Safer Society

NSET Report 2013

NSET

National Society for Earthquake Technology-Nepal (NSET)

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Cover Photo (Front)
Retrofitting of School Building
Gorakhnath School, Kirtipur, Kathmandu

Cover Photo (Back)
Earthquake Safety Day 2013
National Meeting, Bhaktapur

June 2013

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Message from the President

Shiva Bahadur Pradhanang

We are here again with the NSET Report 2013. This report presents an account of NSET's efforts and the activities toward the enhancing disaster resiliency of Nepali communities during the past two years. The purpose is to share the knowledge and experiences and to get feedback and guidance for improving our work in the coming years. This publication is expected to assist DRR stakeholders to accurately evaluate NSET's work vis-a-vis it's stated mission and vision statements.

NSET strongly believes that earthquake resiliency of people can be achieved by enhancing their awareness, helping them to understand seismic risks, and providing them with simple methods in mitigating the risks using simple, easy to follow steps that they can implement everyday and internalize easy-to-follow guidelines. We are proud of our works with the wider acceptance of concepts, methodologies and safety measures NSET has been facilitating, developing or propagating for by the people in Nepal and the region; and also for the trust made in us.

On behalf of the NSET Board, I would like to thank all the agencies, civic groups and individuals for their engagement in our initiatives and engaging us in their programs of disaster risk management. I reiterate NSET commitments to continue to strive towards making our communities safer.

Together we definitely can !

Thank you!

Statement of the Executive Director

Amod Mani Dixit

National Society for Earthquake Technology – Nepal (NSET) is now celebrating 20th year of its efforts to enhance seismic safety of Nepal and the region. Twenty years is a long duration for any organization to deliver or to die. NSET continues serving the people and the nation, with ever-increasing support received especially from communities, disaster management groups at wards and villages, local and central government institutions, schools and health centres, national and international organizations, and private citizenry. This support and trust on our work is the sole source of our motivation and dedication to do what we have been doing in the past 19 years.

This publication provides a glimpse of what and how NSET implemented disaster risk management works in Nepal and the region in the past two years building upon the knowledge and experiences gathered in the past decade. While reporting on the efforts, we do want to emphasize that much of the work has been done in collaboration with our national and international development partners. We want to express our sincere gratitude to the Ministry of Home Affairs (MoHA), Ministry of Urban Development (MoUD), Ministry of Federal Affairs & Local Development (MoFALD), Kathmandu Metropolitan City (KMC), Lalitpur Sub-Metropolitan City (LSMC), and a host of other agencies, DDC & VDCs, with whom we worked very closely; and also to USAID/OFDA, The World Bank, United Nations Development Programme (UNDP), European Commission Humanitarian Aid Department through DIPECHO Partners in Nepal who supported our efforts on Disaster Risk Management in Nepal. In addition, we are also thankful to NGOs/INGOs, CBOs and various communities in Nepal who continuously encouraged us to work in partnership. We are guided by national strategies, policies and Priority programs of added ministries. We hope for continued partnership in coming years - the task of making Nepal earthquake safer is not finished yet!

The past year has further strengthened our confidence that disaster risk reduction can be successfully achieved at very high level of benefit-cost ratio even in a weak-economy country that has been suffering since long from economic problems and social unrest. We are proud to state that the outgoing year further demonstrated continued sustainability of several of our initiatives such as School Earthquake Safety Program (SESP), Municipal Earthquake Risk Management Program, Earthquake Safety Day, Mason Training, Earthquake Mobile Clinics, airing of earthquake safety tips over FM radios, nation-wide radio drill on Drop, Cover and Hold, and so on.

Our experience in the past two years has further consolidated our views that earthquake safety means one more school building made earthquake-resistant as per the Nepali National Building Code, one more school having an earthquake preparedness and evacuation plan, one more community with prepositioned light search and rescue equipment, one more community club given the skills in first aid, and one more "mother's group" given orientation on earthquake preparedness and how to make your home safe against disaster, one more industry deciding to start business continuity planning, one more team of formal emergency responders given skills in adult training on Medical First Responder (MFR(andCollapsed Structure Search & Rescue (CSSR), one more hospital fixing the identified structural on non-structural vulnerabilities to earthquake. We are convinced that earthquake risk reduction can be achieved step by step, by persistent effort, incrementally.

Past year has remained instrumental in reaching to broader communities through massive awareness campaigns: both the electronic and print media. 20 radios from east to west are now very much engaged in organized ways to inform and educate people on DRR/ERR and also strengthening community voice demanding safety against disasters. We have been able to work with private sector buiness in Disaster Risk Reduction initiatives to a certain extent, and the efforts are now on to streamline and broaden the PPP concepts in DRR.

