buildings is considerably easier than undertaking seismic strengthening of existing structures. Making building's configuration regular and providing proper reinforcement detailing can significantly improve the seismic response of the building without much cost increment for new constructions. To ensure this, awareness among the house-owners and capacity development among the professional design team and municipality officers is required. Massive awareness raising programs, policy amendments and incentive approaches are the key elements for ensuring the sustainability of retrofitting programs.

16TH EARTHQUAKE SAFETY DAY 2014

Nepal marked 16th Annual National Earthquake Safety Day (ESD) on January 16, 2014. National Earthquake Safety Day is held to raise awareness and share information and experiences on disaster and earthquake risk reduction. ESD is the culmination of earthquake risk management works implemented in the country in the preceding 12 months, and thus allows the taking stock of the achievements and shortcomings. The country celebrated the Earthquake Safety Day this year with the main slogan: "Earthquakes are unpredictable and can be deadly. Let's work together to save lives and property".

Raising awareness among people and authorities on the impending earthquake risk and on the ways to mitigating the risks is a key step towards reducing the risk. Every year Nepal has been observing Earthquake Safety Day on 2nd day of the Nepali month of Magh (that falls on 15th or 16th of January) with several earthquake awareness-raising activities for the past 14 years. The day is observed in commemoration of the devastation caused by 1934 Nepal-Bihar earthquake that occurred on January 15, 1934. The Government of Nepal declared Earthquake Safety Day in 1999 and established an Earthquake Safety Day National Committee for observing the Day annually throughout the country. The ESD National Committee is led by Ministry of Home Affairs (MOHA) and includes representatives from various government and nongovernment agencies related to disaster risk reduction, emergency response and critical facility management. NSET serves as the Member Secretary of the Committee.

The year 2014 is the 80th year of the 1934 Earthquake. As in the previous years, various events were conducted over a weeklong period to observe ESD throughout Nepal thanks to the collaborative effort of various stakeholders under the leadership of Government of Nepal.

Collaborators/Contributors for the 16th Annual ESD are: Department of Urban Development and Building Construction, Department of Education, Kathmandu Metropolitan City, Nepal Army, Nepal Police, Armed Police Force, Chhatrapati Free Clinic, Oxfam GB, Plan Nepal, Care Nepal, Ministry of Home Affairs, UNDP, USAID, Shivam Cement and World Cyclist Foundation Nepal (WCFN), Kirtipur Municipality, ONUS Nepal, Nepal Red Cross Society, Lumanti, NSET.

The major activities of the 16th ESD were:

Interaction Program on "Role of Media on Earthquake Risk Reduction"

The main objective of the program was to sensitize the media to the importance of earthquake risk reduction, preparedness, the role of media in disseminating the message to the wider audience and to encourage the media to cover ESD programs for the general public. More than 50 different media personnel from television, radio, print and online participated.

Earthquake Safety Walkathon, Kirtipur

The Walkathon was held in the historic city of Kirtipur. The 265 participants included Government Officials, Armed Police Force representatives', students, DRR professionals, volunteers and community people.

Earthquake Vulnerability Walk, Kathmandu

The Earthquake Vulnerability Walk was conducted from Bhugol Park, New Road, Kathmandu. More than 100 representatives from different sectors such as the senior officials from government, local government, Nepal police, representatives from various institutions, NGOs/INGOs/UN, private sector, professional societies, academia, media, community leaders and other DRR stakeholders attended.

National Symposium on "Experiences in Earthquake Risk Reduction"

This year's National Symposium on “Experiences on Earthquake Risk Reduction and Response” was conducted over two days. The objective of the symposium was to share experiences of earthquake risk reduction and response. The symposium was structured in keynote session on "Promoting Seismic Safety in Developing Countries”, by Professor Kimiro Meguro from the University of Tokyo, followed by panel discussion on four main themes of Building Code Implementation, Experiences on Earthquake Risk Management, Implementing School Earthquake Safety Program in Private Schools and Hospital Earthquake Safety Program in Private Hospitals. More than 170 participants from various government, development partners, academic institutions and professional societies took part in the symposium.

Community Level Earthquake Response Exercise

A community level earthquake simulation exercise was conducted at Basantapur Durbar Square in Kathmandu. The main objective of the simulation exercise was to make people realize the consequences of earthquakes in their communities and motivate them to be prepared.

Earthquake Memorial Meeting at Bhugol Park New Road Kathmandu

To pay tribute to those deceased in past earthquakes in Nepal, a Memorial Meeting was held on January 16, 2014 at 12:15 PM at the earthquake Monument at Bhugol Park, Kathmandu. High level government officials, distinguished personalities, disaster risk reduction professionals and community people extended heartfelt tributes to the victims of past earthquakes.

Earthquake Safety Rally

With the view to raising public awareness, the Earthquake Safety Rally walked through inner city areas of Kathmandu. Various agencies joined hands together to exhibit their institutional as well as personal and community level commitments to earthquake safety promotion.

Earthquake Safety Day National Meeting at Basantapur Dabali

Honorable Chairman, Council of Ministers, Mr. Khilraj Regmi inaugurated the National Meeting of 16th ESD amidst a large public gathering at Kathmandu Durbar Square. In his remarks, Mr. Regmi emphasized the need for strict enforcement and implementation of the National Building Code and further urged all local bodies to work immediately towards its mandatory implementation. He further stressed the need for collaborative efforts from all sectors of Government, private sector, national and international organizations, and most importantly, commitment from the people for disaster risk reduction. Ms. Hanna Singer, Country director of UNICEF Nepal mentioned the need to ensure the dramatic reduction

of risk by focusing on safer construction. She further stressed that the threat Nepal faces is so great that collaborative efforts of the government, civil society international actors, private sector and community is needed to reduce the risk of earthquake and that the people of Nepal should be better informed in dealing with earthquakes.

Nationwide Earthquake Safety Drill

The nationwide earthquake safety drill was conducted at 2:24 PM. A special siren was aired from Radio Nepal and other FM stations across the country. The Drop Cover and Hold exercise was done for one minute. Everyone present in the National Meeting performed this drill. After the drill, everybody joined to form Human chain by holding hands as a symbol to express commitment towards earthquake safety.

Earthquake Safety Exhibition

An Earthquake Safety Exhibition was run for five days at Kathmandu Durbar Square to disseminate information regarding earthquake risk reduction. The main contents demonstrated earthquake safe construction technologies, knowledge and skills required for earthquake safety and initiatives for earthquake risk reduction by different agencies.

Shake Table Demonstration

The Demonstration was organized for a large crowd at Kathmandu Durbar Square. Two small identical building models made up of the same construction material were placed on a table. One of the models was built with the normal construction practice and the other one was retrofitted for earthquakes. It was then observed how building models respond to simulated vibration that can be compared with earthquake shaking. In due course, the normal building starts to fail while the retrofitted building withstands the vibrations without damage. The damages and the effectiveness of retrofitting were explained to the public.

Street Drama

Shailee Theatre and Dabali Natya Samuha performed four different street dramas entitled ‘Ale Lale’ & “Hami Banchaou” conveying the message of Earthquake Safety for crowds at Basantapur Dabali.

Earthquake Safety Cycle Rally

A new addition to the ESD celebration events, Earthquake Safety Cycle Rally “I Cycle for Earthquake Safety” was organized this year on January 19 2014.

Earthquake Safety Day (ESD) Activities Outside Kathmandu Valley

Programs were organized all over the country across the 75 districts by the Government of Nepal and other organizations working in the field of Disaster Risk Reduction.

Chapter 2

Safer Schools

Schools are highly vulnerable if not properly constructed and prepared for earthquakes. Furthermore, as the place where our future generations spend much of their time, it is imperative that we ensure the safety of our children while they are learning. By preparing and educating our children and teachers for disasters, we can also effectively reach the wider community, as students are able to also help their families be better prepared as well. NSET is undertaking the School Earthquake Safety Program (SESP) in order to improve the safety of schools around Nepal and in the region.

The School Earthquake Safety Program (SESP) is a holistic approach taken by NSET to improve the earthquake safety of communities by intervening in schools. Building earthquake-safe communities through intervention at schools is at the core of School Earthquake Safety Program. SESP assists to make schools safer against earthquakes through the seismic strengthening of school buildings, training school teachers, students and parents on earthquake safety and enhancing earthquake preparedness of schools. It also focuses on making communities safer by propagating the knowledge from schools to the communities, and training local masons on safer construction practices.

Since 1999, NSET has implemented SESP in several schools. NSET so far has retrofitted 125 number of schools from 1999-2014 through its own projects/programs with the support from various local, regional and international agencies. A total of 364 school buildings have been retrofitted by various agencies under the guidance of Government of Nepal.

Box 1

Why to work in schools?

- School buildings and the entire school system in Nepal is highly vulnerable to earthquakes
- School-children, our future generation face high earthquake risks
- Concept, knowledge and skills of earthquake safety can trickle down from students, teachers to the community
- Safer school buildings can serve as emergency shelter during disasters
- Local masons trained during school building retrofitting can bring the technology to the communities

Box 2

Earthquake Risks of Schools in Nepal

From 2008-2010, NSET conducted survey of all school buildings in Lamjung and Nawalparasi districts of Nepal. Earlier, in 1998, NSET conducted similar surveys of schools in the entire Kathmandu Valley. By extrapolating the observations and findings of these surveys to the entire country, NSET has estimated a country wide earthquake risk scenario for Nepal. This considers that one third of the area of the country would be affected during a large earthquake event anywhere in Nepal. Considering this three scenarios of earthquake risks in schools have been developed. The maps and table show the potential damage and casualty figures in schools in Nepal.

Earthquake Intensity	Number of Schools in Earthquake Affected Area with Different Potential Damage Grades						Total Schools Affected by one Earthquake among Total of 82170 School Buildings in Nepal
	No Damage	Slight Damage (DG1)	Moderate Damage (DG2)	Heavy Damage (DG3)	Partial Collapse (DG4)	Complete Collapse (DG5)	
MMI IX Area	0	0	263	1453	2400	2732	6848
MMI VIII Area	0	263	1453	1954	2162	1016	6848
MMI VII Area	263	1453	1954	2162	927	89	6848
Total	263	1716	3669	5568	5489	3838	20543

Earthquake Affected Areas	Death		Seriously Injured		Slight to Moderately injured		Uninjured		Total
MMI IX Area	54272	8.30%	42452	6.50%	158168	24.08%	560119	61.12%	656843
MMI VIII Area	34925	5.30%	27258	4.10%	171764	26.15%	594660	64.45%	656843
MMI VII Area	22613	3.40%	17650	2.70%	181748	27.67%	616580	66.23%	656843
Total	111,809	5.70%	87,361	4.40%	511681	25.97%	1,771,360	63.93%	1,970,530

- Total School population in Nepal is aproximately 7.7 million (Flash Report 2069 by DoE Nepal)
- Affected population in any scenario earthquake is approximately 2 million that is one third of the total population
- In case of a large earthquake during school hours, the casualty at schools may be more than hundreds thousand

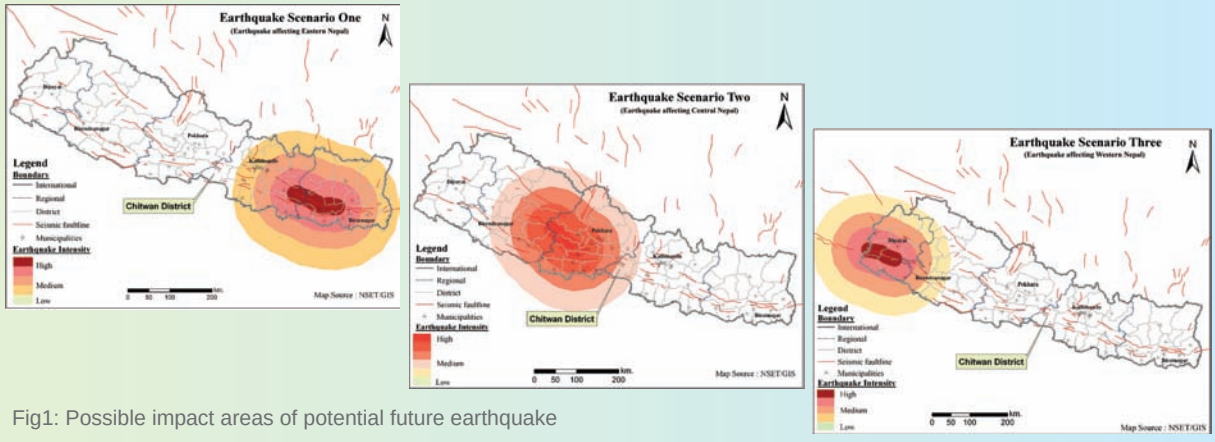


Fig1: Possible impact areas of potential future earthquake

School related major programs

School Earthquake Safety Program under NERMP

NSET is implementing the School Earthquake Safety Program in three different schools; Daunne Devi Higher secondary School, Bardaghat, Nawalparasi, Adarsha Lower Secondary School, Chiyabari, Ilam and Bal Subbhodini Higher Secondary School, Phungling, Taplejung as part of the ongoing program NERMP II funded by USAID/OFDA. NSET is supporting these schools for structural improvement (retrofitting and reconstructing the vulnerable school buildings) and also providing training and awareness activities targeting students, teachers, community people, parents and masons on earthquake safety.

In 2013-2014, eight numbers of teacher and student orientation trainings with 1207 beneficiaries, one on the job mason training, one community orientation and one education stakeholder's orientation were conducted under the program.

Box 3

Components of School Earthquake Safety Program

Construction of earthquake resistant school buildings, capacities building of local masons in earthquake-resistant construction technology; training and orientation to students, teachers and the communities on earthquake safety; enhancing the earthquake preparedness of schools, involvement of the education authorities and Institutionalization of the process.

SESP Components

Capacity Development for School Sector Program Implementation (TA7935-NEP)

With the view to reducing the vulnerability of schools, the Government of Nepal, Department of Education (DoE) and the Asian Development Bank (ADB) agreed to undertake Disaster Risk Management (DRM) activities in the education sector through the School Sector Reform Program (SSRP). The ADB-assisted School Sector Program seeks to enhance school safety under Output 3: Safer Schools. The program aims to retrofit 260 school buildings in the Kathmandu Valley, raise awareness among teachers and students in the selected schools and train engineers and masons in seismic retrofitting.

NSET is involved in the process to provide technical support to the Department of Education for implementing the retrofitting of 50 school buildings in Kathmandu Valley; and building the capacity of engineers, teachers and masons. The preparation of guidelines for Seismic Vulnerability Assessment and Retrofit Design of School Buildings, training on seismic vulnerability assessment and

Fig2: Retrofitting of Adarsha Aajad Secondary School

retrofit design for school buildings for the engineers and sub-engineers, training of masons for retrofitting works and earthquake safety awareness program for teachers and students are the areas the program has been progressing successfully.

Schools have been selected, detailed assessment and retrofit design for the selected schools have been completed. Retrofitting is being implemented in 52 schools. Three sessions of Basic Technical training and five sets of mason training have been conducted. The manual for Seismic Vulnerability Assessment and Retrofit Design of School Buildings has also been prepared.

Key Outcomes

- Formulation of a planning and implementation framework for the government's school safety program
- Review of the school safety action plan for implementation of Output 3 under the Program
- Preparation of a manual for detailed assessment and retrofitting designs
- Technical support to retrofit 50 school buildings
- Training of 140 engineers and sub-engineers
- Awareness building program for 500 teachers and 10,000 students
- Training on retrofitting for 400 masons

Enhancing Children Safety and Community Resilience through Integration of Disaster Risk Reduction and Climate Change Adaption (DRR&CCA) in Education Sector

A program for Integration of Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) in education sector has been started in five districts Humla, Bajura, Achham, Dhanusha and Saptari under the leadership of DoE with support from UNICEF. The program will run untill June 2015. The expected results from this program are:

Fig3: Training workshop in Humla

- Comprehensive School Safety Framework (Guideline and Action Plan) developed, endorsed and implemented by the Government
- School and District Annual Strategic Implementation Plans integrate CCA and DRR components including budget allocation
- Increased capacity of children, parents, teachers and education stakeholders/ to build a culture of safety and resilience in schools and communities

The program intends to extend the comprehensive school safety concept which include considerations for earthquake safety and safety for other hazards, environmental safety and climate change adaptation. This objective will be achieved through workshops, training sessions, curriculum improvements and physical interventions in the related schools.

So far, initial workshop and training sessions have been organized in Humla, Achham and Bajura districts.

Nepalese Students visit Japan as part of the Kobe- Kathmandu Exchange Program

Upon invitation from Maiko HS, Kobe, Japan and Independent Administrative National Institution for Youth Education, two students and one teacher and one professional from NSET participated the International Conference on Disaster Risk Reduction held in Tokyo, Japan from 10-12 January 2014. Along with participants from Nepal, students and teachers from China, Srilanka and different prefectures of Japan were present at the conference. The main aim of the conference was to share the experiences and efforts made for enhancing earthuake safety in schools in different countries. Nepalese Students highlighted the implementation of School Earthquake Safety Program in their school and their involvement in the Student Safety Club.

Fig4: Students and Teacher from Nepal Presenting during International Conference on Disaster Risk Reduction in Tokyo

The event was followed by Memorial Event of Great Kobe Earthquake of 1995 in Maiko High School in Kobe on 15th January 2014 and visit to Japanese Red Cross and JICA learning center at Kobe. The exchange program was very much helpful in strengthening the relationship between Nepal and Japanese Schools in the field of Disaster Risk Reduction.

NSET began the Kobe-Kathmandu exchange program in 2002. The program has become an integral part of NSET's School Earthquake Safety Program (SESP) sinse then. The program aims to enhance cooperation between the students of Kobe and Kathmandu through learning experiences and sharing knowledge in disaster mitigation.

SESP with Nanyang Technological University (NTU)

Nanyang Technological University (NTU), Temasek Foundation and the Department of Education partnered with NSET for implementing a joint initiative on Training and Capacity Building on Seismic Strengthening for Master Trainers and Local Builders in Nepal. The objective of the project is to address and mitigate earthquake risks by promoting the use of strengthening technologies developed and implemented by NTU. NTU is to share knowledge and transfer its technical expertise on earthquake strengthening with professionals, engineers and local builders in Nepal. The activities under the project includes designing and retrofitting of six school buildings, on the job training to masons on retrofitting, curricula development for engineers training and masons training and five-day retrofit design training for engineers. In the year 2013, one engineers training was conducted and curricula on engineers training and mason training have been developed.

This program uses Fibre Reinforced Polymer (FRP) technology for the retrofitting of school buildings. This is a pilot process to test the feasibility of FRP technology in Nepal.

Disaster Preparedness for Safer Schools in Nepal (DPSS)

DPSS was conceptualized as a regional program to be implemented in disaster prone countries of Asia. The program is designed to increase disaster awareness and improve the disaster safety of schools and communities through awareness, training and capacity building activities. The first phase of the program was implemented in 50 schools of two districts of Nepal during the period of November 2009 to October 2010. A total of 8,402 people benefited through disaster preparedness and risk reduction activities. 93 different trainings in DP/DRR were conducted and sets of curricula for School Based Disaster Preparedness, Light Search and

Fig5: During the training of teachers

Table 1: DPSS-Outputs

S.No.	Activities	Number	Beneficiaries
1	School based Disaster Preparedness TOT	5	118
2	Basic Disaster Management Training (2 days)	55	1540
3	First Aid TOT (9 days)	1	24
4	Basic First Aid (3 days)	3	72
5	School First Aid (2 Days)	55	1296
6	Update Disaster Preparedness plan of schools	55	55
7	Drill Exercise	55	10000
8	Door to Door Visit in communities	55	2050 HH
9	5 Days Mason Training	3	89
10	Street Drama	15	4500
11	Establishment of Disaster Learning Center	15	15 schools
12	Small Scale mitigation works (Sanitation Facility renovation)	29	29 schools
13	Water Quality Test of Program School	55	All program schools
14	Basic First Aid and CPR Training for FCHVs (4 Days)	3	72
15	Gender and Social Inclusion Training	3	72
16	Sensitization workshop for Head teacher from Core school and Resource Person (2 Days)	3	73
17	Sensitization workshop for Head teacher from Target Non-Core school (2 Days)	6	134
18	SBDP ToT Refresher Training for teacher Sponsor (2 Days)	3	70

Rescue (LSAR), Vulnerability and Capacity Assessment and DP Planning were developed.

Based on the experiences and outcomes from the first phase and also realizing the extensive need of disaster preparedness in vulnerable schools in Nepal, Nepal Red Cross Society (NRCS) and the NSET have been continued the second phase of the program "Disaster Preparedness for Safer Schools in Nepal (DPSS)" with the funding support from American Red Cross (ARC). The project started in February 2011 and is to continue until July 2014. The main goal of the project is to reduce the number of deaths, injuries, and socio-economic impact from disasters by building safer, more resilient schools and communities.

A total of 39,660 students, teachers and community members are the direct beneficiaries through the training, orientation and other program interventions. 250,000 students, teachers, and community members are expected as indirect beneficiaries.

The program includes the development and adaptation of training curricula on school-based disaster preparedness, delivery of training courses, preparation and implementation of school disaster preparedness plans, disaster preparedness drills, household preparedness plan, VDC level preparedness plan, district disaster preparedness plan, capacity building of local government and technical staff, community awareness and establishment of links between the city and community, preparedness plan and school preparedness plan. The second phase of the program envisions implementating of disaster preparedness training and disaster preparedness activities in selected schools of three districts Bhaktapur, Nuwakot and Rasuwa in Nepal. DPSS II is being implemented in 220 schools. Among them, the program focused intensively on 55 schools and the remaining 165 schools benefitted with orientations and trainings through the core program schools.

Disaster Preparedness for Safer Schools in Bangladesh

Envisioned as a regional program, the DPSS program model is being replicated in Bangladesh. Bangladesh Red Crescent Society (BDRCS), IFRC Bangladesh Delegation and American Red Cross together with NSET are implementing the DPSS program in 50 schools across Dhaka and Rangpur Districts of Bangladesh during the period of August 2012 to June 2014. The program is being implemented with an objective that 30 per cent of public schools participating in DPSS demonstrate greater safety through disaster preparedness and disaster risk reduction and community engagement. The program also enhances the capacity of BDRCS in planning programming, assessing and managing to deliver trainings, raises awareness, implement disaster preparedness measures and advocate for standardization of disaster management in public schools.

So far, sets of curricula for School Based Disaster Preparedness, Light Search and Rescue, Vulnerability and Capacity Assessment and Planning have been

Major Outcomes

- Ministry of Education, Department of Education institutionalized School Earthquake Safety Program and expanded its region from Kathmandu valley to 23 districts around Nepal with the support from the Asian Development Bank (ADB)
- NSET, Department of Education and UNICEF are working on a multi-hazard approach and have started to institutionalize comprehensive school safety in 500 schools across five districts
- The curricula developed by NSET's SESP has been endorsed by Department of Education
- Student summit on Earthquake Safety has widened its area and is now the international summit on earthquake safety with students participating from various other countries
- Capacity building of school students, teachers and community members through training, orientation and periodic drills

developed. Five different trainings on School-Based Disaster Preparedness Training of trainers (TOT), eleven Basic First Aid, three Vulnerability and Capacity Assessment, five Light Search and Rescue training, fifty Basic Disaster Management training and twenty community orientations on earthquake safety have been conducted based on the developed curricula for students, teachers and community members. Further Disaster Preparedness Plans for 20 Schools have been prepared and drills have been conducted based on the prepared plans.

Box 4

SESP Achievements (2013-2014)

Number of schools retrofitted / reconstructed(DOE/ADB/NSET)	114
Number of students oriented(DOE/ADB/UNICEF/ARC/NSET	51000+
Number of teachers trained/oriented	1326+
Number of students trained on LSAR	150
Number of students trained on FA	1739
Number of community people trained/oriented	2617
Number of Engineers and Subengineers trained	133
Number of Masons trained	410
Number of Education Stakeholders trained	254
Number of evacuation drills conducted	75
Numner of Schools with disaster preparedness plans	75

Students' Summit on Earthquake Safety - 2013

The Government of Nepal, Ministry of Education, Department of Education in association with NSET organized a 3-day Students' Summit on Earthquake Safety (SES2013) from August 6-8, 2013 at Sauraha, Chitwan. The organization of the summit was supported by various organizations including, UNICEF, Asian Development Bank, AusAid, American Red Cross, Save the children, Mercy Corps, Maiko High school Japan, ADRRN, Oxfam, ActionAid -Nepal, Plan International, Nepal Red Cross Society and USAID/ OFDA Participants included 230 students and teachers from 37 districts of Nepal. 15 participants from Japan (including 9 students, one teacher and one graduate student from Maiko High School and 4 crew members of NHK (Japanese National Television) and 10 participants from Bangladesh (7 officials from BDRCS/IFRCS, 1 teacher and 2 students) also attended the Summit as international participants.

The summit successfully achieved its objectives of:

a) propagating messages on disaster safety all over Nepal using students as ambassadors;

b) sharing good national and international practices of school disaster preparedness;

c) enhancing fraternity among students through common understanding on disaster risk reduction.

The summit agenda included awareness rally, sharing of experiences in learning and implementing DRR, excursions to several demonstration sites, earthquake drill, sharing of good practices on preparedness by different districts and lessons learned in Education in Emergency and sharing from Japan and Bangladesh. Evening cultural shows by the participants, art competitions and essay competitions, and plank walks were also on the agenda together with poems and poetry on DRR and CCA themes, team building exercises and a friendly soccer match among national and international participants. The participants were moved by the stories of devastation due to Tsunami caused by an mega earthquake in Sendai Japan in 2010, but were greatly encouraged by the fact that Maiko High School students did work in east coast of Japan to assist the tsunami-affected children.

Chapter 3

Building up the Capacities of Communities towards Disaster Risk Reduction

It takes considerable effort and time to realize change at a national level in the disaster risk reduction sector. Meanwhile, communities remain vulnerable to disasters as the political processes progress. It is for this reason that NSET feels it is necessary to work directly with communities to build their capacity. A community that knows how to prepare themselves and respond properly in the event of a disaster will move towards resilience. A resilient community is more able to prevent losses and recover after a disaster event.

'Raising awareness about risk and creating an understanding of the underlying factors are crucial in reducing vulnerability'

NSET believes that community action for disaster risk management is a crucial element in promoting a "culture of prevention" and creating safer communities. Hence, community based approaches have been an integral part of various projects and programs of NSET. The lessons are very encouraging; communities have accepted the idea of CBDRM and highly motivated towards actively implementing such initiatives.

One such recent initiative is the Village Disaster Risk Management Program (VDRMP), which is the extension of the Disaster Risk Management program that is being implemented in the municipalities by NSET. The program augments NSET's desire to facilitate the VDC in implementing the Local Disaster Risk Management Planning (LDRMP) Guidelines prepared by the Ministry of Federal Affairs and Local Development (MOFALD).

One Village Development Committee (VDC) each from Kavrepalanchok district which lies in the Bagmati zone and Sindhuli district, Janakpur zone along the Banepa Sindhuli Highway, the central region of the country was decided to be used as pilot VDCs for the implementation of VDRMP.

Interaction meetings were conducted in all the 14 VDCs located in between Dhulikhel and Kamalamai Municipality along the Banepa Sindhuli Highway to inform the

major VDC stakeholders about NSET's plan of forming village disaster risk management committees following the LDRMP Guidelines.

Out of the 14 VDCs visited, only three VDCs showed their willingness to implement CBDRM in their community at present and the two others gave an indication of interest for the near future.

Interestingly, the Women's Forum of Thankot VDC in Kathmandu requested NSET to assist with the formation of the DRMC in Thankot VDC. An interaction program with the VDC Secretary and other stakeholders led to the implementation of VDRMP in Thankot VDC.

Therefore NSET is now implementing Village Disaster Risk Management Program in three VDCs; Jhangajholi, Ratanchura and Katunjebesi VDC of Kavrepalanchowk district. VDC level DRMCs have been formed and endorsed by the respective VDC Councils in the three VDCs. With technical support from NSET, the VDCs organized orientation programs on Local Disaster Risk Management Planning and Earthquake Risk Reduction for the newly formed DRMC members. The DRMCs are now planning to conduct the five-day Community Based Disaster Management Training Programs for their members.

Table 1: Orientation program organized in the VDC

SN	Date	Organization & Address	Program	Committee Members		
				M	F	Total
1	Feb 2014	Katunjebesi Village Development Committee.	Orientation program on Local Disaster Risk Management Planning Guideline and Earthquake Risk Reduction.	25	5	30
2	Feb 2014	Ratanchura Village Development Committee.	Orientation program on Local Disaster Risk Management Planning Guideline and Earthquake Risk Reduction.	26	4	30
3	Mar 2014	Jhangajholi Village Development Committee	Orientation program on Local Disaster Risk Management Planning Guideline and Earthquake Risk Reduction.	24	6	30
			Total	**75**	**15**	**90**

Orientation and Awareness Programs

Orienting the community members on earthquake safety has always been an integral part of the CBDRM program of NSET. Series of orientation programs were conducted in the communities of Kirtipur municipality, Thankot, Imadol, Manamaiju VDCs and other communities on request from the community itself.

Enhancing Earthquake Preparedness of Communities through Women's Groups

'Enhancing Earthquake Preparedness of Communities through Women's Network: A Collaborative Initiative' is an effort to expand the earthquake preparedness and mitigation activities at the grassroot level involving and targeting women's groups in a collaborative approach.

This collaborative effort has brought organizations such as NSET, Lumanti, and National Network of Women for Community Resilience (NNWCR) and a number of women's' organizations and networks namely Community Women Forum (CWF) of Thankot and Kirtipur Women's Network (KWN) together to work to enhance community resilience. Kirtipur Women's Group is a network of 70 Mothers' Groups having 3500 general members. Thankot Women's Empowerment Finance Organization has 1142 members. Both groups are devotedly engaged to empowering women and helping building strengthened communities.

Fig1: Orientation on 'Earthquake Risk & Preparedness' for Members of Women's Group in Kirtipur Community

The collaboration seeks to enhance the capacity of members of women's group on safer construction technology, non-structural mitigation and earthquake preparedness planning and implementation through series of training courses and instructors' development courses. The program further seeks to promote the learning of the members in their respective communities through door-to-door campaign.

The year 2013-14 remained successful in terms of developing the work modality and gearing up the capacity building activities leading toward on-site actions.

Women efforts are more result-oriented and sustained

We are Bindu Shrestha, Sita Shrestha, Hastamaya Shrestha and Namrata Shrestha affiliated with Community Women Forum (CWF), Thankot and Kirtipur Women's Network (KWN). We are engaged in activities of women empowerment and social welfare. Our settlements are very much vulnerable to earthquakes. Our experience says women efforts are more result-oriented and sustained. We then found earthquake preparedness also needed to include in our regular agenda. That is the reason we are now involved in more organized ways to reduce the risk and also improve level of preparedness of our communities.

Fig2: Training on Non-Structural Mitigation

With the continuous encouragement and coordination of Lumanti, a founder member of National Network of Women for Community Resilience (NNWCR), our women groups first triggered to take such initiative. Another founder member of NNWCR, NSET provided package of trainings to our volunteers. Trainings conducted on Non-Structural Mitigation (NSM), Earthquake Go-Bag and ToT Refresher Course. Also trainings on Light Search and Rescue (LSAR) and Basic Emergency Medical Response (BEMR) followed.

At first we learnt what to do and how to do it properly to reduce risks and help enhance local capacity. Then we started working in teams in our communities. We are conducting door-to-door campaigns. With individuals and family members, we share ideas on what to do before, during and after earthquakes. We also help them fix non structural items so that there would be no harm in case ground shakes.

Very interesting is the same night after training we experience a minor quake in the area. That also helped

Fig3: A member of the Women's Network, the master trainer, drilling for the implementation of non-structural mitigation measures

Fig4: During the training of trainers program

Margareta Wahlström
UNISDR Chief said:

"So far this century, we can conservatively state that over 500,000 women have died in disasters and over one billion have lost their homes or been otherwise affected by the growing tide of disasters and extreme weather events worldwide. The next global framework on disaster risk reduction to be agreed by 2015 must address the underlying causes.

The development of the HFA2 can be a watershed moment in ensuring that disaster risk management explicitly factors in gender-based vulnerability and risks. An important remedy is to ensure that women and girls are engaged more as volunteers and develop careers in disaster management."

During the International Women's Day, 8 March, 2013, Geneva.

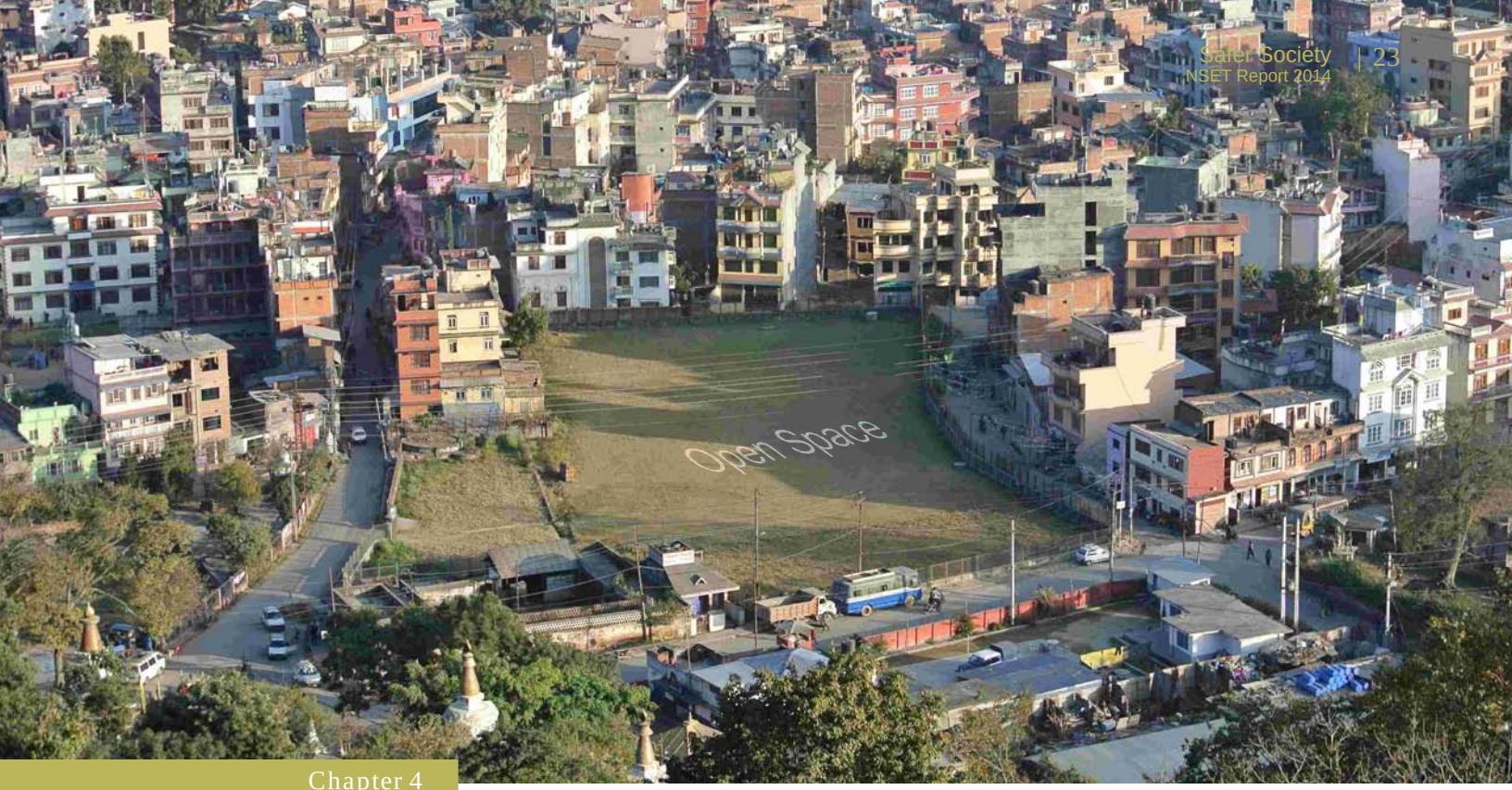
us activate our planned campaigns on the next day. Small tremor made people to listen to us.

Safety messages with illustrations are more useful so that people who can't read also understand it. Calendars with such messages are very effective. People have kept last year's calendar also safely just because of such important messages.

People are really impressed with the concept of "Earthquake Go Bag". Few have managed it. People are also interested in non structural mitigation, two households have committed to fix their cupboards.

All the trainings provided are found very relevant and helpful. LSAR is the most useful, we know how to work in team to control fire. We feel we need to conduct such trainings more.

Our efforts have been recognized by our communities and also local government. Some of us are now sitting and contributing in Community level Disaster Management Committees also. This is really good.



Chapter 4

Enhancing DRR Planning and Implementation

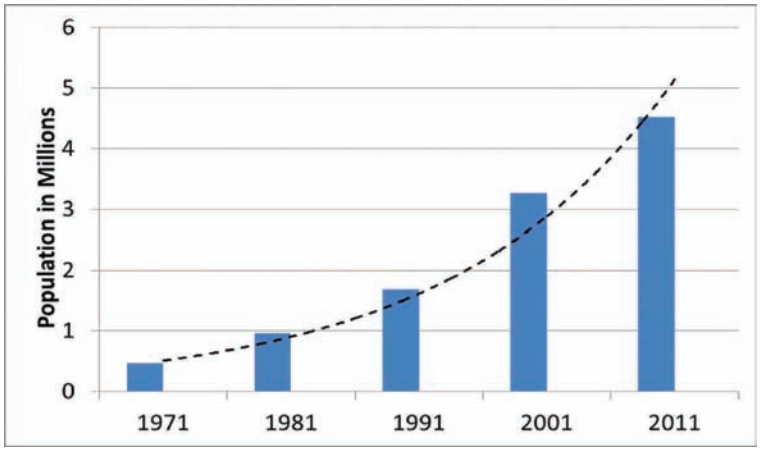
DRR Planning is a process of discussing and agreeing upon what is the best course of action for reducing the risk and priority actions to be taken in the event of a disaster. It defines actions and responsibilities and reduces confusion and panic in the communities or organisations that undertake it. NSET works together with communities, local, regional and national level government authorities to help develop plans hand in hand with key stakeholders.

Urban Risk Atlas: "Earthquake Risk Assessment for Municipalities of Nepal"

The entire country of Nepal faces high risk of earthquakes. The hilly and mountainous regions are prone to landslides, while the Terai and areas close to rivers are susceptible to flooding. When these hazard events occur, it may result in serious disasters for people with inadequate capacity or coping capabilities.

The trend of migration from rural areas to urban is also increasing continually as people search for better economic opportunities (Fig1). This migration trend results in haphazard urban development that makes urban areas more prone to hazard.

Fig1: Trend of population grouth in urban area

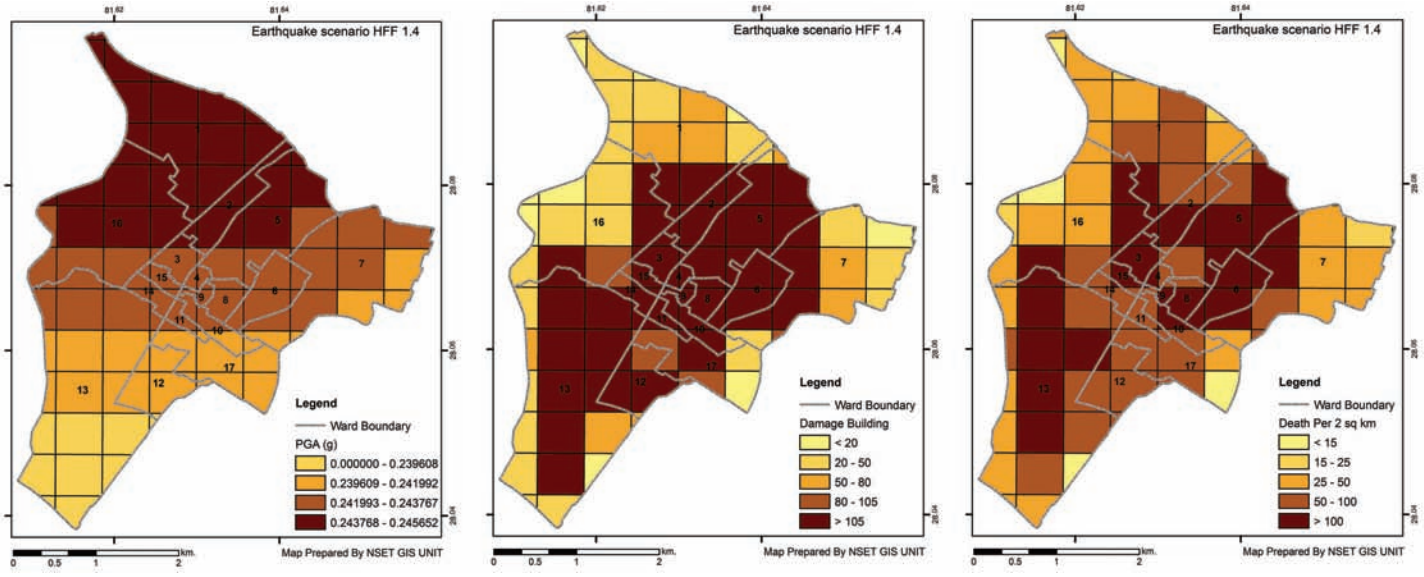


NSET has been supporting municipalities in carrying out risk assessments, preparing hazard and vulnerability maps and local disaster risk management plans at ward and municipal levels. Urban Risk Atlas (URA) for municipalities of Nepal is one of the innovative tasks carried out by NSET.

The URA aims to help improve the earthquake disaster safety of urban areas of Nepal through participatory risk assessment, capacity building, planning and implementation of disaster risk reduction measures.

This Atlas has focused on evaluating the possible damages caused by future potential earthquakes. Possible human casualties and building damages have been calculated and expressed in the maps. The effects on lifeline facilities such as transportation, roads, bridges, water supply, sewerage, and electric power networks are also evaluated. Lifeline damages can significantly hamper recovery efforts. The URA contains general information about natural disasters and also specific characteristics of elements at risk, different types of vulnerability and the risks inherent within the region.

The main objective of this Atlas is to help decision-makers to increase disaster risk awareness and consider natural hazards during the development of projects to avoid, prevent and mitigate disaster risk at the municipal level. The URA will also assist government institutions in the improvement of their disaster risk management plans and also in the implementation of disaster risk reduction policies. Furthermore, this aims to help develop relevant strategies for effective planning, and efficient implementation of different development projects at local level. Any interested person or organization will therefore, have the opportunity to understand the risks and relevant challenges faced by the local communities by utilizing the information contained in this Atlas.

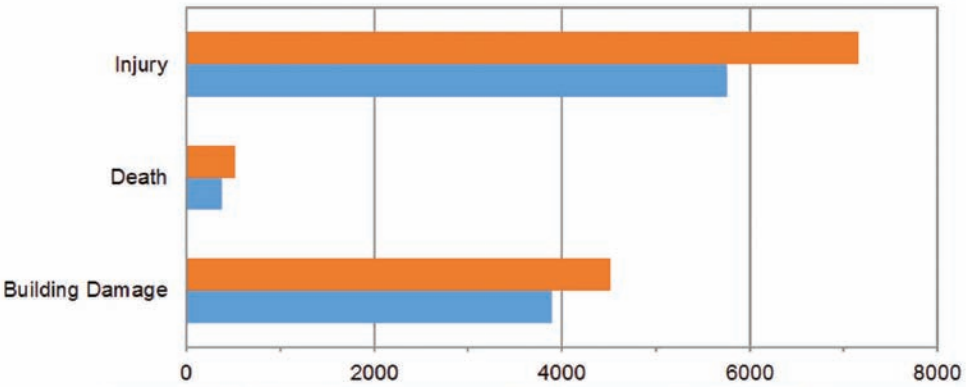


Distribution of earthquake shaking | Building damage scenario | Casualty scenario

Fig2: Map showing casualty estimation for scenario earthquake for Nepalgunj Municipality

The results from the analysis of available data using RADIUS (a simple tool which uses a generalized form of urban earthquake risk assessment) have shown that the proportion of buildings that will collapse in the municipalities is significant and is the main cause of casualties during earthquakes. Information on the number of people at home (inside buildings) when the earthquake occurs is basic information required for casualty estimation. Considering information on day and night population, as well as building typologies together with other information, the possible number of buildings damages and number of casualties are estimated. The results are shown in the form of maps, graphs and tables that can be used in awareness raising, local level preparedness planning and other risk reduction purposes. Sample results for one of the municipalities are shown in the maps (Fig3)

Fig 3: Earthquake loss estimation based on assumption of rupture of two nearest fault lines near to Nepalgunj Municipality. This figure shows the potential loss on human casualties and building damage in the night-time



	Building Damage	Death	Injury
HFF 1.4	4515	522	7161
HFF 1.6	3886	374	5758

Disaster Risk Assessment, Formulation of Risk Reduction and Preparedness Plans and Implementation

NSET has been providing technical support for the preparation of Disaster Preparedness and Response Plans (DPRP) for districts, municipalities/VDCs, and wards. In 2013, NSET supported Kathmandu District in preparing the DPRP. This plan was prepared following the guidelines of the Ministry of Home Affairs (MoHA), Government of Nepal (GoN).

The plan adopted the process as proposed by the guidelines including a wide range of stakeholder consultation, workshops, personal consultation and meetings. The work was done in close coordination and partnership with the District Disaster Relief Committee (DDRC) of Kathmandu.

The plan aims to help the district to minimize injuries, loss of lives, property and development gains. The plan also aims for better preparedness in emergency response following any disaster in Kathmandu.

NSET also provided technical support for the preparation of Local Disaster Risk Management Plans (LDRMP) for municipalities. NSET assisted Dharan Municipality in the preparation of its Local Level Disaster Risk Management Plan following the LDRMP Guidelines proposed by the Ministry of Federal Affairs and Local Development (MoFALD). NSET is providing technical support to Dhangadhi and Bhimdatta Municipalities for the preparation of disaster risk management master plan of the two municipalities with support from Oxfam GB Nepal. In addition, NSET is facilitating the process for the preparation of local level disaster plans in Alapot VDC in Kathmandu

District and two urban wards KMC-18 in Kathmandu Metropolitan City (KMC) and LSMC-12 in Lalitpur Sub-Metropolitan City. Recently, VDCs from Sindhuli and Kavre have also been added to the process.

NSET employs an approach that actively involves the local governance together with local stakeholders in preparing the plans together and also focuses on implementation of the plans.

Atlas of Open Spaces in Kathmandu Valley

This Atlas of Open Spaces in Kathmandu Valley is an inventory of public open spaces available within the Kathmandu Valley. This Atlas is being prepared by NSET based on an inventory carried out during 2011. Originally, this inventory was carried out as part of Risk Mapping for Shelter Response Project implemented with the support from UN Habitat, Global Risk Identification Programme (GRIP) of UNDP/BCPR, IFRC and ProVention Consortium; and under the Global Emergency Shelter Cluster of the UN/IASC context.

This study seeks to document and describe public open spaces available within the Kathmandu Valley. Rapid urban growth on one hand increases the need for more open spaces (a larger displaced population requires more shelter space), and on the other - reduces its supply (through development) – this is clearly an imbalanced equation. Recognizing that all open spaces do not show equal potential for use in post-disaster emergency, we have specifically targeted public lands, as private lands are both logistically difficult to use, and they are quickly disappearing due to development.

During the field visit, we observed various daily uses of the open spaces such as vehicle parking, playground for children, meeting and chatting place for adults and retired persons, drying food grains, and fruit and vegetable vendors. Hence, preserving such public open spaces is essentially protecting the culture also.

An essential part of earthquake preparedness is ensuring safe and accessible open spaces are available for emergency response. With the high rate of urban development in the Kathmandu Valley, open spaces are gradually decreasing. A concerted effort, by the government and community groups, is needed to preserve the remaining open spaces in the Kathmandu Valley.

Realising the importance of preserving these available open spaces, NSET has now been working publish the inventory of open spaces in the form of this Atlas. The main objectives of this atlas are: to help prepare emergency response plans to be useful for a large earthquake disaster; and to help preserve the public open spaces.

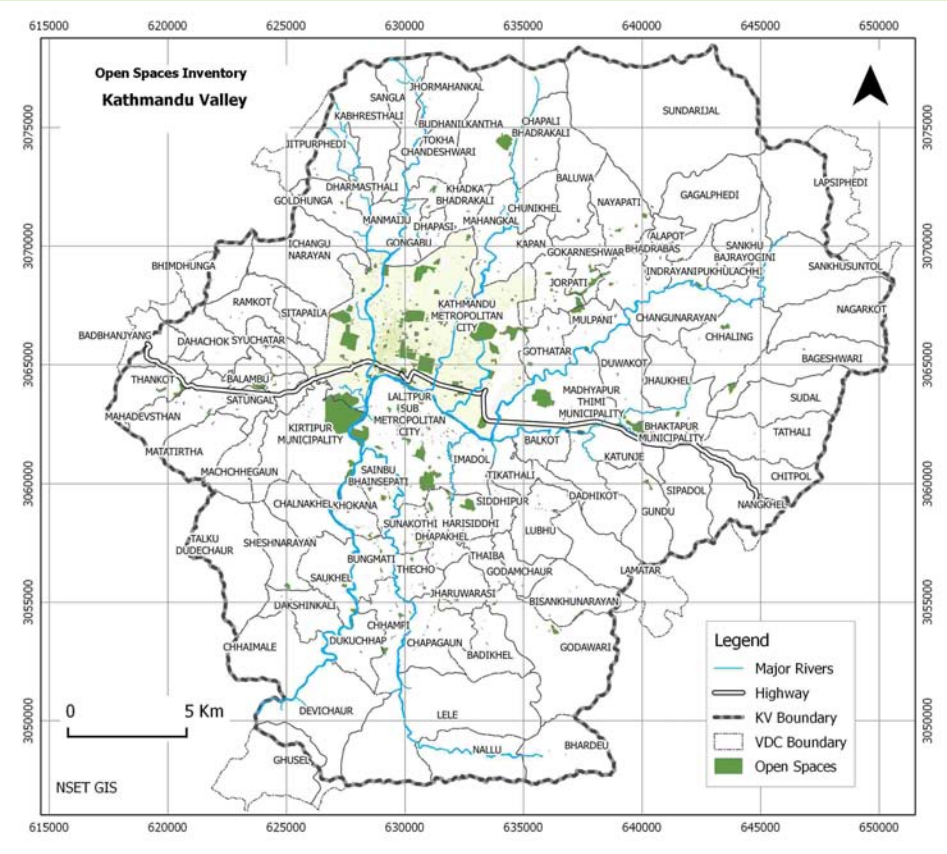


Fig4. Distribution of Open Spaces in Kathmandu Valley

DesInventar as a Disaster Information Management System in Nepal

An effort was initiated in 2004 by NSET to establish a systematic inventory of disaster data for Nepal, with the financial support of UNDP/BCPR for the period of 1971-2003. Since 2003, NSET has continued the effort for the subsequent years.

The database system has focused on collection, computer-entry, and analysis of natural disaster data for the period after 1971 to the current date. The data is ready for the period of 1971-2013. The sources of information for this is media, government reports and as other relevant sources of information on disaster events records and associated loss. The database system uses "DesInventar System", a methodological tool developed by Latin American Network of Social Studies on Disaster Prevention (LARED).

The methodology used for the DesInventar database is a standard data collection format to collect information on identified hazard types. The format allows recording of date, location, magnitude and other details of the events as well as the human and property losses. Different media sources like national daily newspapers and periodicals were identified as the main source of information. Among the newspapers, Gorkhapatra National Daily, the oldest daily newspaper in Nepal, has been taken as the most authentic source of information for present data collection purpose. Other relevant sources identified were also taken as sources of information. This work is done on a daily basis.

During the last 43 years, around 24,313 events have been recorded into DesInventar System. In early years, reports on disasters were not frequent. There is a gradual increase in the number of reports, especially for recent years. While looking these analysis and data for this period of 43 years, one can specify the following losses: Besides the high number of human losses (fatalities, missing, injured, affected, evacuated and relocated people: 7,351,912), about 237,015 houses were destroyed and nearly 211,635 damaged. Moreover almost 1,035,100.49 ha. of arable land and more than 768,465 livestock were lost. Concerning public property, more than 3,600 educational facilities, 37 medical centers and 714 km roads were damaged. The total loss by disasters during this period is about 40 billion NRs at present value.