NSET understands that mere development of methodologies and implementation of successful model projects is not enough; most important is scaling up and institulization of programs and approaches in order to achieve the goal of earthquake safety for all. Accordingly, we have redesigned our programs to expand outreach and partnerships with local institutions throughout the country.

I would again like to thank all our international and national partners for the continuous support they have provided in our quest to make communities safer. Last but not the least, I express my gratitude to the 72 NSET staff who have learned to work with one vision to serve the country and the people; I continue learning and getting inspiration from them.

Impressions of Shaketable Demonstration
Students' Summit on Earthquake Safety 2012
Gaindakot, Nawalparasi

Table of Content


भूकम्प अध्ययन सामुदायिक केन्द्र
Community Earthquake Learning Center (CELC)
NSET
NSET-NEPAL

About NSET

NSET is a community of Nepalese professionals belonging to various physical and social sciences related with aspects of earthquake disaster risk management. It is a multidisciplinary professional society registered with the Government of Nepal as a Non-Government Organization in 1994.

Vision

Earthquake Safer Communities in Nepal by 2020

Mission

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 the purpose.
- To advocate for favorable 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 Accomplishments

(During 1997-2012)

Looking back at the year 2012-2013

The year 2012-2013 was a comprehensive and a remarkable year for NSET. With support and collaboration of different organizations NSET has been conducting various activities in order to generate capable resources to be safe and save lives from earthquakes, likewise it has also been conducting various earthquake resistant construction technology training for the masons, mobile earthquakes clinics etc. The year 2012-2013 marked several significant achievements and learning steps in earthquake risk reduction in NSET.


USAID
Public Private Partnership for Earthquake Risk Management (3PERM)
Private Sector Engagement in Post Urban
Regeneration Program in Kathmandu City Core


USAID
GEM
South Asia Participatory Workshop of
The Global Earth
March 1, 2013

Chapter 1

Reducing Earthquake Risk

Nepal occupies the 11th worst position globally in terms of relative vulnerability to earthquake (Reducing Disaster Risk: A Challenge for Development, UNDP/Bureau for Crisis Prevention and Recovery, 2004). The risk is growing unabated. The NSET estimates in 1998 of 40,000 deaths and 95,000 injured to the extent of hospitalization due to a scenario earthquake (IX MMI) in Kathmandu (Kathmandu Valley Earthquake Risk Management Action Plan, NSET, 1998) have later in 2010 been re-estimated by NSET to 100,000 deaths, 100,000 serious injury and 200,000 moderate injury for the same scenario earthquake of MMI IX shaking. While NSET, with support from USAID/OFDA, and many other partners, has been advocating and successfully implementing earthquake risk management initiatives, and there are many more programs implemented by various DRR stakeholders, there still are conspicuous gaps in improvement of seismic performance of new consturctions, and in earthquake preparedness for medical and emergency response.

Earthquake awareness has increased significantly no doubt, and it has also created more demand for knowledge and support for earthquake risk reduction, especially by the community, local governments, schools, and municipal wards etc. There is a marked increase also in the level of interest of other stakeholders including the private sector, international development partners, and central government agencies. There is a moral responsibility on NSET to be able to assist agencies in addressing the needs; the concern is not only carrying the process forward, but also to guide the process properly so that the achievements made and lessons learned are used properly.

Nepal Earthquake Risk Management Program (NERMP II)

In order to ensure continuation of the momentum generated so far and to help Nepal to shift emphasis from achieving “Islands of successes” to “Proliferation of DRR by institutionalization” NSET is implementing the Nepal Earthquake Risk Management Program, Stage II (NERMP II) with the funding support from Office of the Foreign Disaster Assistance (OFDA/USAID). NERMP II is in part a follow up of the NERMP Stage I which was implemented during October 2005 to December 2010 to continue the Earthquake Risk Management (ERM) efforts in Nepal and to implement selected activities in selected communities. The program allows NSET to provide technical support to the efforts of other agencies wishing to invest in ERM in different parts of

the country. The success of the program has encouraged NSET and OFDA/USAID to continue the efforts.

This program now seeks to consolidate the gains of the NERMP Stage I, with modifications, updating and refinements based on the lessons and findings of the first phase. There are new activities also; some of the activities are intended to continue supporting concerned government agencies at central or local levels in building capacities in earthquake risk management, so that they could address the need for scaling up the efforts to make it prolific as well as cost-effective, mainstreaming risk reduction at all levels of development planning and implementation.