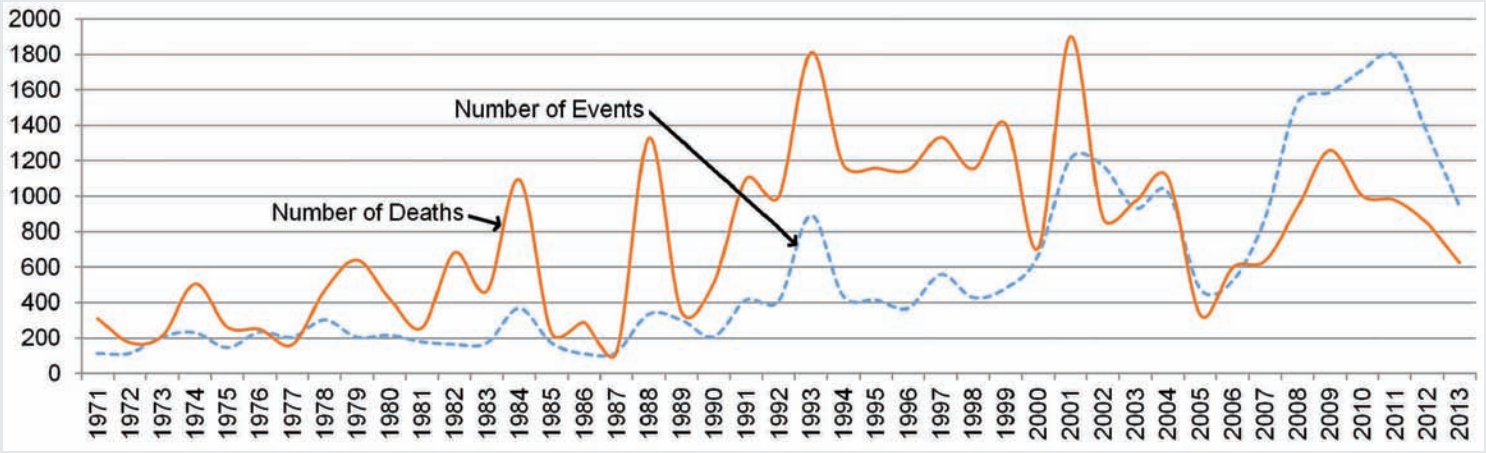


Fig5: Occurrence of disasters and human deaths in Nepal, 1971-2013

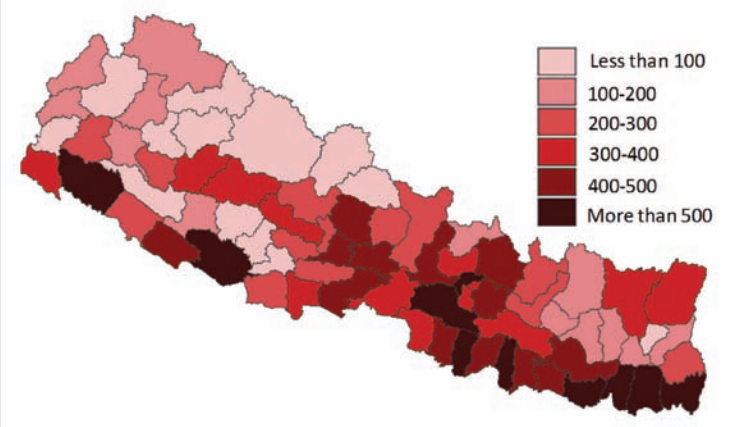


Fig6: Occurrence of Disaster Events in Nepal, 1971-2013

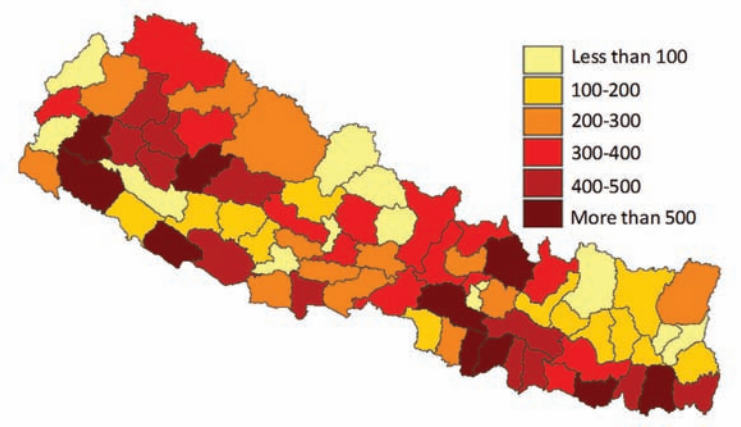


Fig7: Deaths Due to Different Disasters in Nepal, 1971-2013

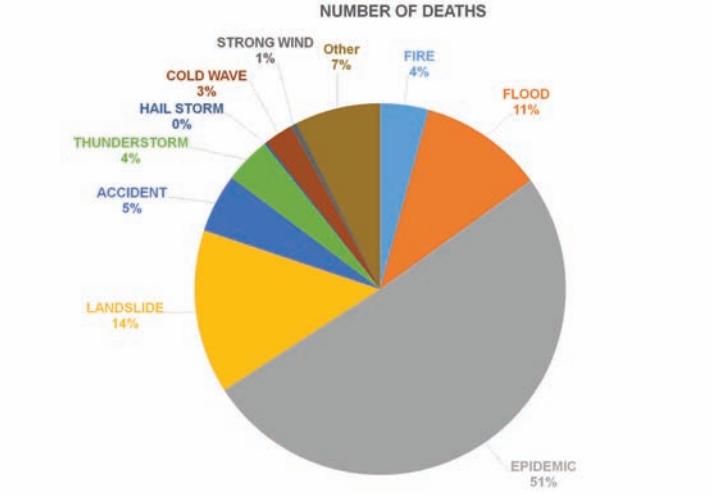


Fig8: Proportion of deaths due to different events

The main achievement of this process is the establishment of a system of consistent and sound database on historical disasters of Nepal. Events caused by natural phenomena are recorded into the DesInventar System with available details. It is expected to serve as a tool for disaster risk mitigation for the country. Such analysis of natural disasters from a different perspective is expected to be useful in: general developmental planning, planning and programming for disaster risk mitigation and in raising disaster awareness, especially at the policy and decision making levels. This will serve as a stable, sustainable, and operational system for systematic disaster inventory and management of the disaster database for effective risk reduction and emergency response planning in the country. This will assist in further detailing the methodology so that disasters are inventoried from a local governance level and thereby using the information in local level planning.

Views and Commitments

Nepali society is gradually accepting disaster risk reduction and disaster risk management as a major agenda/concern for the sustainable development of Nepal. A significant number of leading personalities of Nepal from different walks of life have spoken about DRR and DRM in Nepal. Here are some highlights of such views expressed.

Subhash Chandra Nembang, Chairman of Constituent Assembly

DRR act is necessary…

"Despite Nepal being the most vulnerable country for disaster, its painful that we don't have proper law on this. Disaster is the agenda not only for political parties and the government; it's related to people's safety and preservation of infrastructures. Therefore, the new disaster act should be in place as soon as possible. We should not make any further delay in bringing the Disaster Bill."

Dr. Baburam Bhattrai, Former Prime Minister:

Avoiding earthquake resistant building is a social crime...

"DRR is one of the major issues of the country. For the proper implementation of disaster risk reduction, we need to make a proper code of ethics and we need to establish an institution for effective implementation. The Disaster Management National Strategy 2066 is already in operation; based on that strategy, the Disaster Management Act was also prepared. Disasters are made more dangerous by human made structures. Therefore, there is no other way to proceed except with earthquake resistant building. In our country, there is a lot of carelessness with regards to building public infrastructure like hospitals, schools and college buildings; it is a social crime. Therefore, the timely implementation of the building code and land use planning is today's necessity. I request to all responsible people for their sensitiveness on this field."

Madhab Prasad Ghimire, National Poet of Nepal:

For DRR awareness, literature is also vital…

Humans are sensitive creatures and they know what is going to happen in future but animals don't know that, That's why humans can be prepared for natural disasters but animals cannot. We need to be aware to stay safe from disasters. For this purpose, literature can help increase awareness. Literateurs and artists can make people become aware of DRR."

Rajesh Hamal, Nepali Superstar:

The media and information systems are the key to DRR...

"According to reports and research papers, the capital city Kathmandu, is in a highly earthquake prone zone. City core area of Kathmandu Valley is made more dangerous because of the old houses. This creates a big challenge for rescues after earthquakes. In my view, media campaigning and strong information systems are the only solution for disaster risk reduction."

Madan Krishna Shrestha, Actor:

Earthquakes are deadly...

"Earthquakes are unpredictable and they can come anytime, so everyone needs to make their home safe. Earthquakes never discriminate people. There is no excuse for anyone; it comes unexpectedly and is deadly. Therefore, every one should make their home earthquake resistant."

Haribansa Acharya, Actor:

Let's make Nepal safe...

"Stay safe from Earthquakes. Your home as well as your neighbor's home should be made safe. If every person were aware of earthquakes, we wouldn't see the kinds of casualties we sustain. Therefore, do not create panic. If we make homes safe, then the concept of a safer society will be definitely developed. If we are able to make all Nepalese people aware and we all make all homes safe, we will make Nepal and the Nepalese people safer."

Gangalal Tuladhar, Former Education Minister and CA member:

The disaster bill must be adopted...

"CA members keep DRR issue a top priority. For 22 years, I did politics but now I'm thinking about development politics. Now, my first priority is to see the disaster bill adopted by the parliament. For this job I will be ready to face all the difficulties ahead."

Chapter 5

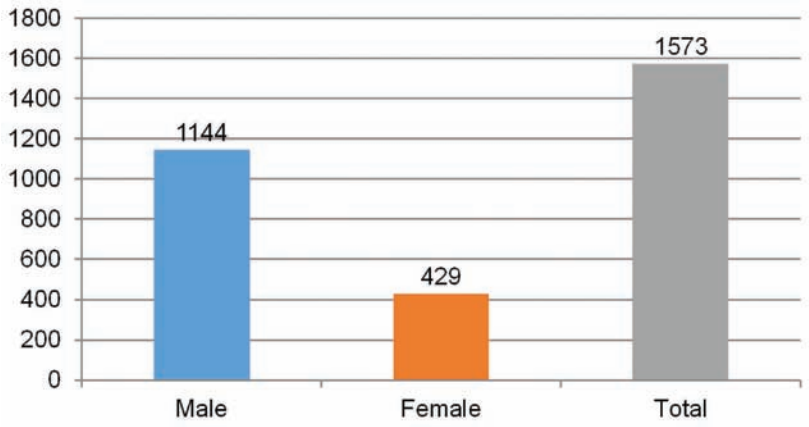
Enhancing Emergency Response Capacity

It remains an undisputable fact that Nepal is a highly disaster-prone country. In addition to earthquakes, Nepal also experiences floods, wildfires, landslides, glacial lake outburst floods (GLOFs), avalanches, windstorms and hailstorms. The extended region of South Asia also experiences considerable numbers of disaster events as well. Given that we cannot control disasters; not when they occur nor how severe they are; the only option to safeguard life and property is preparedness. The emergency response capacity of a community plays a strong part in their resilience in the face of a disaster.

It cannot be presumed that a community is earthquake safe unless everybody is aware of the consequences of earthquakes and is prepared. A massive awareness program that will benefit all communities and a variety of stakeholders through imparting knowledge and skills is a good way to reach the people of Nepal.

NSET is assisting communities and institutions to develop and enhance their disaster preparedness and emergency response capacities. NSET has been assisting many institutions to enhance their earthquake preparedness by conducting earthquake orientation programs and evacuation drills. In 2013-2014, NSET conducted and assisted with the earthquake orientation and earthquake drills in 28 institutions with total of 1573 participants, involving 429 female and 1144 male participants.

Fig 1: Number of participants in earthquake orientation, July 2013-June 2014

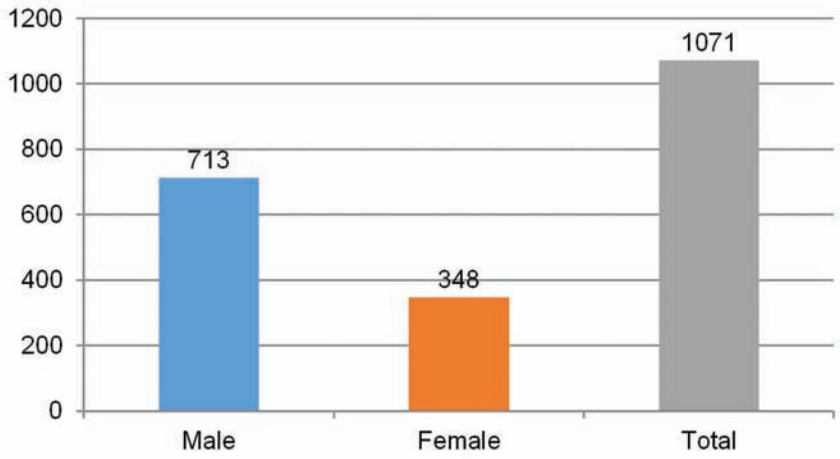


To further enhance the emergency response skills of individuals, NSET has been providing Light Search and Rescue (LSAR) training, Basic Emergency Medical Response (BEMR) training and Fire Response training at institutional and community levels. These trainings are focused on developing emergency responders at the institutional and community level for carrying out operations during emergencies using locally available tools and equipment.

Basic Emergency Response Training Courses

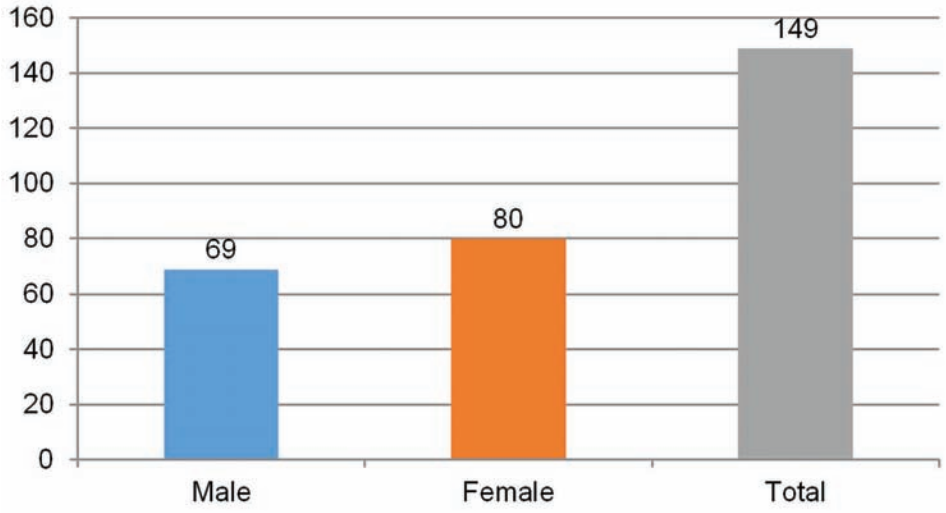
Light Search and Rescue (LSAR) training course is intended to impart the techniques and methods necessary for searching, locating and extricating victims on the surface using the safest and most appropriate procedure. In this period, NSET conducted and helped conduct LSAR in 45 institutions involving 348 female and 713 male participants, for a total 1071 people trained.

Fig 2: Number of participants in LSAR training, July 2013-June 2014



Basic Emergency Medical Response (BEMR) course is developed with a focus to prepare more number of individuals at community, institution and household levels, to respond to basic health emergencies such as bleeding, burn and fractures and also to act as an agent to bridge the gap between health emergency and medical treatment. In this period, NSET conducted and helped conduct BEMR in six institutions involving 80 female and 69 male participants, for a total of 149 participants.

Fig 3: Number of BEMR participants, July 2013-June 2014



NSET is also assisting various national and international organizations and Government agencies to develop their Earthquake Preparedness and Response Plans (EPRP). EPRP is prepared based on the organizational structure, capacity, available facilities and local situation of the respective organization. The plan guides the organization in developing the skills and capacity needed for an effective response to earthquakes and in planning for the quick repair and restoration of damaged physical entities to ensure the continued functioning of the organization after an earthquake.

Preparedness at individual, household, community and institutional level is necessary to enhance earthquake safety at these levels. Therefore, NSET has developed and recommended preparedness kits with tools and supplies which are essential during earthquakes. Earthquake Go Bags, Household Emergency Kits (HH Kit), Light Search and Rescue Kits (LSAR Kit) and Pre-Positioned Emergency Rescue Stores (PPERS) are such preparedness tools NSET has been promoting.

Non-structural risk assessment and appropriate mitigation measures, stockpiling of emergency supplies (food and non-food items), water, sanitation and health preparation, communication plans during emergencies, business continuity plans and vulnerability capacity assessment are other major activities that NSET is implementing to increase the disaster awareness of people, communities and institutions; and to enhance capacity for implementing disaster risk reduction measures.

Fig 4: Emergency Supplies and Provisions at Different levels

Emergency supplies	 Go Bag **(Earthquake Go Bag)**	 HH Kit **(Household Emergency Kit)**	 LSAR **(Light Search and Rescue)**	 PPERS **(Pre-Positioned Emergency Rescue Store)**
What?	A bag with emergency supplies which remains as mobile emergency kit after disaster. Items are stuffed in a quantity which is sufficient for an individual to survive for at least 3 days during an emergency. Eatables, emergency medicines, water purifier, emergency documents etc. are kept as per need.	A box/container which contains basic tools useful in operating light rescue in family level. Around with 25 various rescue items are kept as per need.	A container which holds basic tools and equipment required to perform light search and rescue after disaster within small community/ institutions. 72 various rescue items are kept as per need.	Large container around with 100 various rescues items. This is placed within a community, reachable to every individual of community. Every skilled rescuer can operate LSAR with this rescue supplies.
For Whom?	Individual purpose	One Family	Neighborhood/ small community/ Institution	Larger Community/ward
Where to Place	On the exit way within the building	Within the boundary of house	Within the boundary of institute or the community building	Within the Community

Fig 4: During LSAR training

Program for Enhancement of Emergency Response (PEER)

The Program for Enhancement of Emergency Response (PEER) is a regional training program initiated in Asia in 1998 by the United States Agency for International Development, Office of U.S. Foreign Disaster Assistance (USAID/OFDA). The Asian Disaster Preparedness Center (ADPC) and the National Society for Earthquake Technology - Nepal (NSET) are implementing Stage 3 of PEER in six countries of Asia.

Objective 1	Community Action for Disaster Response (CADRE), is implemented by ADPC in ten countries namely, Bangladesh, Cambodia, India, Indonesia, Lao PDR, Nepal, Pakistan, Philippines, Vietnam, Thailand.
Objective 2	Hospital Preparedness for Emergencies (HOPE), is implemented by ADPC in ten countries namely, Bangladesh, Cambodia, India, Indonesia, Lao PDR, Nepal, Pakistan, Philippines, Vietnam, Thailand.
Objective 3	Medical First Responder (MFR) and Collapsed Structure Search and Rescue (CSSR), is implemented by NSET in six countries; namely, Bangladesh, India, Indonesia, Nepal, Pakistan, Philippines.

American Red Cross is partnering with USAID/OFDA to provide strategic and financial support to ADPC for the implementation of Objective 1: CADRE.

The overall goal of PEER is to 'reduce mortality in mass casualty events and increase survival rates of disaster victims in the selected target countries of Asia'.

Objective 3, which is the focus of NSET's efforts in PEER Stage 3, is as follows:

Strengthen the capabilities of PEER countries to provide collapsed structure search and rescue and basic and advanced life support during emergencies by further strengthening and institutionalizing the medical first responder and collapsed structure search and rescue courses.

PEER's Area of Work

NSET works with national disaster management organizations, local governments, identified partner training organizations, such as the Fire Brigade, Police, Army, Red Cross/Red Crescent societies, and government-affiliated, non-government, private and volunteer response organizations to achieve its objectives in PEER Stage 3.

NSET is collaborating with national governments of PEER countries for strategic direction in developing qualified instructors for MFR and CSSR courses. Developing highly qualified MFR and CSSR instructors is important for being able to produce skilled responders who are ready to be deployed during emergencies or disasters. Partner training institutes are being designated by nodal agencies to implement and institutionalize these courses. Below are NSET's key program partners in the region:

SN	PEER Country	Nodal Agency	Partner Organizations/Training Institutes
1	Bangladesh	Department of Disaster Management – Ministry of Disaster Management and Relief	• Fire Service and Civil Defence of Bangladesh
2	India	Ministry of Home Affairs and National Disaster Management Authority	• National Disaster Response Force • Central Industrial Security Force / National Industrial Security Academy • Indo-Tibetan Border Police / National Institute for Training in Search, Rescue and Disaster Response • Central Reserve Police Force / Central Training College II • Border Security Force / BSF Institute of Disaster Response
3	Indonesia	Badan Nasional Penanggulangan Bencana (National Agency for Disaster Management)	• 118 Emergency Ambulance Service Foundation • Jakarta Fire Service / Jakarta Fire Training Center • Badan Search and Rescue Nasional • Palang Merah Indonesia • Nepal Police / National Police Academy
4	Nepal	Ministry of Home Affairs	• Armed Police Force / APF Disaster Management Training Center • Nepalese Army • Nepal Red Cross Society
5	Pakistan	National Disaster Management Authority	• Punjab Emergency Services / Emergency Services Academy
6	Philippines	National Disaster Risk Reduction and Management Council	• Bureau of Fire Protection / National Fire Training Institute • Amity Public Safety Academy • Philippine Red Cross • Emergency Rescue Unit Foundation

Main Training Courses in PEER

The Medical First Responder (MFR) Course aims to provide individuals, the knowledge and skills necessary to assess the situation and provide the appropriate treatment and transport of a sick or injured patient as a result of an emergency or disaster. Target participants are emergency and disaster first response groups, such as personnel from Fire Departments, Red Cross/Red Crescent Societies, Police Departments and rescue groups associated with government emergency response system.

The MFR training curriculum highlights pre-hospital treatment that trained emergency responders can provide during emergencies such as:

- Cardiopulmonary resuscitation (CPR)
- Bleeding emergencies
- Fractures
- Skull/spinal/chest injuries
- Respiratory emergencies
- Burns
- Childbirth emergencies

The Collapsed Structure Search and Rescue (CSSR) Course aims to provide individuals, Promoting Emergency Supplies and Provisions at Different levels with knowledge and skills necessary to search for, stabilize and extricate victims trapped in collapsed structures using the safest and most appropriate procedures. Similar to the MFR Course, the CSSR course target participants who are members of emergency and disaster first response groups.

The CSSR training curriculum highlights concepts necessary for search and rescue teams, such as:

- Organizing and starting a CSSR operation
- Construction materials, structures and damage types
- International Search and Rescue Advisory Group (INSARAG) Guidelines on Marking System
- Operational safety
- Search and location techniques
- Tools, Equipment and Accessories
- Rescue strategies and techniques
- Shoring methods
- Lifting and stabilising loads
- Pre-hospital treatment

Since PEER is focused on the training of highly-skilled MFR and CSSR instructors, course trainees acquire more than just technical skills. They are also expected to possess good leadership skills, demonstrate integrity, accountability, compassion, empathy and respect.

PEER Instructors Development Process

Since, the countries lack emergency response capacity, the PEER process still focuses on developing instructors in the program countries on MFR, CSSR and other emergency response courses. Availability of qualified instructors is a prerequisite for the emergency response capacity development system. This instructor development process constitutes several other instructor development courses.

Prior to becoming an instructor, a graduate of MFR and CSSR courses must take up other specialized instructor development PEER courses, which are:

- Training for Instructors (TFI)
- MFR Instructors Workshop (MFRIW)
- CSSR Instructors Workshop (CSSRIW)
- Master Instructors Workshop (MIW)

MFRIW and CSSRIW graduates qualify to serve as instructors, while MIW graduates are experienced MFR/CSSR instructors who qualify to serve as course coordinators and course monitors to a PEER course.

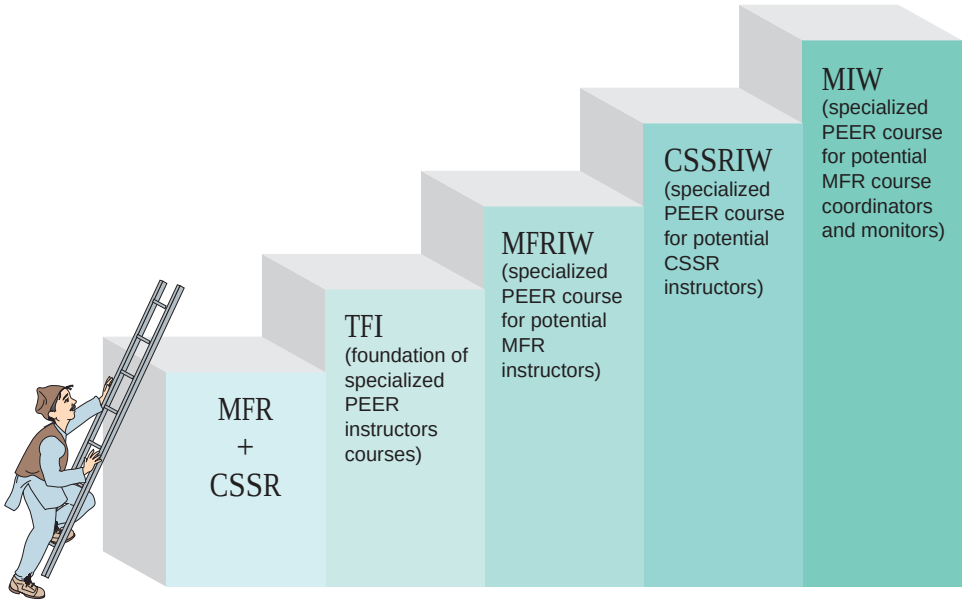
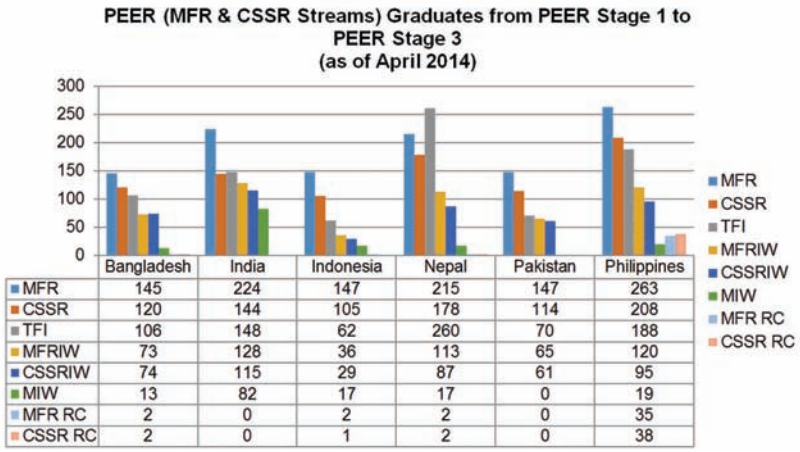


Fig.5: Development process for PEER instructors

Achievements

During PEER Stage 3 (2009-2014), NSET conducted 74 various program events in six PEER beneficiary countries from 2009 until now. Through these PEER events, NSET managed to develop MFR and CSSR graduates in six beneficiary countries. As of April 2014, there are a total of 1,141 MFR graduates, 869 CSSR graduates, 834 TFI graduates, 535 MFRIW graduates, 461 CSSRIW, 148 Master Instructors, 41 MFR Refresher Course graduates and 43 CSSR Refresher Course graduates.



	Bangladesh	India	Indonesia	Nepal	Pakistan	Philippines
MFR	145	224	147	215	147	263
CSSR	120	144	105	178	114	208
TFI	106	148	62	260	70	188
MFRIW	73	128	36	113	65	120
CSSRIW	74	115	29	87	61	95
MIW	13	82	17	17	0	19
MFR RC	2	0	2	2	0	35
CSSR RC	2	0	1	2	0	38

Legend:

MFR	- Medical First Responder
CSSR	- Collapsed Structure Search & Rescue
TFI	- Training for Instructors
MFRIW	- MFR Instructors' Workshop
CSSRIW	- CSSR Instructors' Workshop
MIW	- Master Instructors' Workshop
MFR RC	- MFR Refresher Course
CSSR RC	- CSSR Refresher Course

Fig.6: Graduates from PEER Stage 1 to 3

PEER Impact

Countries are gradually realizing the benefit from PEER trained responders while being involved in emergency and disaster preparedness and search and rescue operations. PEER networking is taking place and expanding within the national, regional and international community, such as in International Search and Rescue Advisory Group (INSARAG). Moreover, the Government (represented by PEER nodal agencies), partnering agencies, disaster related agencies within the country and international agencies are becoming familiar with the PEER Program.

Adaptation and Translation

- PEER MFR and CSSR training course materials have been adapted into national contexts. Translation into national languages was regarded as necessary in five countries (Bangladesh, India, Indonesia, Nepal, and Pakistan). (The Philippines retained the English adapted version of MFR and CSSR course curricula.)
- PEER courses have become an integral part of basic training programs for response groups of most partner organizations in all PEER countries. Using PEER as a foundation, partners have started to customize the MFR and CSSR curricula that will cater to their specific needs and objectives at a more cost-effective approach.

Networking

- PEER's training of emergency responders from the community level (CADRE), emergency response professionals (MFR and CSSR), until the patient reaches the medical care facility (HOPE) led to a realization of a need for a network among emergency responders in the pre-hospital setting, with higher level of emergency responders and the medical professionals.

Stories from the field

PEER has helped shape the training programs of program partners and increased their efficiency in emergency response. Below are some anecdotes received by NSET from the six PEER country-beneficiaries relating their experiences in emergency preparedness and response and how PEER became instrumental to their achievements.

SUCCESSFUL RESPONSE OPERATIONS BY FIRE SERVICE AND CIVIL DEFENCE (FSCD) OF BANGLADESH DURING SAVAR BUILDING COLLAPSE, APRIL 2013, BANGLADESH

On April 24, 2013, Fire Service and Civil Defence (FSCD), Bangladesh Army, Border Guard of Bangladesh, Rapid Action Battalion, police and other organizations were heavily engaged in the rescue operations for the Savar Building Collapse. NSET received report from program partners in Bangladesh that over 200 FSCD workers, led by PEER master instructors and many other instructors and graduates of PEER, did an excellent job at the site. In addition, over 100 community volunteers trained by FSCD were also in action. FSCD has deployed search and rescue equipment available to them, including the ones distributed through PEER grant.

Approximately more than 2,400 persons have been pulled out alive and accounted for. FSCD acknowledged PEER in their success thanked NSET and USAID/OFDA for the continued capacity development support given to Bangladesh during the last 11 years.

PEER ENRICHES LIFE-SAVING SKILLS OF RESCUE 1122'S MEN, PAKISTAN

Overall, Rescue 1122, one of the partnering institutions of PEER in Pakistan, acknowledged the benefits gained from the program with improved lifesaving skills rendered by its PEER-trained personnel who are involved in day-to-day operations responding to emergencies to large-scale disasters such as during the major floods in Pakistan in 2010.

CSSR TEAM OF 118 EMERGENCY AMBULANCE SERVICE IN PADANG EARTHQUAKE, SEPTEMBER 2009, INDOENESIA

The September 30, 2009 Sumatra earthquake that occurred off the southern coast of Sumatra, Indonesia had a magnitude of 7.6. This jolt struck Padang (West Sumatra). Reports have to date confirmed 1,115 dead, 1,214 severely injured and 1,688 slightly injured.

Several agencies, domestic and international, took part in extending assistance to Padang. 118 Emergency Ambulance Service (EAS) Foundation (also known as Ambulan 118) was one among the groups to respond first.

Having applied CSSR knowledge and skills, Ambulan 118's CSSR team was able to extricate trapped victims, both alive/injured and dead. Amid challenges faced during the disaster

Fig.7: Designing the layout and number of simulation props for CSSR End-users course, CSSR End-users Course Development Workshop, April 2014, Nepal

Fig.8: MFR End-users course development workshop, April 2014, Nepal

- Moreover, PEER graduates and instructors established their own networking system among their fellow PEER recipients and share information, updates since they belong to similar professions in the field of disaster risk reduction, including emergency response.

response operations in Padang, PEER's impact on the country's improved emergency response cannot be understated.

BUILDING COLLAPSE AT MAKHAN (CORE CITY AREA), KATHMANDU, JUNE 2007, NEPAL

A three storey residential building was caught in fire in the midst of densely populated location of Makhan in Kathmandu. The fire brigade of Kathmandu valley managed to put out the fire in time. However, a huge, hanging concrete roof slab posed a threat of collapse to the building and to the adjacent buildings as well. A team of three CSSR instructors from Nepal Army was mobilized to assess and stabilize partly collapsed building through the CSSR skills and techniques by applying shoring, anchoring, cutting and breaching. Though it took two days to accomplish, the job was successful.

CISF RESPONSE AT ANDAMAN AND NICOBAR ISLANDS, TSUNAMI 2004, INDIA

Central Industrial Security Force (CISF) is one among the five PEER partner organizations in India for the conduct of MFR and CSSR courses. The CISF team was deployed to the Andaman and Nicobar Islands during the tsunami of 2004. The team's work objectives focused on searching, locating, accessing, stabilizing and extricating tsunami-affected victims using the most appropriate and safe methods.

STRENGTHENING OF MFR-CSSR-HOPE NETWORKING, THE PHILIPPINES

Towards the culmination of PEER Stage 2 in January 2009, NSET, in collaboration with the Office of Civil Defense-National Disaster Coordinating Council, PEER nodal agency in the Philippines, and other implementing partners in Region 6, conceptualized a disaster drill that tested, gauged and assessed the response capabilities of both the pre-hospital and hospital responders in the Visayan region. The drill was named 1st NSET-PEER-Coalition of Emergency Response Groups (CERG) - Western Visayas (WV) Response and Networking Drill.

The scenario simulated a 7.3 magnitude earthquake hitting Kabankalan City, Negros Occidental, at around 9am, causing considerable damage to the city's district hospital and various parts of the city. The drill ensued with MFR-CSSR and HOPE trained personnel leading the response, along with emergency response units of participating local governments, such as the fire department, police, Red Cross, Negros Rescue Foundation, volunteer groups such as the Amity Volunteer Fire Brigade and local health and hospital personnel.

The simulation exercise aimed to put the 3 core courses of PEER to test as one continuum of response, gathering all response efforts of both pre-hospital and hospital-based responders. It also tested the emergency response system of the local government. The organizers resolved that similar exercises will be organized to help improve local emergency response system in the Philippines.

Fig.9: Team-building exercise during MIW course, December 2013, India

Fig.10: Participants of CSSR working in a confined space for the extraction of victims, January 2014, Pakistan

Fig.11: Lifting, moving and stabilizing heavy objects exercise during CSSRIW in Kurintar, Nepal, March 2014

Human Resource Development

- The structured process of instructors' development in PEER is being replicated by most partner organizations in their own non-PEER instructors' development process. The PEER methodical system of participant evaluation and instructors' ladderized upgrading system is an effective way of developing qualified professionals who can deliver quality training programs.
- Moreover, the availability of PEER curricula, PEER-trained graduates and instructors motivates PEER partner organizations to implement related emergency response trainings for formal response groups and disaster volunteers, which further strengthens national emergency response capacities.

Infrastructure / Training Facilities

- PEER partner organizations adhere to program guidelines in terms of course facilities, training equipment and materials for effective and efficient delivery of their non-PEER training programs.

Mainstreaming Into National And International Initiatives

- PEER contributed to achieving efforts at the national and international levels such as implementation of the Hyogo Framework for Action (HFA), specifically for Priority Action No. 5: Strengthen disaster preparedness for effective response at all levels.

Strategic Planning / Policy Development

- NSET highly recommends a strategic approach to planning for a sustainable training program for qualified instructors and responders vis-à-vis the number of identified vulnerable populations in PEER countries, by utilizing the PEER training system as a foundation.

Ensuring reliable supply of water in the event of an earthquake

NSET is providing technical support for the design of WASH facilities at two Internally Displaced Person (IDP) campsites at the National Agriculture Research Council (NARC), Khumaltar and Tribhuvan University (TU), Kirtipur in the Kathmandu Valley for Oxfam's "Design of WASH Facility at TU/NARC IDP site" project. The project duration is from March 2013 to May 2014.

The main objective of this project is to install new deep tube wells and rehabilitate the existing deep tube wells at the two IDP sites, NARC and TU, in order to be able to offer an emergency drinkable water supply in the event of a major earthquake. The Kathmandu Valley Earthquake Risk Management Project (KVERMP) report of 1997 found that the water supply system in Kathmandu will be non-operational after a major earthquake's shaking. More than ninety per cent (90%) of the current capacity of the city's supply system will be lost during a major earthquake disaster. Shallow tube wells also become damaged from large earthquakes. In such conditions, it becomes difficult to meet the water supply demands. Past earthquake events shows that in many countries including Japan, even when all the water supply system was damaged, deep tube well systems remained intact and safe after the earthquake. Therefore, deep tube wells might be the only reliable source of water supply in the case of an emergency in Kathmandu.

Fig.12: Deep tube well construction at TU, Kirtipur

The deep tube well at TU is 296 meters deep. The continuous safe yield of this new deep tube well is 2 litres/second and the existing deep tube well will provide 2 litres/second additionally. The target beneficiaries during an emergency are 70,000 people, with the supply of 15 litres per person per day. Similarly, the deep tube well at NARC is 236 meters deep. The continuous safe yield of this new deep tube well is 2 litres/second and the existing deep tube well will also provide 2 litres/second additionally. The target beneficiaries during an emergency are 30,000 people, with a supply of 15 litres per person per day. Under the same project, one more deep tube well 108 meters deep has also been installed at Deikhu, Kirtipur, with a continuous safe yield of 3.5 litres/second, which will also support the water supply system at the event of earthquake.

Along with deep tube wells, the construction of buildings to house generators required for pumping water during emergencies, a water treatment plant required to treat the water from deep tube well and reservoir tanks to store water are under the scope of this project.

The construction of a deep tube well is a significant challenge due to the high cost involved, in addition to construction difficulties and uncertainties. The cost involved in deep tube well construction is very high compared to shallow tube wells. This is because a very high quality of construction is necessary. Even though deep tube wells are designed by experts, as they are bored very deep into the soil, there always remains a chance of failure due to the unknowns lying at deeper levels of earth. There are very few professional deep tube well drilling companies available in Nepal. If the tube well fails due to negligence of one contractor during the construction and development phase, no other contractors are available to rectify it due to the uncertainty of the work.

Since water supply is the most important aspect for ensuring survival after a big earthquake, construction of deep tube wells at other identified IDP sites is also highly essential. These deep tube wells will not only meet the water demand during emergencies but also provide water during everyday operations. Government should focus on constructing of more deep tube wells.

By helping build a more earthquake-prepared society, this project contributes to NSET's organizational goal of earthquake safe communities.

Fig.13: Generator house construction at TU, Kirtipur

Fig.14: Retrofit of water treatment plant building at TU, Kirtipur

Health Sector Preparedness to reduce non-structural risk

NSET is providing its technical support for the non-structural assessment and retrofitting taking place in Bhaktapur Hospital and Patan Hospital, the structural and non- structural assessment of three Primary Health Care Centers (PHCCs), three Health Posts (HPs) and three Sub Health Posts (SHPs) located in Kathmandu, Bhaktapur and Lalitpur for Save the Children's "Enhancing the health sector crisis preparedness in the event of a high intensity earthquake in Kathmandu valley" project. The project duration is from August 2013 to August 2014.

The objective of this project is to increase the preparedness and response capacity of heath authorities, health institutions and communities in the event of an earthquake in Kathmandu valley. The major focus of this project is on non- structural mitigations in health facilities so that they can function well during a time of emergency.

The components of a building may be classified as structural or non-structural components. Structural components are those that carry the weight of building, its content, occupants and the external forces such as wind and earthquakes. Load bearing walls, beam, columns and slabs are the structure of the building. Components other than structural ones such as partition wall, doors, windows, furniture, appliances, electronics, and equipment are all non-structural components. Non-structural components are generally not designed by engineers and architects; hence they get damaged easily in earthquakes. The structural part of building may remain intact after an earthquake,

but it will lose its function if non-structural damage occurs. Non-structural damage may cause loss of life, loss of property and loss of function. Moreover, non-structural component damage occurs even in lower intensity earthquakes, to a higher degree than the structural damage.

In health facilities such as hospitals and health centers, non-structural assessment and its proper mitigation is important as they have to remain functional in the event of earthquakes when the flow of patients is very high. Additionally, non-structural mitigation in health centers also helps in bringing awareness among the staff, so that they can undertake non-structural mitigation in their homes and community as well.

The cost involved in non-structural mitigation is much less compared to structural mitigation and it can be undertaken easily without requiring much skilled labour. It can also be easily undertaken by individuals in their own homes.

Though non-structural mitigation work is a simple and less costly, there exists some challenges to completing it. Since non-structural mitigation work is a relatively new, non-structural mitigating items are not readily available in the market. Either they have to be self manufactured or imported from other countries, which takes a significant amount of time. If non-structural mitigation works increase in the future, there is possibility of growing the market and improving the availability of these items.

Awareness among the hospital staff of the importance on non-structural mitigation is very important for ensuring the sustainability of this vital work. Hence an orientation was given in Bhaktapur Hospital to the staff before the assessment and mitigation work was conducted. This increased the level of awareness among staff and they were then able to help a lot during the assessment and implementation. A workshop for DTOs of Kathmandu, Bhaktapur and Lalitpur was also held to strengthen their capacity in structural and non-structural assessment and mitigations.

All the critical amenities of hospitals, such as water supply, medical gas, electricity, fire response, communication and emergency exits; and architectural components were assessed in hospitals. As mitigation, different options were designed depending upon the assessment of vulnerability and the feasibility of making changes. Mitigations included:

- Removing large, heavy objects from higher heights, corridors and entrances;
- Relocation of large and heavy objects to the lower shelves and cabinets;
- Properly hooking light wall-mounted objects, the chaining of oxygen cylinders, beds, medical equipments to walls and floors;

Fig.15: Orientation to Bhaktapur hospital staff

Fig.16: Workshop for DTOs of Kathmandu, Bhaktapur and Lalitpur

- Anchoring cupboards, refrigerators to the floor and wall;
- Strapping open racks with medicines;
- Laminating glass panels in doors and windows;
- Tying of parapets;
- Strengthening of false ceilings;
- Securing of water tanks, providing flexible connections to GI water pipes.

Chapter 6

ASSISTING MUNICIPALITIES IN BUILDING CODE IMPLEMENTATION

Though Nepal has a National Building Code, with standards for safe construction tehcniques, it is currently largely unimplemented. Alongside prepared people,and earthquake-resistant buildings are the strongest defence against injury and death during earthquakes. NSET's BCIPN aims to ensure implemenation of the building code through a multi-faceted approach which targets enhancement in knowledge and skills of numerous stakeholders.

NSET began the Building Code Implementation Program in Municipalities of Nepal (BCIPN) in October 2012 with the funding support from USAID/OFDA. The program provides technical support to municipalites to incorporate building code into the building permit process. The program also assists municipalities in raising people's awareness on earthquake risks and risk reduction measures, and to enhance capacites of local masons and contractors to construct safer buildings.

NSET is implementing BCIPN in 24 municipalities across Nepal under the overall guidance of Department of Urban Development and Building Construction (DUDBC), Ministry of Urban Development (MOUD) and Ministry of Federal Affairs and Local Development (MOFALD) of the Government of Nepal.

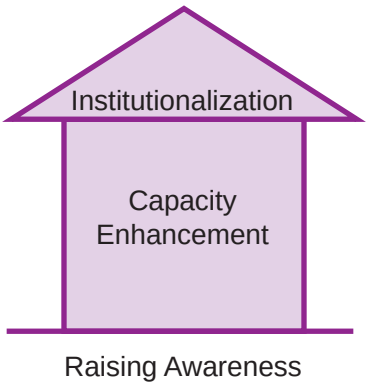
Program Strategy

BCIPN builds on three main strategic components

Firstly, rasing awareness of people and all stakeholders on root cause of earthquake risk in Nepal and possible ways to mitigating the risks.

Secondly, building the capacites of local masons and contractors in earthquake-resistant construction technology; and building capacities of engineers and technical professionals to design and supervise construction of safer building is another major strategy.

Finally, build the institutional capacity of municipalites to effectively enforce building code and institutionalize the code compliance system.



Activities:

1. Assist municipalities in the development of appropriate mechanisms for building code implementation: Assist in developing implementing guidelines, associated checklists and formats from the experiences and lessons learnt from other municipalities.
2. Capacity Enhancement: Different types of training courses for different target groups are conducted in the municipalities.
   - training for masons on construction of earthquake resistant building;
   - training for civil engineers, civil sub-engineers and architects on the concept of design and construction of earthquake resistant buildings;
   - training for structural engineers and civil engineers on building code compliance checks, detailed design of earthquake-resistant buildings and building vulnerability assessments;
   - training for municipality and local champions to create instructors for training;
   - training for social mobilizers on earthquake risk management
3. Awareness program:
   - Orientation sessions for various stakeholders in the municipality. This include house owners, community volunteers, political and social leaders, members from Tole Lane organization (TLO) and civil society organizations.
   - Free consultation programs for houseowners
   - Mobile clinics to building construction sites

Rationale for BCIPN

The majority of the buildings in Nepal are constructed without following the stipulations of the National Building Code (NBC), and hence are extremely vulnerable to earthquakes. The NBC was endorsed by Government of Nepal ten years ago but its implementation at municipality level has been progressing very slow. NBC provisions are instrumental in enhancing the safety-level of building constructions and hence, in developing safer settlements. Very few municipalities have formally entered into the process of NBC implementation. Most municipalities are not capable of exercising effective control over the building permit and building inspection processes due to the lack of appropriate mechanisms and lack of capacities for building code implementation. The lack of awareness among the population is another reason for the failure of building code enforcement.

Result of a recent survey in municipalities demonstrated the fact that our municipalties posse lack of human resource to effectively implement building code (Fig 1). Another problem for effective implementation is lack of awareness among the people and lack of technical skills among the masons (Fig2).

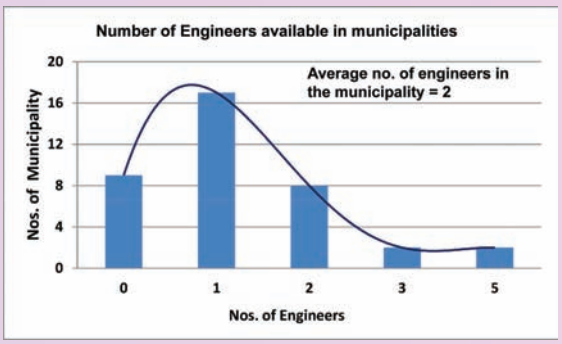


Fig1: Number of Engineers available in the Municipality

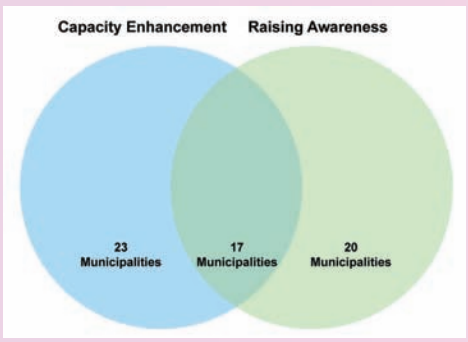


Fig2: Most important task for improving building construction practice (as expressed by municipalities during a recent baseline survey)

The survey also demonstrated that most prevailing building pattern with more than 80% of the buildings is: 2-3 storied and made with a reinforced concrete frame structure. Readily available designs in the form of Mandatory Rules of Thumb (MRT) are sufficient for addressing the problems of 80% of the prevailing construction practice.

- Awareness sessions, talk programs through local radio and televisions
- Mass awareness rallies and meetings.

4. Preparation of earthquake scenario and earthquake risk management action plans: The program collaborates with various academic institutions and research organizations to carry out building inventory surveys and GIS mapping. Earthquake loss scenarios depicting the potential damage and losses during an earthquake are developed and used for developing earthquake risk reduction plans for each municipality.
5. Sharing of lessons and experiences: Sharing visits to municipalities are organized. Mutual learning by municipalities is ensured through periodic sharing meetings and workshops.
6. Collection and compilation of learnings from successful cases of building code implementation: Learnings from successful cases of building code implementation around the world and also within the country are collected, analysed and compiled.

Fig3: Masons performing building layout practice during mason training program

Fig4: Engineers involved in group work during engineers training program

BCIPN Expected Results

Reduce the vulnerability of communities in earthquake prone areas by ensuring that a minimum average of sixty per cent (60%) of the new buildings constructed in the program municipalities will comply with the provisions of Nepal National Building Code

BCIPN Indicators & Targets

More than 90% of new building applications compliant to NBC;

More than 60% of new buildings constructed in compliance to NBC;

More than 50% change in the perception of risk of the people living in municipalities;

More than 60% of people retaining knowledge two months after training; and

Municipalities showing sustainability of sound building permit process in periodic plan and budget

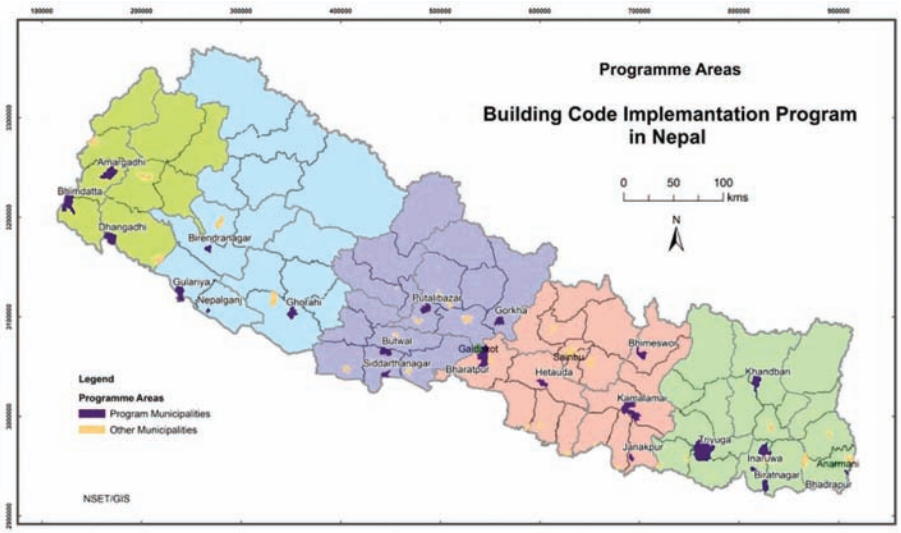


Fig5: BCIPN program areas

Program Municipalities

The 24 municipalities shown in the map are selected on the basis of selection criteria and in consultation with DUDBC: Numbers of buildings constructed per year, number of human resources available in the municipality, the level of interest and the enthusiasm towards Building Code Implementation are major criteria for the selection of municipalities.

What the Masons have to say ...

Intiyaz Khan

Paithan, Shantinagar, Hetauda 5

Age: 30

I have been involved in this profession from the last 17 years; I am associated with the organization Nepal Nirman Tatha Sambandh Shramik Sangh (Nepal Construction and workers association).

Previously we used to unnecessarily spend a lot of money here and there, now after the training I have learnt not only how to spend the money wisely on necessary things but also construct strong houses with less expense.

Shape and type of the house were not considered; nowadays construction is done considering the shape and types of house, location and size of windows. It was very difficult for the municipality to monitor the construction process; they have to teach us a lot. It has been easier for the municipality now that we are trained on earthquake resistance construction.

Seeing our good work and positive attitude of the municipality and other community people towards us other contractors and masons are also demanding such trainings for themselves.

Before the training the house owners would not give us our money in time, now after the municipality have implemented the national building code there is a system that the municipality before giving certificate of approval of the building map and building completion certificate the contractors have to sign the document. This has made us easier to get the money from the house owners as without our payment we do not sign the document.

My monthly income has slightly increased after the training. The municipality itself recommends me to the house owners, I have received contracts for 10-12 houses on the municipality's recommendation.

The earthquake resistant construction trainings should be provided to house owners; because they are the ones who need to be convinced on earthquake resistant construction on first hand, then the engineers should also be trained on earthquake resistant construction.

Achievements so far

Initial periods were spent on consultation meetings with DUDBC, MoFALD, MoUD and the program municipalties in creating clear understanding among the program partners and establishing the foundation for smooth program implementation. BCIPN was formally launched on September 17, 2013 in Kathmandu. During the period, until June 2014, the program undertook numerous community awareness programs and series of capacity enhancement training courses for technical personnel and contractors and masons.