"The program aims to contribute on improved earthquake disaster resilience of Nepal"

The program aims to contribute to enhancing earthquake disaster resilience of Nepal through increasing disaster awareness of people, communities and institutions, and enhancing capacity for implementing disaster risk reduction measures; reducing disaster risk of urban areas, public infrastructures, 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 with approximately 1,67,986 people including engineers, architects, technicians, construction stakeholders, students, parents and common citizen as its direct beneficiaries.

Female masons trained in Earthquake resistant construction for the first time, Kathmandu, Sep. 2012

ACHIEVMENTS (2011-2012)

- Orientation on earthquake awareness to various construction stakeholders
  - 34 Orientation programs, 1395 benefitted (330 engineering professionals, 315 earthquake affected people, 525 members of DDRC and DDC, 122 social leaders and local CBOs and 25 BDS members, 78 members of women groups)
- Training programs for different target groups on earthquake-resistant construction technology
  - 17 Masons Trainings (MT) conducted – 519 masons trained including 34 female
  - 11 Engineers/ Architects Trainings (EAT) conducted – 266 engineers trained including 7 female
  - 5 'Owner Builders' Training (OBT) for house owners – 168 house owners including 3 male
  - Others - 2 Community Based Disaster Risk Management Training (CBRMT), 1 School Based Disaster Preparedness (SBDP), 1 Training for Instructor (TFI)
- Assistance to 3 municipalities outside the Kathmandu Valley in Building Code Implementation (BCI)
- 36 Earthquake Mobile Clinics (EMC) covering 450 households
- Seismic vulnerability assessment of 60 buildings of 15 different institutions
- Disaster safety of 9 communities enhanced through awareness campaigns, trainings and institutionalization of the method in the local governance system
- 12 interactions programs including advocacy meetings, consultation meetings and workshops for policy advocacy
- Structural improvement in 9 schools with training and awareness programs as a complete package
- Disaster preparedness planning, earthquake drill and awareness in 30 schools
- Hospital Earthquake Safety Program (HESP) in 5 health institutions of Kathmandu valley focusing on non-structural vulnerability reduction and stable water supply
- Campaigning through Television/Radio and Print Media
- Preparation of Urban Disaster Risk Atlas with eqarthquake risk assessed for 58 municipalities
- Assisting the municipalities in the formulation of Emergency Response (ER) plans and Standing Operational Procedures (SOP)s for enhancing Emergency response (ER) capacities
- Distribution of Earthquake Preparedness kits - 1,000 “Go Bag” and 100 “Emergency House Hold Kit” to families for earthquake preparedness at household level
- Institutional strengthening of NSET

Challenges

- Scaling up the efforts
- Institutionalization of the processes

Assisting Municipalities in Building Code Implementation

The National Building Code (NBC) was endorsed by Government of Nepal 10 years back but its implementation at Municiaplity level has been progressing very slow. NBC provisions are instruemental in enhancing safety level of building constructions and hence developing safer settlements. Very few of the 58 municipalities have formally enetered into the process of NBC implementation. In the meantime, the government has declared 41 more urbanizing settlements as municipalities. Rapid urbanization in all those settlements is increasingly creating more vulnerable buildings and the need of NBC implementation is ever deepening and broadening.

The increase in seismic vulnerabilities is mainly due to poor construction practices with no earthquake safety consideration, and lack of awareness among the general population and authorities. Also, infrastructure development initiatives in the rapidly growing urban centres have not been able to adequately address the earthquake risk. In many cases, even development activities have inadvertently contributed to increasing the risk. The concept of Risk-Sensitive Landuse Planning and Implementation is yet to take roots in Nepal.

Since most of the 58 municipalities of Nepal are also the headquarters of administrative districts, the importance of earthquake risk management at that level becomes very important because of the likely participation of all district level development authorities and donor agencies in the process. Also, any awareness program for earthquake risk mitigation or preparedness in these municipalities can easily spill over to the surrounding villages. As the masons and labour involved in the construction of buildings or other development works in urban areas mostly come from the surrounding hinterland, training of masons in seismic construction directly affects the construction culture of rural areas as well.

In this context, NSET is implementing the Building Code Implementation Program (BCIPN) in 24 municipalities with funding support from the USAID/OFDA. Project duration is August 2012-July 2015. BCIPN envisions building upon and consolidation of the experiences, achievements and lessons learned from our pilot initiatives of assissting Lalitpur, Banepa, Dharan and Vyas municipality in the past decade in building code implementation.