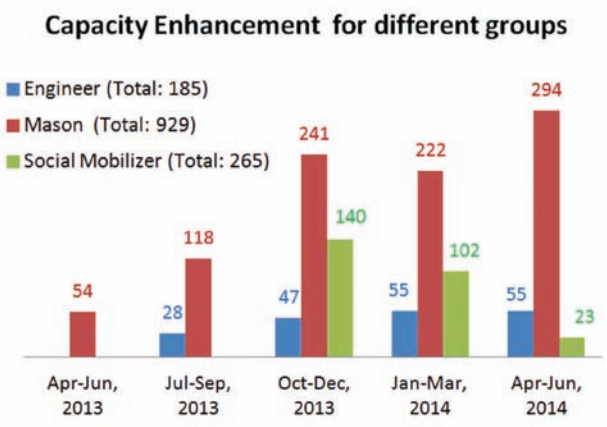


Fig6: No. of trained personnel

Ganga Ram

Chaudahary, Dhangadi Municipality-6

Age: 32

I came to know about the mason training on earthquake resistant construction from the local newspaper and contacted the municipality for that. I have been working in this profession since the last 13 years.

I am now involved in the construction of one government school and I am implementing the skills that I acquired from the training to make it earthquake resistant.

The training has given me a lot of benefits; everyone now seeks trained masons for construction. Now I am constructing 6 houses (1-4 floors high) incorporating earthquake resistant techniques. Before I used to think that the training is not that necessary but now after the training I realize that everyone should take the training.

Everyone wants to make their house beautiful but the house should not only be beautiful but strong. For that the municipality should be strict with the implementation of the buildings code and the house owners should be sensitized on the importance of earthquake resistant construction.

Ram Paras Shah

Bhadrapur-4

Age: 59

There have been a lot of changes during my 35 years of career. Previously there was nothing in place, no system, no systematic procedures/guidelines; even there was no system of approval from the local authority for constructing any house. Now things have changed, municipality is taking the lead in the building construction process, building drawings needs to be approved from the municipality and there is a system of inspection from the engineers also.

I got the information about the earthquake resistant training from the municipality pamphlets. I learnt everything about placing the rod- how to bend it, tie it, how much lapping in the training.

I have 6 construction contracts in my hand now and among them in 3 houses I am completely implementing all the earthquake resistance construction techniques and in the remaining three I am implementing only 50% of the skills because of the hesitance from the house-owner.

After the training my income has increased by 10-15% and above all I have gained the trust of people, they are confident on my work after my training that is the biggest asset so far.

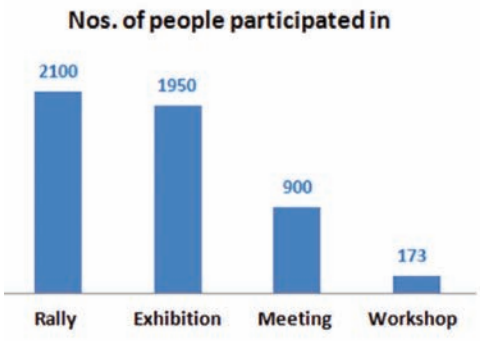


Fig7: Involvement of people in different awareness programs

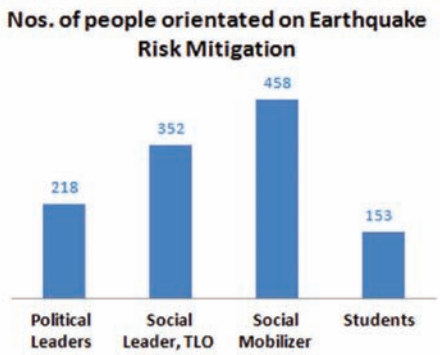


Fig8: No. of beneficiaries by orientation sessions

Outcomes

The following table highlights program achievements so far.

- More and more municipalities are announcing implementation of the building code or are in the process of implementing the building code very soon
- Municipalities are allocating budget in their annual plans for the implementation of building code
- Many municipalites such as Dhangadhi, Ghorahi, Butwal, Siddharathanagar, Bharatpur, Triyuga and Bhadrapur have declared that minimum size of columns should be 300mm x 300mm as per the building code
- Siddharathanagar and Butwal municipalities have established separate earthquake safety units to check the building code compliance
- Dhangadhi, Bhimdatta, Ghorahi, Butwal, Bharatpur and Triyuga muncipalities have started house-owner oreintation programs as part of the building permit process
- Dhangadhi, Bhimdatta, Ghorahi, Butwal, Bharatpur, Triyuga and Bhadrapur municipalities are in the process of bringing in a licensing system for local builders and masons.
- Increase in demand for conducting mason training programs from the construction technicians of municipalities nearby the program municipalities
    - Innovative approaches for the promotion of building code enforcement are emerging. Ghorahi municipality has allowed submission of photographs showing the compliance during building construction. If the photos show enough evidence that the building construction complies with the provisions of code, then photo submissions will suffice certification for further construction. This technique has helped for timely compliance checks and has helped to increase efficiency.
    - Damak municipality has formed a technical cell from among the technical professionals outside the municipal office to provide continuous technical support to the municipality.

Chapter 7

Capacity Building for Earthquake Resistant Construction

Inadequate construction techniques that are not earthquake-resistant remain a serious barrier to protecting human life. Structural damage, failure and collapse remain a real and deadly concern in the event of a large earthquake. However, by educating the people who design and build everyday buildings; architects, engineers, sub-engineers, contractors and masons; the path to future earthquake-resistant construction is much more assured. It is for this reason that NSET is focused on building capacity in the construction industry.

Training as a capacity building tool has been a core activity of NSET since its inception and capacity building initiatives are part of most NSET projects and programs. NSET has been implementing various earthquake riskreduction training programs aimed at diverse target audiences. NSET employs ready-to-use modules for training masons, contractors, technicians, junior engineers, engineers, schoolteachers and policy and decision makers. NSET has organized many of these courses in collaboration with Department of Urban Development and Building Construction (DUDBC), municipalities, professional societies, business community and other partners as standalone training programs or as part of projects being implemented by NSET.

In the year 2013-2014, NSET organized several training programs to build the capacity of construction stakeholders in earthquake-resistant construction.

Engineers training on Earthquake Resistant Building Design and Construction in Butwal

A training course for engineers and sub-engineers on 'Earthquake Resistant Design and Construction of Buildings' was conducted in Butwal Municipality from 2-4 June 2014. The training was jointly organized by Butwal Municipality and NSET under the Building Code Implementation Program in Municipalities in Nepal (BCIPN) to enhance the technical capacity of the Municipality towards effective building code implementation. 28 engineers and sub-engineers within Butwal Municipality were trained on Earthquake Resistant Building Construction through this program.

Fig1: During the engineers' training in Butwal municipality

Engineers training on Earthquake Resistant Building Design and Construction in Dhangadhi

28 engineers and sub-engineers from Dhangadi Municipality are now trained in earthquake-resistant building design and construction. As a part of the Building Code Implementation Program in Municipalities of Nepal (BCIPN), a three-day training program on 'Training for Engineers and Sub-Engineers on Earthquake Resistant Building Design and Construction' was conducted in, Dhangadhi Municipality from 16-18 April, 2014. Dhangadhi Municipality and NSET jointly organized the training program.

Training on Seismic Strengthening and Earthquake Resistant Construction of Building

Three sets of four-day basic technical training for the engineers and sub-engineers of the District Education Offices in different regions of Nepal were organized from the 26 to 29 August 2013, 28 November to 1 December, 2013 and 2-5 December, 2013 at Nagarkot as residential training packages. The training program was implemented by Department of Education with the technical assistance from Asian Development Bank through NSET under the "TA 7935-NEP: Capacity Development for School Sector Program Implementation" under Flagship 1 of the Nepal Risk Reduction Consortium (NRRC).

The main goal of this program was to facilitate and ensure the proper implementation of earthquake-resistant construction technology and seismic retrofitting of vulnerable school buildings through building the capacity of engineers and sub-engineers. The specific objective of the training programs were to produce trained human resources capable of facilitating mason training and the monitoring of school sector program. A total of 99 participants representing 46 districts across five development regions of Nepal took part in the training. Senior engineers from the Department of Education and National Society for Earthquake Technology - Nepal (NSET) facilitated the training program.

Training for Master Trainers on Seismic Strengthening of Structures

A five-day master trainers training for the technical personnel from different governmental, educational and nongovernmental organization was organized from 27-31 June, 2013 at Nagarkot. NSET organized the training program in association with the Department of Education (DOE), in collaboration with Nanyang Technological University, Singapore and with support from the Temasek Foundation, Singapore under the program “Training and Capacity Building on Seismic Strengthening for Master Trainers and Local Builders in Nepal.” A total of 33 participants actively took part in the training program. Experts from Nanyang Technological University, Singapore, Indian Institute of Technology, Tribhuvan University (IOE, TU Nepal), Department of Education and NSET facilitated the training. The training highlighted the effects of earthquake on structures, the philosophy behind seismic retrofitting, experience sharing, retrofitting using Fibre reinforced polymer, codal provision and geotechnical considerations.

Training on Earthquake Resistant Building, Design and Evaluation

Twenty nine engineers and sub-engineers from seven municipalities, Hetauda, Bharatpur, Butwal, Siddharthanagar, Putalibazaar, Gorkha and Vyas Municipality and one VDC, from Gaidakot, Nawalprasi are now trained on "Earthquake Resistant Building: Design and Evaluation" under the Building Code Implementation Program in Nepal (BCIPN). The training was jointly organized by the Ministry of Federal Affairs and Local Development (MoFALD), Department of Urban Development and Building Construction (DUDBC) and the National Society for Earthquake Technology - Nepal (NSET) from 26 - 28 March, 2014, with the funding support from USAID/OFDA. The purpose of this training was to enhance the technical capacity of municipal and VDC engineers to design earthquake-resistant buildings and to evaluate the submitted building designs and drawings as per the building code provisions

Engineers training on "Earthquake Resistant Design and Construction of Buildings" in Biratnagar

A total of 26 engineers, sub-engineers and architects from Biratnagar Sub-Metropolitan city are now trained on earthquake-resistant design and construction of buildings. A three-day training course for engineers and sub engineers on “Earthquake Resistant Design and Construction of building” was conducted in Biratnagar from 20 - 22 January 2014. NSET and Biratnagar Sub-metropolitan city jointly organized the program as a part of the Building Code Implementation in Municipalities of Nepal (BCIPN) program and as a component of the month long 16th Earthquake Safety Day Celebrations in Biratnagar.

Engineers training on Earthquake Resistant Building Design and Construction in Bharatpur

23 engineers and sub-engineers from Bharatpur municipality are now trained on basic earthquake resistant design and construction. A three-day training program on 'Basic Earthquake Resistant Design and Construction Training for engineers and sub-engineers' was conducted in Bharatpur municipality from 24 to 26 Oct 2013. Bharatpur Municipality and NSET jointly organized the training program as a part of the Building Code Implementation in Municipalities of Nepal (BCIPN) program of NSET.

Training the Masons on Earthquake Resistant Construction

Masons are the key actors who translate designs into reality, especially in developing countries where more than ninety per cent (90%) of the buildings are non-engineered. NSET began training masons several years ago with the objective of making them aware of the techniques used for risk reduction with a full understanding of "why safer buildings are needed "and "how to construct safe buildings". At present, the mason training program of NSET, which combines classroom training with hands-on field exercises, has become very popular in Nepal and abroad. NSET organized such training programs in different countries including Afghanistan, India, Iran, Indonesia, Pakistan, Japan and Tajikistan.

More than 4300 mason across the country have been trained by NSET. With the objective of enhancing the skills of the local masons in aspects of earthquake-resistant construction, NSET in association with various organizations and municipalities, conducted a number of five-day mason training programs for local masons at different places during the period.

In the year 2013-2014, 927 masons and petty contractors of different municipalities throughout Nepal, were trained on earthquake resistant building construction as a part of the Building Code Implementation Program in Municipalities of Nepal (BCIPN) of NSET. NSET in association with the respective municipality organized a series of five-day training program on 'Earthquake Resistant Construction of Building Training for Masons and Contractors' to train those masons and contractors.

Additionally 410 local masons have been trained as part of School Earthquake Safety Program through individual mason training programs and on-the-job trainings to local masons on earthquake-safe construction conducted during structural improvement processes.

Fig2: Masons performing during the practical session

Workshop on "Constructing Earthquake Resistant Buildings; Challenges and Opportunities of Trained Masons"

NSET, in association with Kathmandu Earthquake Resistant Building Construction Technicians Group (KERBCTG), organized an experience sharing workshop on “Constructing Earthquake Resistant Buildings, Challenges and Opportunities of Trained Masons” from 22 to 23 May 2014 at SAP Falcha, BabarMahal, in order to identify the challenges faced by trained masons and to explore the opportunities for constructing earthquake-resistant buildings. The main objective of the workshop was to enhance the capacity of the trained masons and to develop consensus on the solutions to four to six major problems that have been troubling trained masons when incorporating earthquake-resistant components into residential buildings. Altogether 50 trained masons attended the two-day workshop and worked intensively towards developing consensus on the next steps to be taken for the effective implementation of the earthquake-resistant construction techniques.

Trained mason groups

Since the earlier days of mason training process, NSET has promoted formation and functioning of group of trained masons. Such trained masons groups have served as compliance monitoring groups, and also facilitators for promoting training and capacity building of masons on earthquake-resistant construction technology. Trained masons groups have been formed in many municipalities of Nepal. In few municipalities, the municipal offices have formally accepted the masons groups and they are one of the many key members in the monitoring of building code implementation.

Chapter 8

Involvement of the Private Sector in Disaster Risk Management

The private sector has a vitally important role to play in averting disasters, safeguarding the economies of nations, communities and themselves. It is basically a two-fold strategy; building resilience of their businesses and contributing as a corporate social responsibility in enhancing community resilience. With its growing maturity and strength in Nepal, the private sector is increasingly in a position to make a valuable and essential contribution to ensuring disaster resilience of Nepal. NSET's Public Private Partnership for Earthquake Risk Management (3PERM) program seeks to engage private sector on this vital responsibility and help them to act.

The involvement of the private sector in Disaster Risk Management (DRM) is increasingly discoursed globally. However, it is a comparatively new concept in Nepal. The Nepali private sector sits in various disaster response portfolios and has remained appreciably contributive in many past emergency response efforts. But somehow, a clear gap still exists between post-disaster assistance and building understanding and involvement as well as engaging the private sector in pre-disaster efforts. The approach of Public Private Partnership (PPP) for Disaster Risk Management (DRM) promises to be one of the most effective approaches as it helps creating win-win situation by:

- Sharing of the percevived roles in disaster risk management by the public and private sectors,
- Unleashing local potential by fulfilling the roles expected by the society, not only as a responsibility but for the purposes of “business as usual”,
- Contributing to reducing disaster risks, protecting the environment, raising a voice for a better governance including making cities safer by enforcing the building codes. Doing so will enhance both the government's and companies‘ ability to recover from earthquake losses.

NSET has been working with various private and public sector entities in partnership under the USAID/OFDA funded program “Promoting Public Private Partnership for Earthquake Risk Management (3PERM)”. This program envisions tapping into the vast potentials of private sector for contribution to earthquake risk reduction in the Kathmandu Valley and Nepal. Capacity development of the stakeholders is also a focus of the program.

This program is moduled in 3 components.

"Massive Awareness Campaign" on ERM

The first component is to conduct massive awareness campaigns. The campaign itself is being conducted on a public private partnership approach through collaboration with 28 FM radio stations, two Television program production teams, and print media located in different parts of the country to cover most of the radio listeners, TV viewers and paper readers in Nepal. Various other modes of communications such as the publication materials, Internet campaigns, feature articles, messages through Public Service Announcements, Display boards on earthquake safety, door to door campaigns, street dramas, thematic video films and tele-films are being used in order to generate awareness among the people.

Enhancement of Public Private Partnership for Earthquake Risk Reduction

The second component is to assess and enhance the commmitments within the private sector and understand its capacity to exert pressure for consideration of earthquake risk management as one of the priority areas for mainstreaming into the business processes. In order to raise awareness of the private sector on disaster risk reduction and explore the areas of collaboration for Public Private Partnership, a series of one–on–one collective meetings, consultative and brainstorming meetings and workshops have been carried out with major business houses, corporate associations, banks and insurers, hotel association, travel and tourism associations and professional societies.

Feasibility Study of Urban Regeneration of a Part of Kathmandu Core City Area as a DRM activity

The third component is to implement a detailed study of the PPP model in urban regeneration, to be piloted in a demonstration neighborhood of the core area of Kathmandu. A detailed feasibility study of a model Urban Regeneration project at the pilot site "Jhonche-Chikanmugal area" of the Kathmandu city core has been conducted. The concept of the Urban Regeneration has been worked out in detail and positive responses gained from several interaction programs and local and national level workshops held involving local residents, social and political leaders.

NSET is implementing this program for a period of three years (2011-2014). Within this period, NSET expects awareness to be raised to the extent that the corporate sector will commit to increasing responsibilities for earthquake risk reduction in perpetuity. This is to help taper financial contribution from USAID/OFDA and even NSET's involvement once the private sector takes the steering role gradually and steadily. Program outcomes gathered so far are somewhat intangible but very much in line with achieving the anticipated goals.

Box 1

Radio Programs

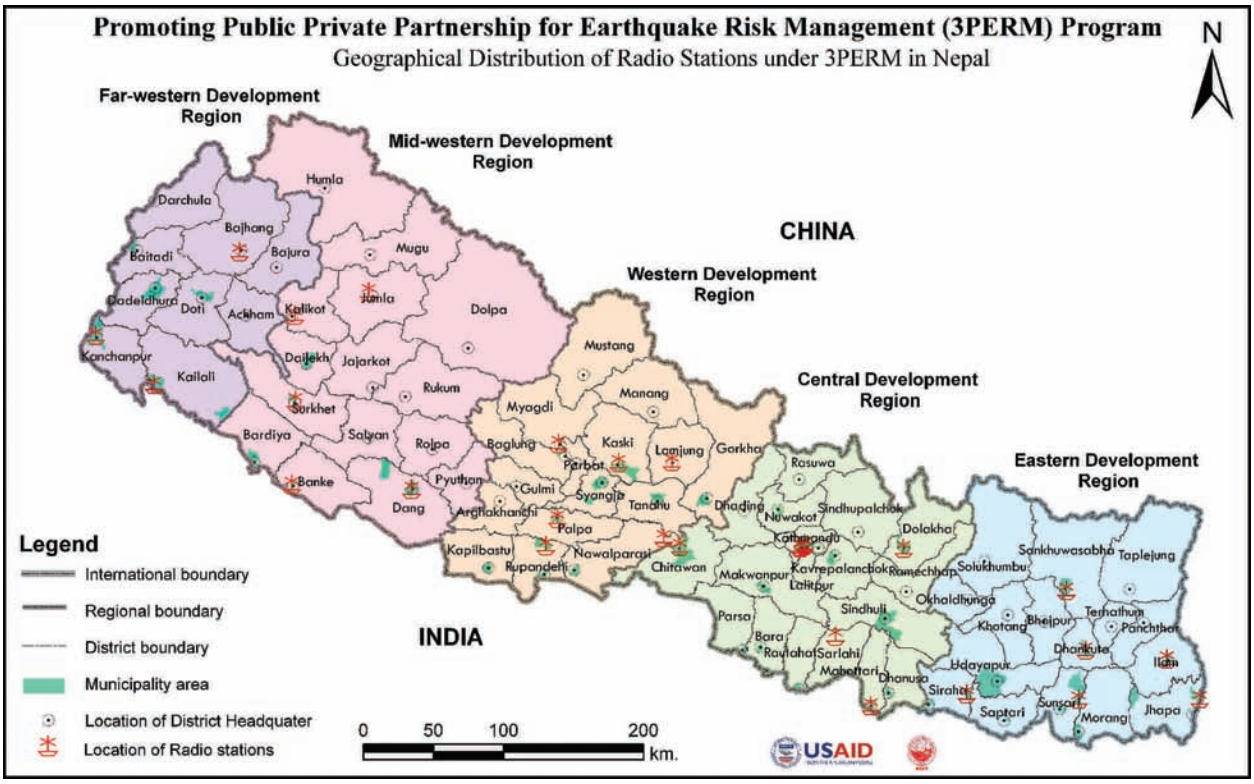
Pioneered in the region, with particular focus on Community Radio, Nepal is very rich in FM Radio culture with around 350 stations scattered all over the country, and reach is said to be to 90% Nepali communities. Recent Nationwide Public Poll conducted by Interdisciplinary Analysts (IDA) finds that radios are the most trusted in Nepal amongst all the public and social sector entities.

NSET began using radio to help raise public awareness on earthquake risk reduction and preparedness in 2000. NSET's partnership with Radio Sagarmatha, a community FM Radio Station in Kathmandu and the first in the region, continues since then. It began with a weekly 15-minute interaction program that was increased to 30 minutes in 2001. NSET also began collaborating with FM stations outside Kathmandu; firstly with weekly broadcasts from Annapurna FM Pokhara in 2003. In 2007 Capital FM in Kathmandu partnered with NSET on airing five minute tips on earthquake safety daily.

Under the massive awareness campaign component of 3PERM, in 2012, NSET partnered with 20 radios from all the geographic regions of the country to make safety concepts more widely heard. The radio programs have helped spread awareness messages on earthquake risk reduction and safety. Based on the local need, willingness for local contribution and possibility of resource mobilisation, in 2013 NSET increased the number of partner radios to 28. Now a weekly half an hour radio program, "Earthquake Safety", is being produced and aired from 28 Radio stations all over the country. Audio PSAs on safety messages are also being broadcast from all the partner radios, a minimum of ten times daily regularly. This partnership has also encouraged local radios to produce and air program promos and PSAs locally.

Regional meetings with partner radios held in east, central and mid west Nepal in Feb 2014

NSET partner radios under 3PERM



Far western region	Mid western region	Western region	Central region	Eastern region
1. Saipal fm (Bajhang)	1. Bulbule FM (Surkhet)	1. Radio Myagdi (Myagdi)	1. Kalinchowk FM (Dolakha)	1. Radio Khandbari (Sankhuwasabha),
2. Radio Mahakali (Kanchanpur)	2. Community Radio Nepali Awaj (Kalikot)	2. Vijay FM (Nawalparasi)	2. Radio Triveni (Chitwan)	2. Nepalbani FM (Ilam),
3. Dinesh fm (Dhangadi)	3. Radio Krishnasar (Banke)	3. Butawal FM (Rupandehi)	3. Radio Rudrakchya (Mahottari)	3. Radio Sargam (Jhapa),
	4. Radio Karnali (Jumla)	4. Radio Marshyangdi (Lamjung)	4. Radio Sarlahi (Sarlahi)	4. Samad FM (Siraha),
	5. Radio Madhyapachchim (Dang)	5. Shreenagar FM (Palpa)	**Kathmandu Valley**	5. Saptakoshi FM (Sunsari),
		6. Radio Annapurna (Kaski)	1. Radio Sagarmatha (Lalitpur)	6. Radio Makalu (Dhankuta)
			2. Ujyalo FM (Lalitpur)	
			3. Radio Audio (Kathmandu)	
			4. Star FM (Kathmandu)	

Visiting partner radios and also attending local programs

TV Talk Show "Sankalpa"

A DRR focused Television Talk Show 'SANKALPA' has aired since March 2013 from Nepal Television, the state owned national television channel. This program is focused on helping build community resilience through knowledge dissemination and public discourses on the key issues and concepts of risk reduction and preparedness. The program instrumental in raising public awareness about the risk of earthquakes in Nepal among the wider urban and rural population, sharing ideas, issues and knowledge about earthquake safety in Nepal among partners, stakeholders, politicians, the government and non-government sectors and local communities; and also to support policy advocacy.

This is the regular weekly production of Watchdog Media Services in partnership with NSET under the USAID/OFDA funded program 3PERM.

TV Talk Show "Talk of the Town"

NSET has been partnering with Media Help Line for the Television Talk Show "Talk of the Town", broadcast from Image Channel Television, one of the leading private channels of the country. NSET partnered with the team in March 2011 for couple of episodes. One sequel of partnership programs was followed when the 2011 Himalayan earthquake hit eastern Nepal in the month of September. From March 2013 onwards, it has been continuous partnership program of NSET and Media Help Line.

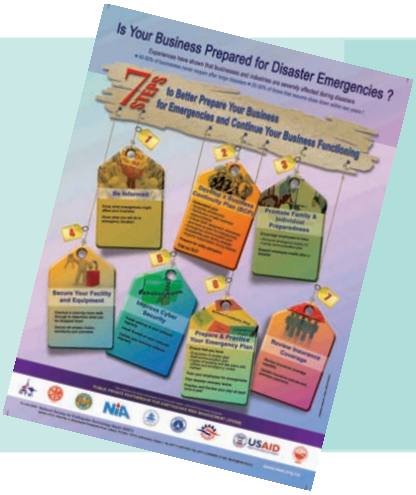
This program is more focused to policy advocacy and lobbying for appropriate systems to address DRR issues be in place and maintained. The program is instrumental in supporting policy advocacy and also helping to raise public awareness about the risk of earthquake in Nepal.

TV Magazine "Earthquake Special"

NSET has been partnering with Watchdog Media for the "Earthquake Special" segment of regular TV program "Janachaso". This is a weekly 10-minute magazine format being broadcast from Nepal Television. This program is targeted at everyday people with simple but useful concepts and ideas on earthquake preparedness and disaster resilience.

Awareness Raising through Disaster Preparedness Poster

NSET has developed '7 steps to better prepare your business' disaster preparedness poster especially focused on the private sector of Nepal. Having received commitment from various organizations after having the consultative meetings, the Disaster Preparedness Poster has become the part of commitment of following organizations; USAID, NSET, FNCCI, HAN, NATTA, NTA, NBA and NUSACCI.



Awareness Raising through Display (Hoarding) Boards

An awareness campaign has begun through displaying messages on hoarding boards. Dissemination of information and raising awareness in the DRR field requires using different extension tools. This is simple and effective medium that pulls individual towards the new ideas or technological information to be adopted in earthquake risk management process.

Shivam Cement collaborated with NSET and placed such boards at 5 places in Lalitpur. Production and installations costs are borne by the company as a part of CSR. Likewise, Saakha Group collaborated with NSET and placed similar boards at 11 places in Bhaktapur and Kirtipur on cost sharing basis, half contributed by the company as a CSR and rest managed under NSET program.

Consultative Meetings with private sector businesses

Building a resilient business sector is one of the major components of making a nation resilient. Extensive effort is being put into exploring and expediting collaborative efforts by highlighting the economic impact of disasters and need for disaster preparedness in the private sector. In this regard, NSET had several consultative meetings with different specific sectors; Travel and Tourism, Hotel, Telecommunications, Banking and Insurance, Construction, Media and stakeholders like Federation of Nepali Chambers of Commerce and Industries (FNCCI), CCIs, Retail Business Association, Rotary Clubs and Lions Clubs.

Sectoral Workshops

NSET jointly organized several sectoral workshops on the need for disaster preparedness to increase their level of awareness in the private sector and encourage them in disaster preparedness. The workshops also suggested many issues that need to be addressed for their preparedness and sought the Government's commitment to making a favourable environment to bring the private sector together for the Disaster Risk Reduction (DRR) of the country.

Banking and Insurance Sector:

NSET organized the first workshop with Banking and Insurance sector stakeholders in December 2011 to share their experiences on their sector and to understand their existing emergency response system and level of disaster preparedness. Major banks and insurance companies participated in the workshop. Most of them realized the need to have a Business Continuity Plan (BCP) in place to develop their capacity to respond to the disasters and proper actions be taken to continue their business operations. Participants discussed the need for intervention from the Central Bank of Nepal to come up with 'a must' policy to have Business Continuity Plan for all public and private commercial banks.

As a follow-up action, NSET and the Nepal Bankers' Association (NBA) jointly organized a short interactive presentation session on "Disaster Recovery and Business Continuity Plan for Banking Sector" in May 2014 in the presence of the Governor of Nepal Rastra Bank. Representatives from 24 participating banks were present at the session. Technical presentations on BCP were done by experts from Paramarshak Nepal and Lootok Ltd. of USA.

Few banks have agreed to collaborate with NSET to develop the comprehensive BCP for its overall business continuity management.

Chamber of Commerce and Industries:

NSET organized half-day workshop in collaboration with Butwal Chamber of Commerce and Industries (BCCI) as well as with Kailali Chamber of Commerce and Industries (KCCI) on 'Understanding Potential Impact of Natural Disaster in Private Sector and the Need for Preparedness' in Butwal in April 2013 and in five places of Kailali District in September and October 2013 respectively to bring private sector stakeholders of those particular areas together to raise awareness on earthquake risk and make them realize the need for preparedness. The key industrialists and businessmen actively participated in the workshops. They have requested the CCIs commence disaster preparedness programs with technical support from NSET.

Construction Industry

In view of potential involvement of contractors and builders in debris management, recycling of debris materials and reconstruction works in case of a big disaster in the country, NSET organized a workshop in association with Federation of Contractors' Association of Nepal (FCAN) in August 2013. It brought together stakeholders from construction industry, Government, I/NGOs, Engineering Firms and Civil Societies to discuss on the theme. A pre-negotiated contract with the Government for its automatic implementation in case of a big disaster was proposed by construction sector stakeholders.

Travel and Tourism Industry:

NSET had organized workshops in collaboration with Nepal Travel and Tours Association (NATTA) and Nepal Tourism Board (NTA) to raise the awareness level and to discuss on the need of disaster preparedness of travel and tourism sector stakeholders. NSET in collaboration with NATTA organized a half-day workshop in April 2013. Likewise, NSET organized a half day workshop in association with NTA along with Himalayan Rescue Association (HRA), Nepal USA Chamber of Commerce and Industries (NUSACCI) in July 2013. The workshops also analyzed the Strengths, Weakness, Opportunities and Threats (SWOT) of the Travel and Tourism Sector and made commitment to find out the way forward to work together on disaster risk reduction aspect of Travel and Tourism Industry.

His Excellency Peter W. Bodde, US Ambassador, US Embassy to Nepal

(extracted from the opening remarks to the workshop on "Need for Disaster Preparedness in Tourism Industry", 31 July 2013, Kathmandu

"Tourists travel from all over the world to see the unique natural beauty of Nepal and they want to ensure that these tourists keep coming to Nepal to experience the wonders of the country. Tourists should not be scared off by over-stating of the risk of natural disasters... Business community is concerned over safeguarding their businesses... and earthquake and flood-resistant buildings can also be built, capacity to cope with the disruptive events can be enhanced by designing and managing organizations which would ultimately contribute to make disaster-resilient Nepal... Private Sector can play in reducing the disaster risk... (We) want to see the private sector's involvement in supporting awareness campaigns and building disaster risk reduction measures into their business model… Preparing for a disaster may not be easy but today you are taking an important first step towards ensuring the future of Nepal"

Retail Business Sector

With the purpose of bringing the connection between producers and consumers in terms of marketing of consumable goods, Nepal Retailers' Association (NRA) was established in Kathmandu and has 33 allocated areas of its network with one representative in each of the area. NRA is actively working to better take care of the needs and concerns of general consumers and also uniting to address the problems of retail shopkeepers in Kathmandu. NRA and NSET jointly organized session on "Earthquake Risk of Nepal and Need for Preparedness" in August 2013. NRA and NSET have agreed to develop fliers or brochures with general earthquake safety and preparedness messages and distribute them to customers through retail shopkeepers.

Telecommunications Industry

Discourse has commenced to enhance the disaster resiliency of Nepal's Telecommunications Industry, a major sector of the national economy that is contributing around nine per cent (9%) of GDP. From a disaster risk management perspective, private sector telecommunications service providers have two-fold role in building resilience in their businesses and contributing as a part of corporate social responsibility in enhancing community resilience.

NSET together with Nepal Telecommunications Authority (NTA) organized workshop on "Earthquake Risk of Nepal and Need for Preparedness of Telecommunications Industry" in February 2014 with the purpose of bringing the telecommunications sector stakeholders in to the disaster risk reduction process and raise disaster risk awareness in this sector by implementing various collaborative works together.

Other Sectors

Rotary and Lions Clubs:

Rotary International is an international service organization that aims to bring together business and professional leaders in order to provide humanitarian services, encourage high ethical standards and help build goodwill and peace. There are around 34,500 clubs and over 1.2 million members worldwide.

Lions Clubs International (LCI) is a secular service organization with over 46,000 local clubs and more than 1.35 million members worldwide, which aims to serve communities locally and globally.

Rotary International and Lions Clubs International are the social clubs engaged in various social service works. including disaster risk management and other humanitarian works.

Hotel Industry:

The Hotel Industry is the fastest growing industry in Nepal and is considered to have the highest local private sector investment in Nepal with the recorded investment of around Rs.100 billion. Hotel Association Nepal (HAN) and NSET have agreed to collaborate for the disaster preparedness of the hotels in Nepal. NSET has also proposed to implement 'Hotel Sector Earthquake Risk Management Program' to make the hotel industry in Nepal more disaster resilient.

NSET organized an earthquake orientation session for the employees of Kathmandu Guest House (under KGH group of hotels) in November 2013. NSET has agreed to orient staff members working under KGH group of hotels in Kathmandu and outside the Valley. KGH has also shown interest in conducting building assessment of KGH.

Trading House:

Salt Trading Corporation (STC) Limited and NSET organized the interactive session on "Earthquake Risk of Nepal and Need for Preparedness of Trading Business Sector" in February 2014 for Kathmandu based STC staff. STC is one of the largest business organization in Nepal established as an experiment of the utility of PPP for a developing country. STC provides its services through 93 offices and has over 400 staff and has provided opportunities for over 1000 workers and laborers. With these vast resources, STC has realized there is a great need for disaster preparedness to save its human resources and properties. STC has been planning to gradually orient all of its regional level staff members and conduct other activities in terms of disaster preparedness with technical assistance from NSET.

Pharmaceuticals Trading Business Sector:

Domestic consumption of allopathic medicines is increasing day by day in Nepal. There are more than 6000 pharmaceuticals distributors in Bagmati Zone of Nepal alone. Realizing the need of disaster preparedness of pharmaceuticals business sector, Nepal Chemists and Druggists Association (NCDA) - Bagmati Sector and Nepal CRS Company jointly organized workshop on "Earthquake Risk of Nepal and Need for Preparedness of Private Sector Business" with technical support from NSET in May 2014. NCDA Bagmati has made commitment that the community will be a part of DRR process and will involve more stakeholders from the health sector in their preparedness and their contribution to overall risk reduction processes. With the initiation from Nepal CRS Company, the first workshop with NCDA was organized in Pokhara in March 2014.

Feasibility Study of Urban Regeneration of a Part of Kathmandu Core City Area as a DRM activity

A detailed feasibility study of a model Urban Regeneration project in pilot site “Jhonche-Chikanmugal area” of the Kathmandu city core has been conducted. The concept of the Urban Regeneration has been worked out in detail and positive responses were gained from several interaction programs and local and national level workshops held involving local residents, social and political leaders.

Planning and designing of Urban Regeneration has been initiated for pilot project in 5 alternatives site. NSET is now working on detailing and costing of the alternatives and cost benefit analysis. Review of Physical, environmental, cultural and Socio-economic survey and analysis report is in progress. Review of Earthquake Perception and Tourism Potential Survey and Analysis report are done. Tourism Potential Survey and Analysis (TPSA) draft report has been prepared.

Government Bodies such as the Kathmandu Metropolitan City Office and Department of Urban Development and Building Construction have ensured to support urban regeneration initiatives through their annual program and budgetary provisions.

Strengthening of NCELL communications network

3PERM's continued efforts in working together with the private sector to improve earthquake risk management have led to some important successes in the past year.

Together with the Nepal Telecommunications Authority (NTA), NSET facilitated a half-day workshop "Earthquake Risk of Nepal and Need for Preparedness of Telecommunications Industry" in February 2014. This workshop brought together over 100 key telecom industry stakeholders from the public, private and NGO sectors for the purpose of discussing disaster preparedness in Nepal's telecom industry. Given that almost eighty per cent (80%) of buildings that are being used to erect antenna towers from are not assessed for seismic vulnerability (DUDBC study), action in this sector is vital given how important communications are in the event of a disaster. Based on the workshop, Ncell Pvt. Ltd resolved to come up with actions to address earthquake risk, including making their Kathmandu and Biratnagar switching centres earthquake resilient.

By April 2014, NCELL had announced that it would be making all its switching centres and mobile towers earthquake-resilient to ensure functionality in the case of a natural disaster. At present, Ncell has two earthquake-resilient switching centres (in Pokhara and Hetauda), which can withstand earthquakes measuring IX on the Modified Mercalli Intensity (MMI) scale. This important and exciting development from one of Nepal's largest mobile and Internet service providers shows that the private sector is recognizing its vital role in Nepal's earthquake risk management and the value in a business continuity sense as well.


Ncell to strengthen towers

THURSDAY, JULY 11, 2013

IB makes bundling of earthquake, fire insurance policies mandatory

"As those buying fire insurance policies will have to pay an additional amount for earthquake coverage, the premium has been slashed"

Addition of earthquakes to insurance policies

After an engagement and education campaign by the 3PERM program, in July 2013, Nepal's Insurance Board (IB) made it compulsory for insurance companies to bundle earthquake and fire insurance policies into a single package. Furthermore, earthquake and fire insurance premiums have been decreased by 10 per cent each. Insurers are also endeavoring to keep the deductible (which must be paid by the insured in the event of a claim because of an earthquake) low, by setting the deductible at whichever is lower of 2.5 per cent of the insurance amount or RS 1 million. These notable developments will help to improve the resilience of Nepal in the event of an earthquake by making it easier and more affordable for everyday Nepalis to insure themselves, thereby safeguarding their economic interests.

Earthquake issues in Print Media

Chapter 9

NSET involvement in national, regional and global initiatives

Establishing and maintaining valuable collaborative relationships and networks with organisations and disaster management practioners all around the world only serves to strengthen our goal of earthquake safe communities. Sharing best practice, innovative solutions and common experiences with these organisations and individuals around the country and the globe is an important part of NSET's work. We are committed to sharing knowledge with and learning from INGOs, NGOs and other stakeholders, so that as many people as possible can benefit.

NSET is a Founding Member of the following organisations:

- Asian Disaster Reduction and Response Network (ADRRN), a regional network consisting of 34 national NGOs from 16 countries across the Asia-Pacific region
- Disaster Preparedness Network (DPNet-Nepal), established in 1996, as a loose association of individual organizations working in DRR and Development sector in Nepal
- Coalition for Global School Safety (COGSS)
- International Live Lessons Transfer Network (TeLLNet)

NSET is also a Member of:

- International Association for Earthquake Engineering (IAEE) (national member)
- World Seismic Safety Initiative (WSSI). NSET organized the High Level Meeting of WSSI in Nepal in 1993, even before the official registration of the organization

In order to strengthen its networking and outreach, NSET has promoted various innovative initiatives over the past year.

NSET collaboration with Laboratories University Network of Seismic Engineering (RELUIS) and School of Engineering-University of Basilicata (UNIBAS), Italy

Laboratories University Network of Seismic Engineering (RELUIS), School of Engineering-University of Basilicata (UNIBAS),Italy and National Society for Earthquake Technology-Nepal (NSET) have signed a Memorandum of Understanding (MOU) on December 2, 2013 amidst a workshop organized in Potenza, Italy for joint collaboration on earthquake engineering and seismic risk reduction. Director General of Department of Urban Development and Building Construction (DUDBC) of Nepal, Mr. Shambhu KC was also present on the occasion.

Under the MOU, RELUIS, UNIBAS and the NSET agreed to:

» Scientifically cooperate in the fields of natural hazards, scientific exchange of professionals and faculties on earthquake engineering and risk reduction, and joint researches in Nepal in aspects of earthquake risk management.

» Conduct their cooperation in a multilateral collaborative frame and conduct a joint research on earthquake vulnerability and risk reduction measures for major building types in Nepal

» Promote initiation of common research projects, exchange of researchers and the organisation of joint workshops and seminars. In particular, to foster collaboration, the three partners will focus on:

- Vulnerability assessment of selected representative buildings in Kathmandu using the techniques being extensively applied by UNIBAS;
- Development of feasible retrofitting techniques for strengthening the vulnerable existing building
- Exchange of professionals and faculties during the research

Identification of Nepali Name and Punchline for DRR Mascot - Red Panda

Nepal has identified "Red Panda" as the DRR Mascot. The name given for the mascot Red Panda is ;Gt] (Sante) and the punchline finalized is ljkbnf0{s g kv{g] (Why wait till disaster strikes?). The Government of Nepal with support from the US Embassy in Nepal and under the framework of Nepal Risk Reduction Consortium (NRRC) endorsed the initiative for identification of a DRR Mascot for Nepal. It is considered that promoting the mascot as the symbol of DRR will contribute greatly to disaster risk reduction in Nepal, a parallel is the "Smokey the Bear" the mascot that symbolize safety against wild fire in the USA. "Smokey" has contributed significantly to promoting forest fire safety enhancement in the USA. It is believed that use of a mascot for DRR blends well with Nepalese tradition of personifying different gods as animals.

With support from USAID/OFDA, NSET organized a workshop for the identification of nepali name and punch line for the DRR Mascot "Red Panda" during November 10-11, 2013. The main purpose of this workshop was to "Nwaran" the "Habre" - identify and select by consensus a Nepali name for the DRR Mascot, the Red Panda and to develop a punch line in Nepali to the mascot through a massive interaction among experts from the fields of Nepali literature and linguistics, comedy, dramatology, fine arts, music and advertising.

- Training programs for relevant professionals on the methodology and benefits of vulnerability assessment;
- Develop further study including the evaluation of soil-structure interaction.

The collaboration will include all the activities of common interest in the above frames with the aim of benefitting from the synergy of the know-how and expertise of the two institutes. The scientific and technical results of cooperative projects will be shared and / or commonly published.

RELUIS is an interuniversity consortium with the purpose to coordinate the University Laboratories activities of earthquake engineering, giving scientific, organizational, technical and financial supports to associated University and promoting their participation to scientific and technological oriented activities in seismic engineering area, accordant with national and international research plans in this area. Close cooperation with national and international partners is a guiding principle for its activities.

UNIBAS is part of RELUIS and maintains various instrument tools for field research and for structural health monitoring and a group of specialists mainly focused on the following activities: seismic risk, including hazard and vulnerability, landslide and hydro-geological risk; the activities are carried out by means on-site and in-laboratory tests.

NSET hosts the Closure Meeting of Eurasian University Network for International Cooperation in Earthquakes (EU-NICE) in Kathmandu, Nepal

NSET and Sapienza University of Roma, Italy organized the Closure Meeting of the program: Eurasian University Network for International Cooperation in Earthquakes (EU-NICE), from 2-3 May 2014 at NSET's office, Bhainsepati, Kathmandu Nepal.

The meeting attendees included dignitaries, professors and beneficiary students from various universities and organization from Italy, Greece, Portugal, Afghanistan, Nepal, Pakistan, Bangladesh and Thailand engaged in EU-NICE. Sharing of experiences, observations, and gathering valuable suggestions for similar endeavours in future was the main agenda of the meeting.

EU-NICE is a multi-country multi-year project for promotion of academic collaboration between European and Asian Universities. It is funded by the Action 2 Partnership of the Erasmus Mundus. The main objective of the project is to establish cooperation in higher education among institutions located in seismic prone European and Asian Countries, through mobility measures aimed at creating competitive professional curricula in global disaster reduction issues. A total of 13 universities partnered in this program with Sapienza University of Roma as the project leader. NSET is an associate memberof the EU-NICE.

A total 100 mobilities (student exchanges) were implemented during the period of 4 years. 21 mobilities were from Nepal to Italy, Greece and Portugal on Master, PhD, Exchange PhD and Post Doc. Currently, the project is approaching the closure of its implementation in 2014.

Workshop for Regional Cooperation in Seismology and Earthquake Engineering in South and Central Asia

An international scientific meeting on "Regional Cooperation in Seismology and Earthquake Engineering in South and Central Asia" was organized during September 16-19, 2013 in Kathmandu, Nepal. The four-day long meeting brought together regional and international experts to discuss and share information on seismology and earthquake engineering. The purpose of the meeting was to bring regional experts from countries of south and central Asia to discuss and share information on seismology and earthquake engineering. The focus is on strong motion seismology, including overviews of monitoring programs in each participating country and discussion of key issues associated with both strong motion monitoring and engineering seismology.

The workshop was jointly organized by Department of Mines and Geology (DMG), Nepal and the National Society for Earthquake Technology Nepal (NSET), and sponsored by the United States Geological Survey (USGS) and the United Nations Educational, Scientific and Cultural Organization (UNESCO).

The South and Central Asia region faces high levels of a variety of natural hazards, of which earthquakes are an important component. The region sits astride the boundary between the Indo-Australian and Asian tectonic plates, which earthquake scientists have estimated has a significant strain of 25mm per year. The region also includes the seismically active Hindu Kush zone. The need for an increased regional understanding of earthquake phenomena, and of the use of seismological findings, is driven by the fact that both the cause and impacts of earthquakes are generally spread over multiple countries.

"Earthquake without Frontiers: A Partnership for Increasing Resilience to Seismic Hazard in the Continents"

The collaborative research project on "Earthquakes Without Frontiers: A Partnership for Increasing Resilience to Seismic Hazard in the Continents" was launched in Nepal formally on 16 January 2013.

Earthquakes without Frontiers is a five-year research project funded by the UK's Natural Environment Research Council and the Economic and Social Research Council. The project brings together natural and social scientists from Cambridge, Durham, Leeds, Northumbria and Oxford Universities, as well as the British Geological Survey and the Overseas Development Institute, along with collaborators in Nepal (including NSET), India, China, Kazakhstan, Kyrgyzstan, Iran, Italy, Greece and Turkey. The project will work closely with local scientists, policy makers, and governmental and non-governmental organizations with the aim of increasing the resilience of populations exposed to earthquakes and related hazards across three case study regions: the Himalayan mountain front; North-East China; and Iran and Central Asia.

Training Workshop on Monitoring and Evaluation for ADRRN Members

A three-day Training Workshop on Monitoring and Evaluation for ADRRN members was organized in Kathmandu by the Asian Disaster Reduction and Response Network (ADRRN), a regional network consisting of 42 national NGOs as Core Members and 7 Organizations as Associate Members from 20 countries across the Asia-Pacific region. The program has been made possible with the support from The Australian Agency for International Development (AusAID). On behalf of ADRRN, National Society for Earthquake Technology – Nepal (NSET), one of the founder members of ADRRN hosted this program locally.

The Monitoring and Evaluation Training Program for ADRRN members in Asia-Pacific region has been envisioned for creating positive change for building resilience. The main aim is to convene a highly interactive participative forum for ADRRN members to discuss and finalize a Monitoring and Evaluation strategy.

Altogether 20 participants from various ADRRN Members from different countries participated in this episode. MDF Experts Ms Endah Nirarita and Mr. Jebamalimuthu Benedict facilitated the sessions.

ADRRN is adopting Outcome Mapping as a strategy for capturing the change and impacts of its activities in the region along with members. Outcome Mapping was chosen because it captures the change created as a result of activities carried out by various members. The idea is to propagate the efforts and develop M&E capacity at a national and local level through ADRRN members and facilitators developed.

Mr. Laxmi Dhakal, Joint Secretary, Ministry of Home Affairs, Government of Nepal addressed the inaugural session as the Chief Guest. Mr. Damien Dunn, First Secretary and Consul, Australian Embassy to Nepal made keynote remarks on the occasion. ADRRN Board Member Mr. Amod Dixit highlighted on this activity and also briefed on ADRRN strategies while ADRRN Coordinator Mr. Mihir Joshi moderated.

NSET participation to International Conferences

In order to develop networks and also share and exchange ideas, concepts and experiences with national and international organizations and NGOs and also the partner countries, NSET attended and contributed in the following international workshops, conferences and training during the period.

Mr. Surya P. Acharya participated in the Memorial Event of Kobe Earthquake in Maiko High School, Japan during 14-23 January 2013.

Mr. Amod Dixit attended the Executive Board Meeting of Asian Disaster Reduction and Response Network (ADRRN) held in Bangkok, Thailand during 7-8 March 2013. He sits in the Board of ADRRN.

Mr. Ramesh Guragain and Mr. Khadga Sen Oli participated in the GNDR Global Conference on People-Centred Resilience at Hague, Netherland on 20-21 March 2013.

Mr. Ramesh Guragain participated in the Mandalay City Earthquake Risk Reduction Action Planning Workshop held on 28-29 March 2013 in Mandalay, Myanmar organized by UNHABITAT and Norwegian Ministry of Foreign Affairs.

Mr. Amod Dixit participated in the MPAT TEMPEST EXPRESS 22 Disaster Response Workshop organized by USPACOM at Dhaka, Bangladesh during 5-14 May 2013.

Mr. Khadga Sen Oli participated in the UNISDR Global Platform for Disaster Risk Reduction in Geneva, Switzerland during 20-24 May 2013.

Mr. Amod Dixit attended the UNOCHA 2013, Humanitarian Policy Forum for Asia and the Pacific workshop in Bangkok during 28-29 May 2013.

Mr. Ganesh Kumar Jimee visited the Karlsruhe Institute of Technology (KIT) Germany as a Visiting Researcher for one month as a part of the MOU between NSET and Karlsruhe Institute of Technology (KIT) & Heidelberg University, Germany during 17 June-17 July, 2013.

Mr. Amod Dixit attended the GEM Reveal Meeting at Pavia, Italy organized by the GEM Foundation during 25-26 June 2013.

Mr. Amod Dixit and Mr. Surya Narayan Shrestha attended the 46th General Assembly Asian Disaster Reduction and Response Network (ADRRN) at Manila, Philippines during 3-5 July 2013.

Mr. Sujan Raj Adhikari participated in the National Workshop on "Uttarakhand Disaster -2013: Lesson Learnt" organized by National Institute of Disaster Management (NIDM), India on 19th August at New Delhi, India.

Mr. Amod Dixit as a Panelist attended the Japan Prize- International Contest for Educational Media and The International Producers Conference for Educational media (IPCEM) organized by NHK -Japan Broadcasting Corporation in Tokyo, Japan during 20-25 October, 2013.

Mr. Gopi Krishna Basyal attended the 9th International Training Workshop (ITW) themed “To explore geological environment and apply technology for hazard mitigation.” organized by ADDRN and its Taiwan-based Associate Member, National Science and Technology Centre for Disaster Reduction (NCDR) during 28th October to 1st November 2013 in Taiwan.

Mr. Nirakar Joshi attended the International Course on "Emergency Situation Preparedness" organized by MASHAV/Israel Embassy in Israel during 10-21 November 2013.

Mr. Amod Dixit attended the UNOCHA's Regional Humanitarian Partnerships Forum for Asia and the Pacific held in Phuket, Thailand on 14-15 November 2013.

Mr. Amod Dixit, Mr. Surya Narayan Shrestha, Mr. Surya Bhakta Sangachhe along with Mr. Shambhu KC, DG, DUDBC participated in the study visit to observe the urban regeneration work in UNESCO site of Siracusa in Sicily, Italy with the Department of Structural Engineering and Geotechnics of the Sapienza University during 28 November -2 December 2013.

Ms. Bhuwaneshwari Parajuli participated in the Social Accountability training workshop 2013 organized by ADRRN in Delhi, India during 23-24 Dec 2013.

Mr. Amod Dixit attended the Governing Board Meeting of Global Earthquake Model (GEM) in Pavia, Italy during 8-10 Jan 2014.

Mr. Bimal Thapa, Mr. Shiva Kala Niure of Daunne Devi School and Mr. Pukar Shrestha from Bal Bikash Secondary School, Aalapot attended the International Conference on Disaster Management by Students in Tokyo and Memorial event of Great Kobe Earthquake in 1995 in Miko High School, Kobe, Japan during 10-15 Jan 2014.

Ms. Hima Shrestha and Ms. Niva Upreti participated in the workshop on USAID/OFDA's guidelines for proposals, organized by USAID/OFDA in Bangkok, Thailand during 18-20 Feb 2014.

Mr. Amod Dixit as a panelist participated the launch of OCHA's flagship report for 2014 "Saving Lives Today and Tomorrow: Managing the Risk of Humanitarian Crises" at UN Headquarters in New York on 31 March 2014.

Ms. Hima Shrestha participated in the CBDM Policy Dialogue and BCDM Experience Sharing Workshop held in Beijing, and Ji’an, Jiangxi, China during 27-30 May 2014.

NSET works appreciated

"One of the classic examples of pre-disaster activities is that of NSET (National Society for Earthquake Technology-Nepal), which has been active in pre-earthquake preparedness activities over close to 20 years. Starting from school retrofitting and earthquake scenario creation activities in Kathmandu valley, the organization has provided a landmark example of involvement of different stakeholders, mobilizing resources, training professionals and practitioners, developing knowledge products, influencing government policies and making an impact at the local, national and global level. NSET's work can be considered as the textbook example of NGO/civil society involvement in pre-disaster scenario."

Excerpt from the book- Civil Society Organization and Disaster Risk Reduction; The Asian Dilemma: Disaster Risk Reduction Method, Approaches and Practices; Rajib Shaw, Takako Izumi

KVDA and NSET join hands for sustainable and safe urban development

The Kathmandu Valley Development Authority (KVDA) and the National Society for Earthquake Technology - Nepal (NSET) signed a Memorandum of Understanding (MOU) in February 2014 at a meeting organized at KVDA office regarding joint efforts to achieve sustainable and safe urban development in the Kathmandu Valley through collaboration, learning from experiences and utilization of available expertise and resources.

Under the MOU, KVDA and NSET agreed to;

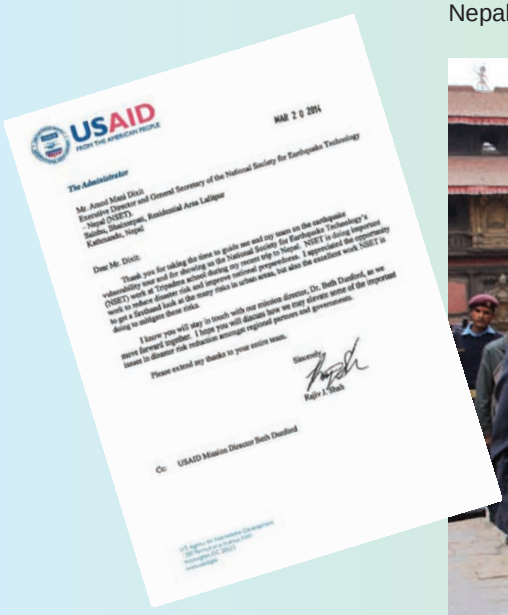
- Promote sustainable and safe urban development in Kathmandu Valley in an effective and participatory manner and to avoid duplication by complimenting
- Facilitate collaboration between KVDA and NSET in the areas of risk sensitive land use planning; promotion of safer housing construction; and safe infrastructure development; and promotion of building code enforcement through awareness, training, and sensitization activities in Kathmandu Valley
- Jointly work towards facilitating dialogue among key stakeholders including relevant government agencies, international development partners, NGOs, CBOs and private sector and promoting coordination
- Analyze the current status of plans and programs for urban development in Kathmandu Valley and design new initiatives for promoting safer and sustainable development
- Jointly mobilize resources for designing and implementing projects under this MOU

The collaboration will include all the activities of common interest in the above framework with the aim of benefitting from the synergy of the know-how and expertise of the two institutes. The research and technical results of cooperative projects will be shared and / or commonly published.

USAID Administrator in walk to feel vulnerabilities and strengths of Patan city core area

In February 2014, NSET conducted an Earthquake Vulnerability Walk for Dr. Rajiv Shah, USAID Administrator, His Excellency Peter W Bodde and the USAID Team in the city core area of Lalitpur Sub Metropolitan City. The purpose of such walk is to help feel the earthquake risk of Kathmandu Valley through guided walk along the streets in a core urban area and observing existing seismic vulnerability and its build up, as well as the existing capacities and resources in Kathmandu Valley communities. The walk is expected also to assist in understanding the need and possibilities of reducing earthquake risk in Kathmandu Valley. This course started from Patan Durbar Square and walked along Momadu street – Deu Baha – a labyrinth of underpasses and courtyards – and ended at Bu-Baha.

The delegates also visited Tripadma Higher Secondary School, Pulchowk Lalitpur to observe retrofitted school buildings. The visit is intended to familiarize with the process, outcome and impact of a school retrofitting program and help get convinced on the urgency to support Nepal to retrofit all school buildings in Kathmandu Valley and beyond.


USAID
FROM THE AMERICAN PEOPLE

MAR 2 0 2014

The Administrator

Mr. Amod Mani Dixit
Executive Director and General Secretary of the National Society for Earthquake Technology
Nepal (NSET)
Shakti, Dhulikhel, Residential Area Lalitpur
Kathmandu, Nepal

Dear Mr. Dixit:

Thank you for taking the time to guide me and my team on the earthquake vulnerability tour and for directing us the National Society for Earthquake Technology's (NSET) work at Tripadma school during my recent trip to Nepal. NSET is doing important work to reduce disaster risk and improve national preparedness. I appreciated the opportunity to get a firsthand look at the many risks in urban areas, but also the excellent work NSET is doing to mitigate those risks.

I know you will stay in touch with our mission director, Dr. Beth Dunford, as we move forward together. I hope you will discuss how we may elevate some of the important issues in disaster risk reduction amongst regional partners and governments.

Please extend my thanks to your entire team.

Sincerely,

Rajiv J. Shah

Cc: USAID Mission Director Beth Dunford

Amod Dixit honored with "Prabal Janasevashree"

President of Republic of Nepal Dr. Ram Baran Yadav today conferred the prestigious "Prabal Janasevashree" to Mr. Amod Dixit in a special ceremony organized at the Office of The President. Mr. Dixit was honored for his contribution to the nation. The honor was declared on the auspicious occasion of 6th Republic Day celebrated on May 29, 2013. The Government of Nepal declared a list of 189 personalities honored in various categories. This honor recognizes and encourages NSET's efforts and interventions to continue in building resilience.


विभूषण अधिकारपत्र

NSET honors National Poet Laureate MP Ghimire

NSET honored National Poet Laureate Mr. Madhav Prasad Ghimire for his contribution to raising public awareness on earthquake resilience. NSET President Mr. Shiva Bahadur Pradhanang and Executive Director Mr. Amod Dixit thanked National Poet Laureate and bestowed on him the Certificate of Honor in a special gathering organized on the very auspicious occasion of Guru Purnima on July 22, 2013.

Upon the request of NSET, National Poet Laureate Mr. Madhav Prasad Ghimire kindly created lyrics on enhancing Earthquake Resilience four years ago. Nepal's renowned Senior Musician Mr. Ambar Gurung also made the precious contribution in composing music for the lyrics upon NSET's request. The song has remained inspirational and powerful in influencing Nepali minds and hearts. The National Poet Laureate made a keynote speech and gave blessings to the NSET family for every success in the efforts towards making Nepal earthquake-resilient.

At this occasion, NSET President Mr. Shiva Bahadur Pradhanang and Executive Director Mr. Amod Dixit also congratulated the country's renowned personality Mr. Madan Mani Dixit for his lifelong contribution to literature, philosophy and journalism and also the Senior Lyricist Mr. Ranta Samsher Thapa. On the occasion of 20th NSET Day celebration on June 18 2013, Senior Musician Mr. Ambar Gurung was congratulated and bestowed with Certificate of Honor on for his contributions to the same cause.

On the auspicious occasion of Guru Purnima, NSET Staff also felicitated Mr. Shiva Bahadur Pradhanang and Mr. Amod Dixit as Gurus and sources of inspiration and received blessings from the duo.

NEA honors NSET President with Life Time Achievement Award

Nepal Engineers' Association (NEA) has honored NSET President Mr. Shiva Bahadur Pradhanang with a Life Time Achievement Award for his continuous and unflinching contribution to the country and people of Nepal for more than four decades and also upholding high spirit of engineering professionalism and the dignity of the engineering fraternity in Nepal. Amidst a grand gathering organized on the occasion of 51th Engineers' Day, Right Honorable Vice President of Nepal bestowed Mr. Pradhanang with a Medal and Certificate of Honor. The Nepal Engineers' Association, which is the only apex society of all the Nepali Engineers and Architects having more than 12,000 members, celebrates Engineers' Day annually to mark the day of its establishment.

On the same occasion, NEA also honored four Engineering Professionals with the Best Entrepreneur Award, Best Enterprising Innovation Award, Youth Professional Award and Sahid Engineer Nawaraj Bista Award.

Mr. Shiva Bahadur Pradhanang, a permanent resident of Kathmandu and engineer by profession, has over 35 years of professional working experience in the government. A Civil Engineer from University of Roorkee, Mr. Pradhanang started his career with Department of Roads in 1960. He served as General Manager of NCCN from 1974 to 1979. From 1981 to 1987, he served as Chief Engineer of the Department of Roads, and Executive Director of NEPCON until 1992. He was promoted to Secretary of Government of Nepal in 1992 and served as Secretary of Ministry of Housing and Physical Planning. Mr. Pradhanang is the founder and President of National Society for Earthquake Technology - Nepal (NSET), a non-government, non-profit NGO working towards earthquake risk management in Nepal and Region.

Amod Dixit awarded with doctoral degree

In March 2014, Ehime University, Japan conferred the degree of Doctor of Engineering on Amod Mani Dixit. Mr. Dixit accomplished his PhD research work with the dissertation theme: “An Evaluation of Earthquake Risk Management Initiatives in Nepal”.

NSET congratulates Executive Director Mr. Amod Mani Dixit being awarded with the degree. It is the matter of great pride for all NSET Members and Staff working under his visionary leadership to build earthquake safe communities in Nepal and the region.

Amod Mani Dixit is a founder and leader of non-profit/non-governmental organization NSET working on Disaster Risk Reduction and more exclusively on Earthquake Risk Management. Mr. Dixit has been dedicated to the field of Disaster Risk Management for more than 30 years. He bears a unique combination of practical knowledge of Geological Sciences and Civil/Geotechnical Engineering with implementing scientific and management approaches.

Towards better understanding of resilience in Kathmandu

A collaborative effort of Global Earthquake Model (GEM), the Center for Disaster Management and Risk Reduction Technology (CEDIM) from Karlsruhe, the South Asia Institute (SAI) from Heidelberg and NSET, is supporting communities in Kathmandu to understand what factors drive population-based earthquake vulnerability reduction.

The GEM Social Vulnerability and Integrated Risk Project is developing four use-cases to evaluate the scale and consequences of earthquake impacts. One of these use-cases is focused on Kathmandu, Nepal. NSET assists the collaborators to understand the effects of rapid urbanization and land-use change on social vulnerability and to develop indicators for measuring socio-economic vulnerability in this context.

As part of the research process, NSET and project partners assisted communities of the Kathmandu Valley to undertake a stakeholder-based analysis workshop “Participatory Evaluation of Earthquake Resilience in Lalitpur Sub Metropolitan City” on March 25 and 26, 2014. Workshop participants together assessed community resilience to earthquakes using a scorecard –based survey; a self-evaluation tool to assess social vulnerability of cities based on the indicators of socio-economic characteristics of populations for City Resilience. Representatives from 20 of the 22 city wards attended the interactive workshop, which employed hand-held receivers to produce real-time results as discussion progressed. Spontaneous discussion about earthquake resilience and how to improve upon it was an unexpected positive outcome of the workshop in addition to gathering valuable data for the social vulnerability and integrated risks.

Seminar on Amateur Radio for Emergency Communication

A seminar on “Amateur Radio for Emergency Communication” was organized on February 12, 2014, at NSET Office, Bhainsepati, Lalitpur. The program was envisioned to focus on exploring possibilities and ways to use Amateur Radio, commonly known as Ham Radio in the post disaster situations as a means of emergency communication. After a large-scale earthquake, for example, the existing communications systems may not be available either due to physical damage or system overload. Wires to telephones may be damaged and cellular phone towers and antennas may fail or lose power. Emergency Communication Systems which are pivotal in responding to disaster situations therefore should have not only appropriate technology & abundant infrastructures to set up but also need to be with proper backup and redundancy mechanisms. Amateur Radios also known as Ham Radios are the best option to work in such adversities available and adopted globally. Nepal can also benefit from this no-operation-cost technology particularly in case of emergencies not only due to earthquakes but in all types of disaster situations.

The workshop was attended by representatives from Ministry of Home Affairs (MOHA), Ministry of Information and Communication (MOIC), Security forces, Nepal Red Cross Society (NRCS), and a group of Amateur Radio operators in Nepal. Exploring the possibilities and ways to use Amateur Radio for disaster emergencies, Expanding the HAM Network throughout Nepal, Mobilizing the youth groups for expanding the HAM Network and Simplification of the exam for obtaining the HAM operators License, were some of the major issues discussed in the program.

The program ended with the Visit of the Repeater Station installed at NSET along with demonstration and hands on use of the equipment.

Community Volunteers of SEEDS India trained on Light Search and Rescue (LSAR) and Basic Emergency Medical Response (BEMR)

A three-day training on Light Search and Rescue (LSAR-1002) and One-day training on Basic Emergency Medical Response (BEMR-1001) was conducted in Delhi, India during 18-21 December, 2013 for the community volunteers of SEEDS India at SEEDS Office, New Delhi. The training was organized by SEEDS India with the technical support from NSET.

The training was conducted by a set of nine instructors of which five full instructors were from NSET, and four assistant Instructors were from SEEDS India. Altogether 24 volunteers of SEEDS got trained on light search and rescue and basic emergency medical response.

The training intended to transfer the knowledge and skills gained by NSET in Nepal to India and the neighboring countries.

Interactive Talk by Cosmonaut Vladimir Djanivekov

On April 17, 2013, NSET organized an interactive talk with Cosmonaut Vladimir Djanivekov, 5-times space traveler from Russia. Mr. Djanivekov, shared his cosmic experiences with Nepali professionals from various technical and academic societies. Participants joined with him touring infinite space to closely observe our mother earth, other planets, moons, stars, and many other asteroids, comets, meteoroids and galaxies. Mr. Djanivekov was a member of Russian delegate that was in official visit to Nepal in the course to mark 'International Day of Cosmonautics' and '50th Anniversary of the first woman space mission by Valentina Tereshkova'.

Media talk on safe building practices in Nepal

As the major earthquake risk lies in building structures, media professionals have stressed on the very need to promote safe building practices and help mitigate potential threats. Media has key roles in raising public awareness and creating demand and also helps in due course of opinion building and encourage government to come up with strategic plans, policy and programs to execute. In a Media Interaction program "Safe Building Practices: status, challenges and opportunities" held in Lalitpur on March 21, 2014, journalists and DRR practitioners exchanged ideas and explored how both can jointly induce more impacting efforts.

To facilitate the discussion, presentations were made by NSET professionals on existing building practices, policy status and strategic directions to achieve better safety and elements of safe building construction..

Nearly 50 journalists from print, radio, TV and online media and DRR professionals participated in a half day interactive workshop organized by NSET.

Developing Instructors through 'Training for Instructors (TFI) Course'

NSET organized a 5 days rigorous training 'Training for Instructors (TFI)' during 8-12 July, 2013 at NSET office premise. The purpose of the TFI course was to provide the participants with a training methodology and specific personal skills that assist them in improving their knowledge and skills to develop, present and manage effective training programs.

It was the first residential TFI course held in NSET Office premises. There were total 26 participants from key stakeholders in DRR in Nepal - 7 from Municipalities namely Damak, Biratnagar, Dharan, Hetaunda, Bharatpur, Butwal, Siddharthanagar, 1 from District Education Office, Bhaktapur and 1 from Rural Access Program (RAP), Lalitpur and a group of 17 professionals from NSET.

Role of News Editors in Disaster Risk Reduction

With an objective to explore ways to enrich the role of media in Disaster Risk Reduction (DRR) in Nepal, a half day interaction with News Editors in Disaster Risk Reduction was organized by NSET with support from USAID/OFDA on 21 June 2013. The program witnessed a remarkable presence of the news editors, reporters and camera persons representing different media houses. NSET professionals briefed the media personnel on basic concepts of disaster risk management, the disaster risk scenario in Nepal, the global and regional perspective of DRR and ongoing efforts towards DRR in the country. The participants shared their ideas, concepts and experiences in dealing with DRR news and knowledge dissemination. The discussion then led to a consensus on the following 3 major steps to be taken as a way forward:

- Disaster risk reduction to be included as a priority in the media : television, radio, online or print media
- Training and capacity building of the desk editors and reporters on DRR aspects
- Formation of loose Network of DRR Journalists

Chapter 10

Organisational Development

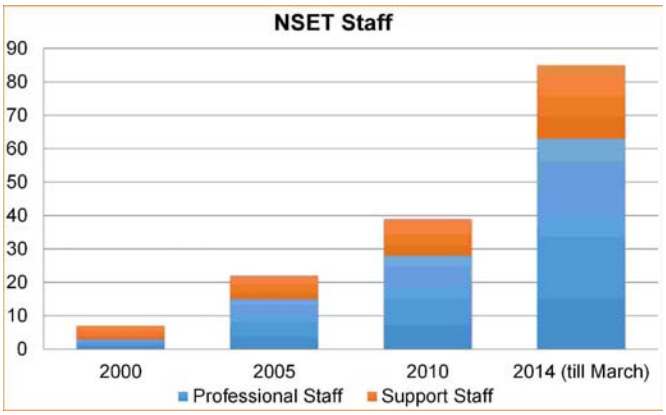
With growing awareness on issues related to earthquake risks, there has been increasing responsibility and demand onto NSET to provide technical support to individuals, institutions and communities. NSET, hence, has been growing in terms of staff size, coverage area and number of programs.

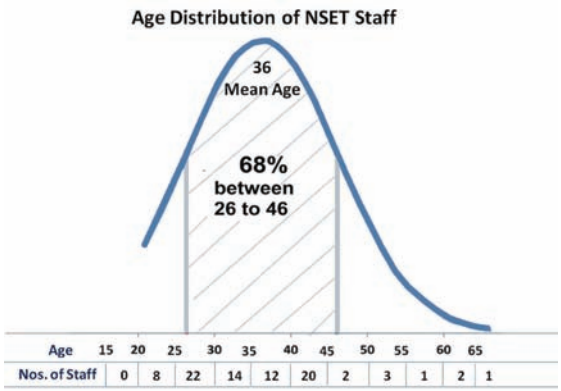
NSET Staff – as it grows

NSET has 85 full time staff as of March 2014. The trend seems going somehow steep but for sure it is not precipitous. Staff recruitment and development processes are very much professional and standardized based on need, demand and sustainability perspectives as well as future prospects.

Agewise distribution of NSET Staff

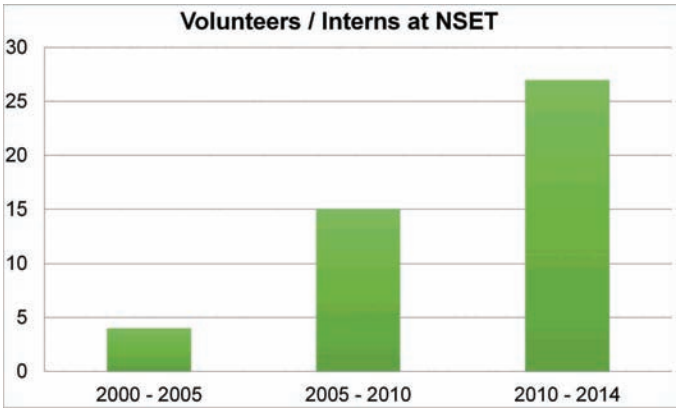
A quick assessment of variability in age of NSET Staff revealed that more than two-third work force is at their youth phase. Mean age of working staff is 36 years.



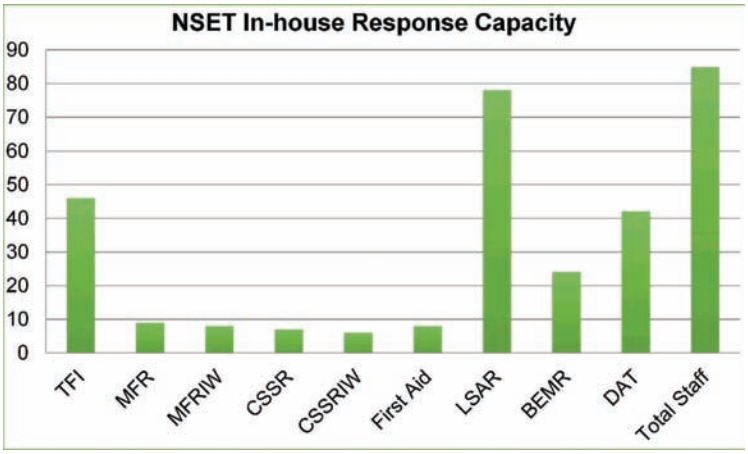


Volunteers / Interns at NSET

NSET has been important learning venue for the students and professional practitioners. That is the reason NSET is used to host Volunteers and Interns to the possible level

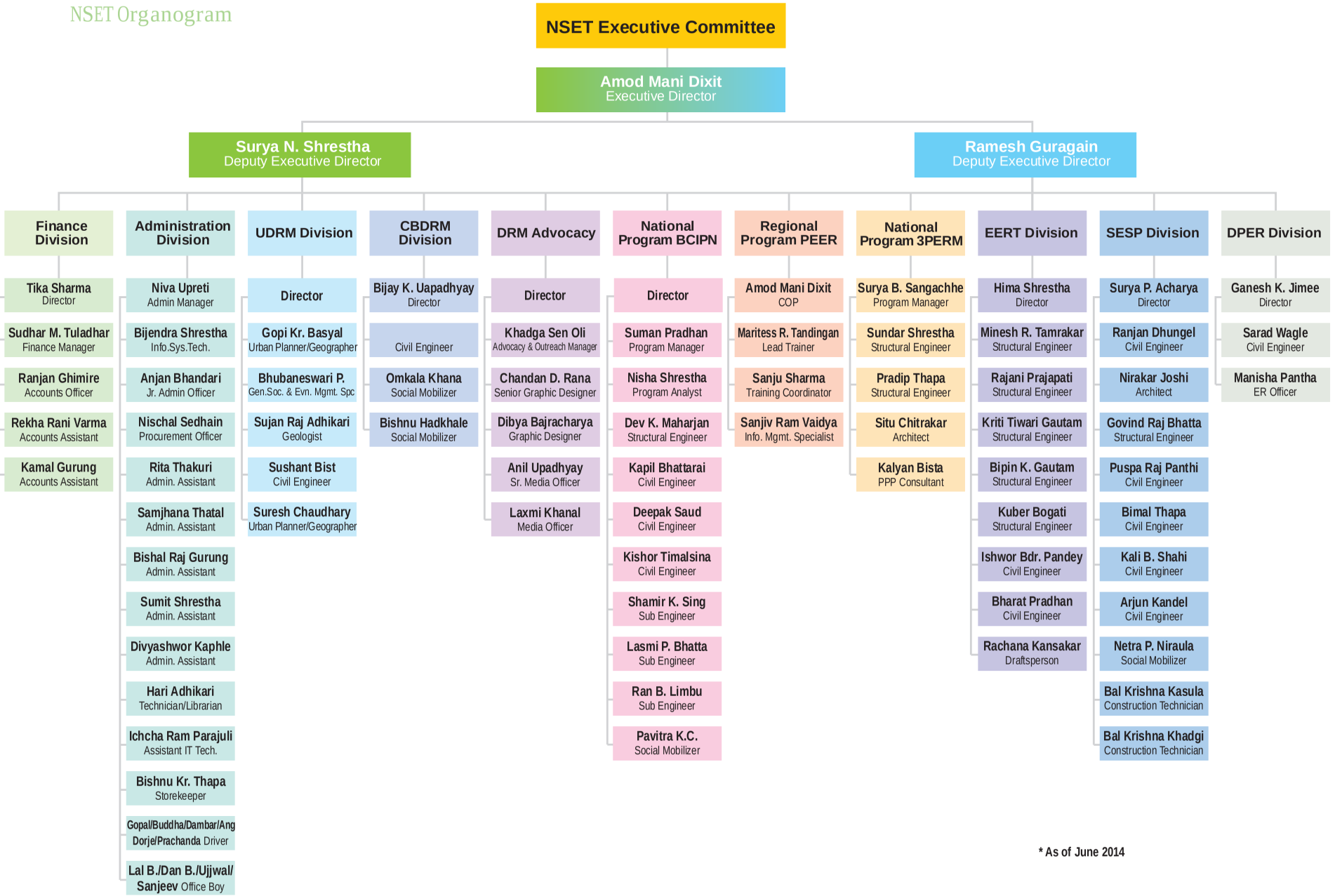


The number of staff has been growing in NSET to fulfil the increasing demand. At the same time, the quality of service delivery has also to be consistent. Another way of addressing the increasing demand is by enhancing the efficiency of the staff. Therefore, several training courses have also been conducted for professional development of NSET staff.



NSET staff joined in the 40hrs Professional English Language Training Course on Professional Writing and Speaking conducted by American Language Centre. Total 14 staff completed the course.

NSET Organogram

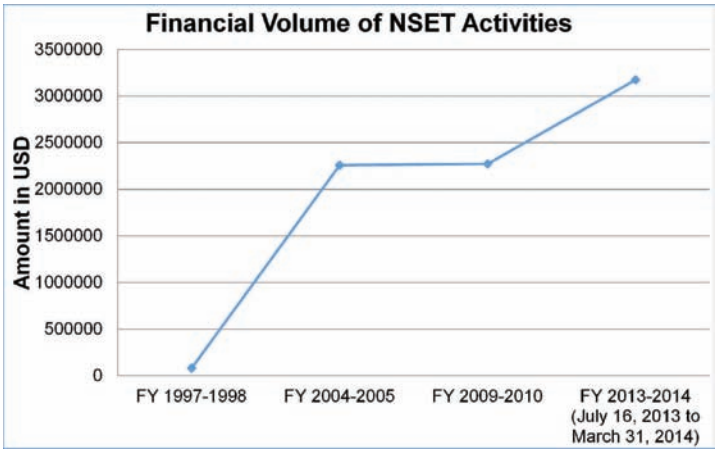


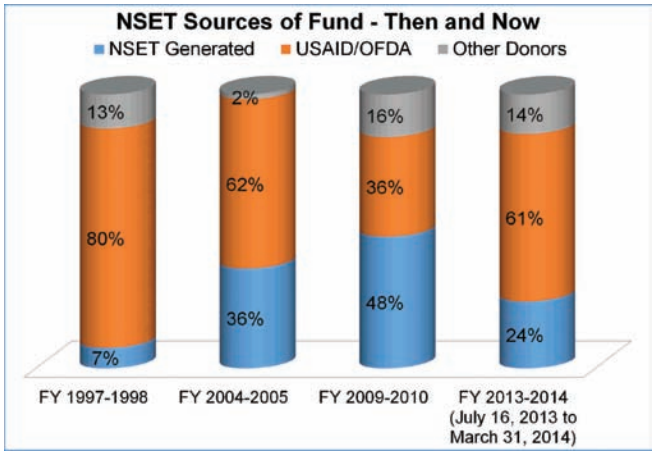
* As of June 2014

NSET Finances

As in the growth in number of staff and programs, the financial volume of NSET has also been increasing. Following figure shows a trend of financial growth of NSET. During the initial days in 1997, the annual turnover was around 80 thousands USD, whereas the annual turnover at present is approximately 3.2 million USD. This shows tremendous growth in financial volume of NSET.

Volume of NSET Fund



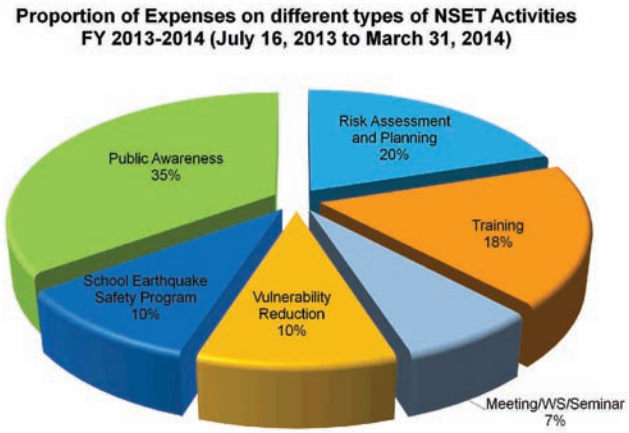


Sources of Fund

Diversification of funding sources has been a top priority for NSET. During the initial period NSET had to depend largely on a single source. However, now there are several key sources of funds; major sources of fund at present are grants from USAID/OFDA, project funding from UN and other bilateral agencies, and funds generated by providing technical services. This figure shows increasing trend of financial diversification.

Areas of Expenses

More than 50% of resources has been used in awareness, training and advocacy; which is a obvious need in Nepal. Approximately 20% has been spent of risk assessment and planning and similar proportion spent on risk reduction in the form of school retrofitting, non-structural mitigation in public facilities.



Annexes

Annex 1: Financial Reports

National Society for Earthquake Technology - Nepal

Income and Expenditure Statement
for period July 16, 2012 to July 15, 2013

Particulars	Schedule	NSET Nepal NRs	NERMP II/ USAID NRs	PEER III/ USAID NRs	3 PERM/ USAID NRs	BCIPN/ USAID NRs	DPSS II /ARC NRs	MERLIN I & II NRs	WASH/OXFAM I NRs	CBDRM/LWR NRs	DPSS-B'desh/ARC NRs	WASH/OXFAM II NRs	NTU/Singapore NRs	SSP/ADB NRs	Current Year NRs	Previous Year NRs
Income																
Professional Service Charge		17,938,798.38	-	-	-	-	-	-	-	-	-	-	-	-	17,938,798.38	29,942,557.85
Earthquake Safety Day		711,500.00	-	-	-	-	-	-	-	-	-	-	-	-	711,500.00	1,252,131.00
Project Income		5,114,064.00	26,137,031.35	49,683,434.40	34,700,386.02	9,470,520.00	6,261,504.45	5,381,481.76	2,216,942.24	-	3,460,520.99	1,108,700.00	4,272,392.72	2,740,615.91	150,547,593.84	105,933,286.49
PEER III and 3 PERM	V	20,643,114.97	-	-	-	-	-	-	-	-	-	-	-	-	20,643,114.97	21,278,594.75
Contribution from/For Publication		109,238.20	-	-	-	-	-	-	-	-	-	-	-	-	109,238.20	76,329.40
Sale of GO Bag		201,696.00	-	-	-	-	-	-	-	-	-	-	-	-	201,696.00	1,406,773.80
Income from Other Sources		4,418,035.27	-	-	-	-	-	-	-	-	-	-	-	-	4,418,035.27	3,247,947.34
Total Income		**49,136,446.82**	**26,137,031.35**	**49,683,434.40**	**34,700,386.02**	**9,470,520.00**	**6,261,504.45**	**5,381,481.76**	**2,216,942.24**	**-**	**3,460,520.99**	**1,108,700.00**	**4,272,392.72**	**2,740,615.91**	**194,569,976.66**	**163,137,620.63**
Expenses																
Administrative Expenses	VI	34,539,207.51	18,651,122.83	25,542,424.75	17,340,258.17	4,690,030.37	3,996,964.57	1,200,599.69	1,012,771.41	-	1,469,680.02	274,361.20	1,789,467.91	5,996,947.23	116,503,835.66	108,838,553.94
SESP Expenses - Reconstruction and Wages	VII	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30,000.00
Earthquake Safety Day	VIII	443,605.02	-	-	-	-	-	-	165,000.00	-	-	-	-	-	608,605.02	1,750,104.85
Workshop/Training/Seminar	IX	6,068,735.61	2,608,480.23	25,242,398.68	290,089.04	632,593.03	324,202.21	5,153,059.94	2,161,093.29	1,165,525.50	-	340,000.00	716,885.04	1,964,024.50	46,667,087.06	46,798,653.32
Travel Expenses	X	2,711,469.77	310,505.03	274,276.78	400,713.49	-	488,935.76	-	-	-	1,333,654.41	-	-	-	5,519,555.24	2,066,844.40
Public Awareness	XI	207,109.00	281,308.64	-	8,731,090.74	-	-	-	35,753.20	-	-	-	-	-	9,255,261.58	4,536,132.42
Exchange (Gain)/Loss		-	(225,316.82)	312,969.99	94,259.73	(12,195.05)	(26,696.87)	-	-	(2,405.34)	(94,792.89)	-	129,611.96	32,284.83	207,719.55	(365,387.17)
Total Expenditure		**43,970,126.91**	**21,626,099.91**	**51,372,070.21**	**26,856,411.17**	**5,310,428.36**	**4,783,405.67**	**6,353,659.63**	**3,374,617.90**	**1,163,120.16**	**2,708,541.54**	**614,361.20**	**2,635,964.91**	**7,993,256.55**	**178,762,064.11**	**163,654,911.56**
Excess of Income Over Expenditure		5,166,319.91	4,510,931.44	(1,688,635.81)	7,843,974.85	4,160,091.64	1,478,098.78	(972,177.87)	(1,157,675.66)	(1,163,120.16)	751,979.46	494,338.80	1,636,427.81	(5,252,640.65)	15,807,912.54	(517,290.93)
Opening Balance		77,350,234.25	(4,337,221.62)	1,786,430.28	(5,996,059.05)	-	(488,848.73)	972,177.87	1,103,375.63	1,175,190.40	-	-	-	-	71,565,279.03	71,470,761.06
Exchange Fluctuation Gain/ (Loss)		-	62,741.38	(11,725.42)	220,764.30	346,792.91	87,903.65	-	-	(12,070.24)	62,686.39	-	136,415.64	(437,869.80)	455,638.80	611,806.11
Balance of funds as on July 15, 2013		**82,516,554.14**	**236,451.20**	**86,069.05**	**2,068,680.10**	**4,506,884.55**	**1,077,153.70**	**(0.00)**	**(54,300.03)**	**(0.00)**	**814,665.85**	**494,338.80**	**1,772,843.45**	**(5,690,510.45)**	**87,828,830.37**	**71,565,279.04**

Significant accounting policies & notes to accounts forms an integral part of this Income & Expenditure Statement — XII

Amod Mani Dixit
(General Secretary)

Date: 02 OCT 2013
Place: Lalitpur

Shiva Bahadur Pradhanang
(President)

Yogeshwar K. Pahuja
(Treasurer)

Tika Sharma
(Finance Director)

Sanjeev Mishra
(Partner)
T R Upadhya & Co.
Chartered Accountants

NSET

National Society for Earthquake Technology - Nepal

Balance Sheet
As at July 15, 2013

Particulars	Schedule	As at July 15, 2013 NRs	As at July 15, 2013 NRs
Assets			
Fixed Assets	I	50,749,487.98	52,255,043.82
Receivables	II	15,961,350.18	12,778,529.66
Cash & Cash Equivalents	III	30,938,686.59	21,152,417.36
Total Assets		**97,649,524.75**	**86,185,990.84**
Liabilities			
Current Liabilities	IV	9,820,694.38	14,620,711.81
Surplus as per Income & Expenditure Statement		87,828,830.37	71,565,279.04
Total Liabilities		**97,649,524.75**	**86,185,990.84**

Significant accounting policies & notes to accounts forms an integral part of this Balance Sheet — XII

As per our report of even date

Amod Mani Dixit
(General Secretary)

Shiva B. Pradhanang
(President)

Yogeshwar K. Parajuli
(Treasurer)

Sanjeev Mishra
(Partner)
T R Upadhya & Co.
Chartered Accountants

Tika Sharma
(Finance Director)

Date: 02 OCT 2013
Place: Lalitpur

NATIONAL SOCIETY FOR EARTHQUAKE TECHNOLOGY NEPAL NSET NEPAL 1994 NSET

Annex 2: NSET Executive Committee

Shiva B. Pradhanang
President

Amod M. Dixit
General Secretary

Yogeshwor K. Parajuli
Treasurer

Varun P. Shrestha
Executive Member

Shreeram S. Basnet
Executive Member

Surya N. Shrestha
Executive Member

Manohar Rajbhandari
Executive Member

Tika Sharma
Executive Member

Annex 3: NSETs Partners

National

- Armed Police Force
- B.P. Koirala Institute of Health Sciences
- Confederation of Nepalese Industries (CNI)
- Cosmos Cements Industry Private limited
- Curriculum Development Center (CDC)
- Department of Archeology (DoA)
- Department of Education (DoE)
- Department of Mines and Geology
- Department of Urban Development and Building Construction
- Disaster Management Committee of Wards 17, 29 and 34, Kathmandu
- Disaster Management Committee, Alapot
- Disaster Management Committee, Ward No.12, Lalitpur Sub Metropolitan City
- Disaster Management Committee, Ward No. 18, Kathmandu Metropolitan City
- Disaster Preparedness Network (DPNet)
- Diploma Engineers' Association, Nepal
- Federation of Contactors' Associations of Nepal (FCAN)
- Federation of Nepalese Chamber of Commerce and Industries (FNCCI)
- Heavy Equipment Association Nepal (HEAN)
- Hotel Association of Nepal (HAN)
- Impressions Publishing Private Limited (Spaces Magazine)
- Institute of Engineering, Tribhuvan University
- Institute of Medicine, Tribhuvan University
- Kathmandu Valley Development Authority (KVDA)
- Kathmandu University
- Kritipur Womens' Network
- Lumanti
- Ministry of Education and Sports
- Ministry of Health and Population
- Ministry of Home Affairs (MoHA)
- Ministry of Federal Affairs and Local Development (MoFALD)
- Ministry of Environment, Science and Technology
- Ministry of Physical Infrastructure & Transport (MoPIT)
- Ministry of Urban Development (MoUD)
- Ministry of Women, Children and Social Welfare
- Municipalities of Kathmandu Valley and other districts
- National Disaster Management Network of Nepal (DiMaNN)
- National Forum for Earthquake Safety
- National Network of Women for Community Resilience
- Nepal Academy of Fine Arts (NAFA)
- Nepal Amateur Radio Operators' Society (NAROS)
- Nepal Army
- Nepal Association of Tour and Travel Agent (NATTA)
- Nepal Bankers' Association (NBA)
- Nepal Bureau of Standards and Metrology
- Nepal Contraceptive Retail Sales Company Limited (Nepal ,CRS Company)
- Nepal Engineering College
- Nepal Engineering Council
- Nepal Engineers Association
- Nepal Forum for Environmental Journalists
- Nepal Geological Society
- Nepal Red Cross Society
- Nepal Police
- Nepal Telecommunications Authority (NTA)
- Nepal Tourism Board (NTB)
- Nepal USA Chamber of Commerce and Industry (NUSACCI)
- National Police Academy
- Rotary Clubs
- Sakha & Co. Private Limited
- Salt Trading Corporation, Limited (STCL)
- Shivam Cement Private limited
- Social Welfare Council
- Society of Consulting Architectural and Engineering Firms
- Society of Nepalese Architects
- Thankot Women's Cooperative Network

International

- Action Aid International Nepal
- All India Institute of Hygiene & Public Health (AIIH&PH), India
- Ambulan 118 of Indonesia
- American Red Cross
- Amity Public Safety Academy of Philippines
- Asian Development Bank (ADB)
- Asian Disaster Preparedness Center
- Asian Disaster Reduction Center
- Asian Disaster Reduction and Response Network
- Asian Seismological Commission
- Alliance for Adaptation & Disaster Risk Reduction, India
- Badan Koordinasi National of Indonesia
- Badan Search and Rescue National of Indonesia
- Bangladesh Disaster Preparedness Centre

- Bangladesh Red Crescent Society (BDRC)
- Boarder Security Force of India
- Building Research Institute of Japan
- CAN-USA
- Central Reserve Police Force , India
- Chittagong University of Engineering & Technology (CUET)
- Christian Aid-UK
- Commissionerate of Health & Medical Services, Gujarat, India
- Church World Service - Pakistan/Afghanistan
- Center for Participatory Research and Development, Bangladesh
- Danish Cultural Institute , Denmark
- Disaster Management Bureau of Bangladesh
- DPRI/Kyoto University
- Durham University
- Earthquake and Megacities Initiatives (EMI)
- Emergency Rescue Unit Foundation of Philippines
- Emergency Medical Relief (EMR)/ Directorate of Health Services, New Delhi, India
- Earthquake Reconstruction and Rehabilitation Authority (ERRA), Pakistan
- Euro Center
- Fire National Training Institute of Philippines
- Fire Service and Civil Defense Directorate of Bangladesh
- Focus Humanitarian Assistance, Pakistan
- GeoHazards International
- Give2Asia
- Global Earthquake Model (GEM) Foundation, Italy
- Global Network of Civil Society Organizations for disaster Reduction (GNDR)
- Graduate Research Institute for Policy Studies (GRIPS) of Japan
- Handicap International
- Indian Tibetan Boarder Police (ITBP), India
- Indonesian Red Cross
- International Association of Earthquake Engineering
- International Centre Integrated Mountain Development
- International Federation of Red cross Crescent Societies (IFRC)
- International Resources Group
- Janathaksan, Sri Lanka
- Jakarta Fire Services, Indonesia
- Japanese International Cooperation Agency
- Jawaharlal Institute of Post Graduates Medical Education & Research (JIPMER), India
- Karlsruhe Institute of Technology (KIT)
- Johns Hopkins University - Center for International Emergency, Disaster, and Refugee Studies
- Lutheran World Federation
- MERCY Malaysia
- Mercy Corps, Nepal
- Ministry of Food and Disaster Management, Bangladesh
- Ministry of Health and Family Welfare, Bangladesh
- Ministry of Health, Indonesia
- Ministry of Home Affairs, India
- National Disaster Management Authority of Pakistan
- National Disaster Coordinating Council of the Philippines
- National Industrial Security Academy of India
- Nat'l Institute of Preventive and Social Medicine of Bangladesh
- National Research Institute for Earth Science and Disaster Prevention of Japan
- New Zealand Society for Earthquake Engineering
- Norwegian Refugee Council
- Oxfam GB Nepal
- Plan Nepal
- Pattan Development Organization, Pakistan
- Practical Action, Nepal
- Philippines General Hospital
- Reynolds Geo-Sciences Limited, UK
- SAARC Disaster Management Center, India
- Safety Solutions Incorporated, USA
- Save the Children
- SEEDS India
- Sustainable Environment and Ecological Development Society (SEEDS/India)
- The International Institute for Geo-Information Science and Earth Observation (ITC)
- United Mission to Nepal
- The World Bank
- United Nations Center for Regional Development - Disaster Management Planning Hyogo Office
- United Nations Development Programme
- UN-ISDR
- United Nations Educational, Scientific and Cultural Organization
- United Nations International Children's Emergency Fund (UNICEF)
- United Nations World Food Programme (WFP)
- University of Basilicata, Potenza, Italy
- University of Sapienza, Rome, Italy
- UN-HABITAT
- U.S. Office of Foreign Disaster Assistance (USAID/OFDA)
- World Bank
- World Health Organization
- World Seismic Safety Initiatives

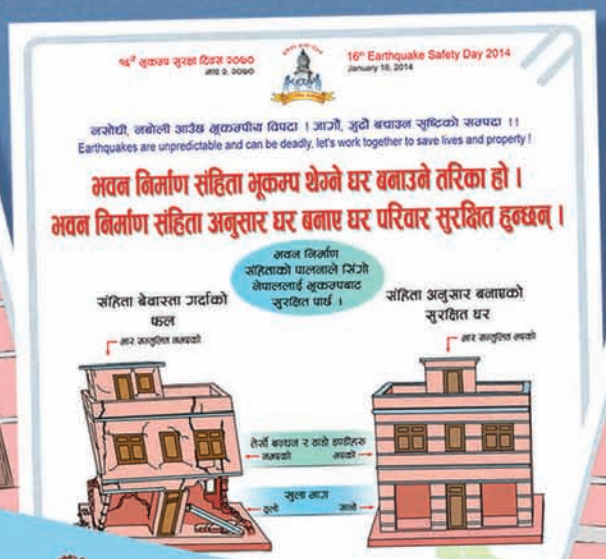
Abbreviations

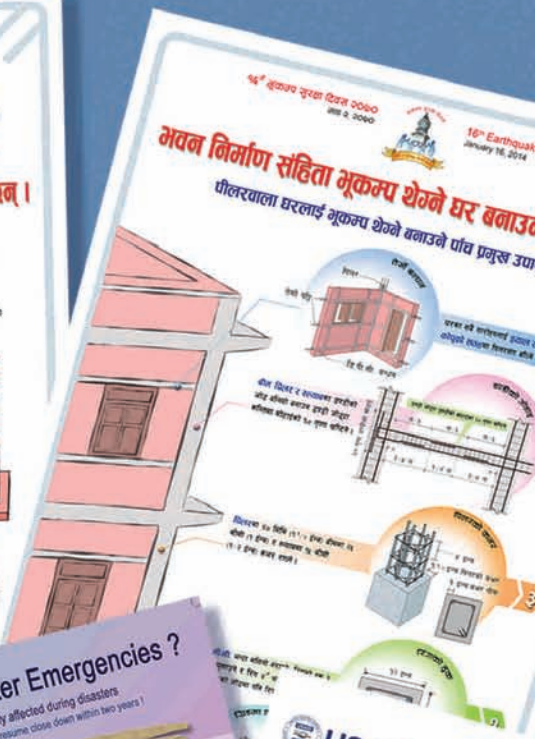
AAN	Action Aid Nepal
ADB	Asian Development Bank
ADPC	Asian Disaster Preparedness Centre
ADRC	Asian Disaster Reduction Centre
ADRRN	Asian Disaster Reduction and Response Network
APIP	Action Plan Implementation Project
AusAID	Australian Agency for International Development
BCPR	Bureau of Crisis Prevention and Discovery
BCIPN	Building Code Implementation Program in Nepal
BDPC	Bangladesh Disaster Preparedness Centre
BEMR	Basic Emergency Medical Response
BPKIHS	B.P. Koirala Institute of Health Sciences
BRI/Japan	Building Research Institute/Japan
BTRTC	Building Technology Research and Training Centre
BTT	Basic Technical Training
CAN-USA	Computer Association of Nepal-USA
CBDMP	Community Based Disaster Management Program
CBKMP	Capacity Building and Knowledge Management Program
CBOS	Community Based Organization
CDMG	Community Disaster Management Groups
CMM	Core Member Meeting
CSSR	Collapsed Structure Search and Rescue
DDRC	District Disaster Relief Committee
DEAN	Diploma Engineers Association Nepal
DEMP	Dharan Environmental Mapping project
DHS	Department of Health Services
DHWG	Disaster Health Working Group
DMC	Disaster Management Committee
DOE	Department of Education
DNET	Development Network (p) Ltd
DPNET	Disaster Preparedness Network Nepal
DPRI	Disaster Prevention Research Institute
DPRP	Disaster Preparedness and Response Plan Framework
DPSS	Disaster Preparedness for Safer Schools
DRH	Disaster Reduction Hyper-Base
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DTW	Deep Tube Well
DUDBC	Department of Urban Development and Building Construction
DWSS	Department of Water Supply and Sewerage
EAP	Earthquake Awareness Program
EDCD	Epidemiology and Disease Control Division
EDNeT	Education Network
EMP	Environmental Mapping Project

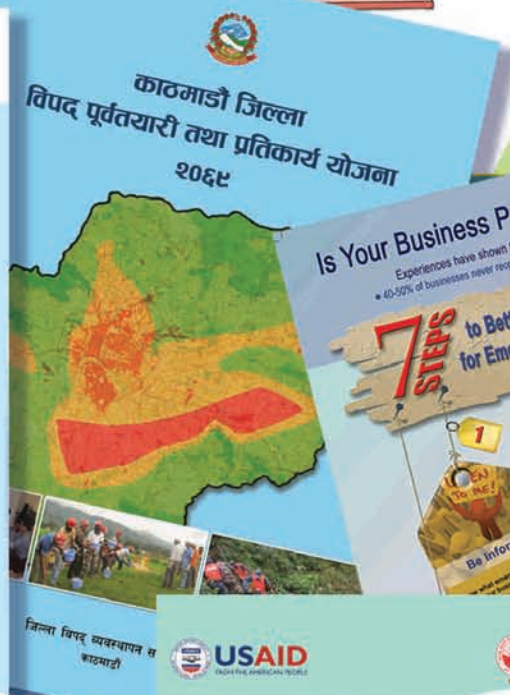
EPRP	Earthquake Preparedness and Response Plan
ERM	Earthquake Risk Management
ERR	Earthquake Risk Reduction
ESD	Earthquake Safety Day
ESS	Earthquake Safety Solutions
FNCCI	Federation of Nepalese Chamber of Commerce
FSCD	Fire Service and Civil Defense
GEM	Global Earthquake Model
GHI	Geo-Hazards International
GRIPS	Graduate Institute For Policy Studies
HAN	Hotel Association of Nepal
HESI	Housing Earthquake Safety Initiative
HFA	Hyogo Framework for Action
HOPE	Hospital Preparedness for Emergencies
IAEE	International Association for Earthquake Engineering
ICIMOD	International Centre for Integrated Mountain Development
ICLA	Information Counseling and Legal Assistance
IDCC	Integrated Disaster Communication Consortium
IDNDR	International Decade for Natural Disaster Reduction
IITB	Indian Institute of Technology Bombay
INGo	International Non-Government Organization
IOE	Institute of Engineering
IOM	Institute of Medicine
IRG	International Resources Group
ISDR	International Strategy for Disaster Reduction
ITB	Institute of Technology
ITC	International Institute for Geo-information Science and Earth observation
KMC	Kathmandu Metropolitan City
KVERM-APIP	Kathmandu Valley Earthquake Risk Management Action plan Implementation Project
KVERMP	Kathmandu Valley Earthquake Risk Management Project
LARED	Latin American Network of Social Studies on Disaster Prevention
LSAR	Light Search and Rescue
LSMC	Lalitpur Sub Metropolitan City
LWF	Lutheran World Federation
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MFR	Medical First Responder
MIW	Master Instructors' Workshop
ML	Local Magnitude
MOE	Ministry of Education
MOIC	Ministry of Information and Communication
MOFALD	Ministry of Federal Affairs & Local Development
MPPW	Ministry of Physical Planning and Works

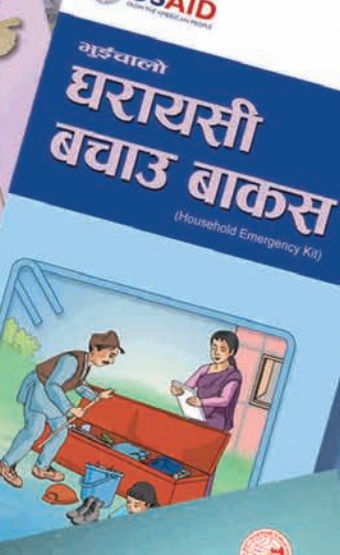
MT	Mason Training
NARL	Nepal Amateur Relay League
NATTA	Nepal Association of Tour and Travel Agents
NBC	National Building Code
NCDM	Nepal Centre for Disaster Management
NEC	Nepal Engineering College
NEFEJ	Nepal Forum for Environmental Journalists
NERMP	Nepal Earthquake Risk Management Project
NGO	Non-Government Organization
NIED	National Research Institute for Earth Science and Disaster Prevention
NRCS	Nepal Red Cross Society
NRRC	Nepal Risk Reduction Consortium
NSDRM	National Strategy for Disaster Risk Management
NSET	National Society for Earthquake Technology - Nepal
NWFP	North West Frontier Province
NWSC	Nepal Water Supply Corporation
OFDA	Office of Foreign Disaster Assistance
PEER	Program for Enhancement of Emergency Response
PO	Partnering Organizations
PPERS	Project for Pre-Positioning of Emergency Rescue Stores
3PERM	Promoting Public Private Partnerships for Earthquake Risk Management
RADIUS	Risk Assessment tools for Diagnosis of Urban Areas Against Seismic disaster
RED	Regional Education Directorate
RUDO	Regional Urban Development Office
SEEDS	Sustainable Environment and Ecological Development Society
SESP	School Earthquake Safety Program
SIDE	Support for International Disaster Education
TFI	Training for Instructors
TOT	Training of Trainers
TU	Tribhuvan University
UMN	United Mission to Nepal
UNCRD	United Nations Centre for Regional Development
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States International Development Agency
USD	US Dollar
VCA	Vulnerability Capacity Assessment
VDC	Village Development Committee
WCDR	World Conference in Disaster Reduction
WCEE	World Congress on Earthquake Engineering
WDMC	Ward Level Disaster Management Committee
WHO	World Health Organization
WSSI	World Seismic Safety Initiative

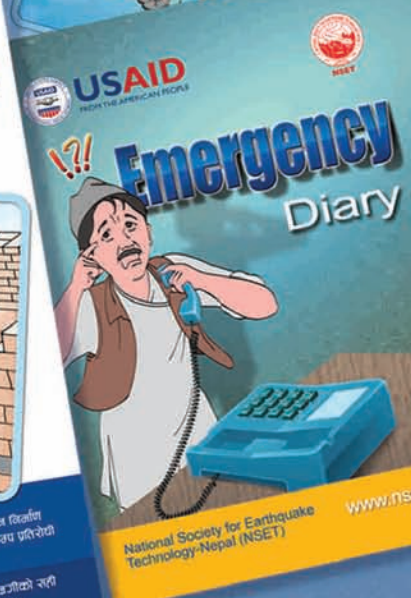
NSET Publication











National Society for Earthquake Technology-Nepal (NSET)

Sainbu V.D.C. Ward No. 4, Bhainsepati Residential Area, Lalitpur
P.O.Box: 13775, Kathmandu, Nepal
Tel: (977-1) 5591000, Fax: (977-1) 5592692, 5592693
E-mail: nset@nset.org.np, Website: www.nset.org.np