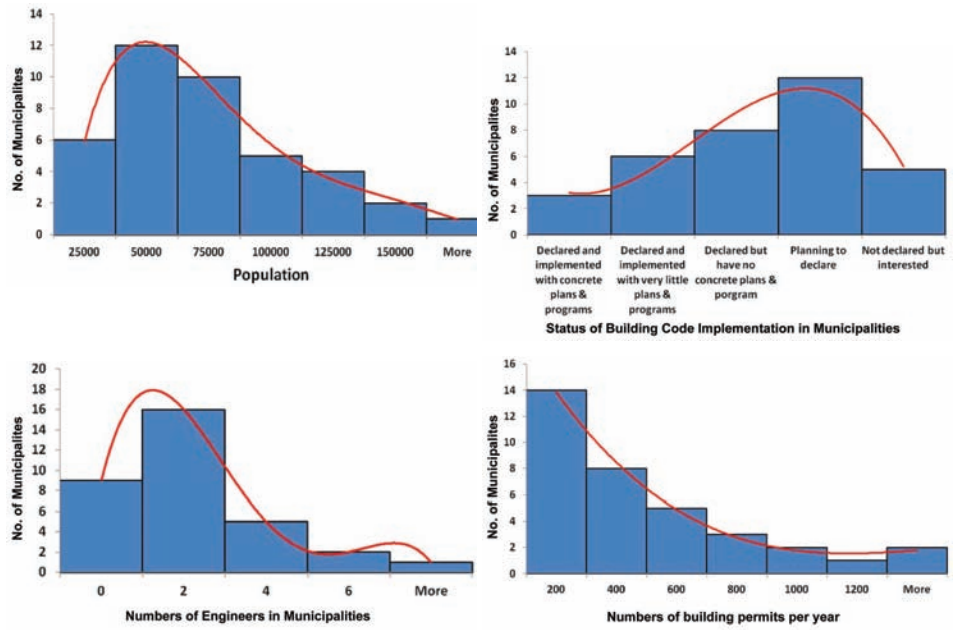
The main goal of BCIPN is to encourage effective compliance to and enforcement of the National Building Codes. The project aims to forge close partnership among the municipal authorities and other key role players of the society in making their settlements earthquake resilent in the long run.

This 3 year program has the following focus:

- raise awareness on the importance of implementation of building safety regulations effectively to reduce the risk of life and property losses due to earthquakes
- develop capacity of municipal officials to implement building safety regulations effectively
- develop policy recommendations on improving the safety of houses

Towards the implementation of the program, NSET is currently developing baselines for understanding the realities of Building Code Implementation in different municipalities. In this context, a team of NSET professionals led by NSET Executive Director Mr. Amod Mani Dixit had visited 33 municipalities and one V.D.C from east to west of Nepal for in depth interaction. The process of municipality selection is now ongoing in consultation with the Project Steering Committee.

Interaction meeting in municipality to understand the ground realities of building code implementation



Existing situation of municipalities in Nepal (observations from recent baseline survey)

An elaborated monitoring and evaluation system, built-in exit strategy and longevity of program activities and results are the main characteristies of BCIPN. Close consultation with the Department of Urban Development and Building Construction has already ensured dividend - a National Program of Building Code Implementation is being discussed of which BCIPN could be the pilot.

Seismic Vulnerability Assessment and Retrofit Design of Buildings

Various studies on the seismic vulnerability of Nepal have revealed that more than 60% of the buildings in Kathmandu valley are unsafe and extremely vulnerable to the large impending earthquake. In recent years, NSET has been involved in earthquake vulnerability assessments of hundreds of private and public buildings in Nepal, including both load bearing masonry and reinforced concrete moment resisting frame buildings with masonry infill. Out of about 100 building assessed in Kathmandu 30% have acceptable level of Life Safety and remaining 70% of the assessed buildings need seismic strengthening to improve their performance at large scale earthquake of intensity IX. 55% of the assessed buildings are reinforced concrete frame building, mostly rented out to international experts and 45% of the buildings are masonry, majority of them are government school buildings. The vulnerability is particularly due to irregularities in plan and elevation, non-uniform distribution of shearwalls/infill walls, disproportionate door and window openings and above all poor construction practice and lack of attention to seismic details.

NSET Staff assessing seismic vulnerability of buildings, Kathmandu, 2012

Considering retrofitting need of existing buildings at large scale, strong commitments and specific procedures are very much desired from government level as well as all other stakeholders.

Since 70% of the buildings proved to be weak, the challenge remains in seismic strengthening of those buildings. Retrofitting of the buildings at individual or personnel level is virtually nil and it was found that the landlords in general decline to undertake any kind of intervention; rather they look for other renter who do not demand seismic safety of the building. As the government is in a drive of increasing seismic safety of school buildings, many government school buildings that were assessed are now under implementation of retrofitting phase, some completed construction and some yet to complete. All this process has definitely brought the general local people to some level of awareness as they are now more conscious towards seismic safety of new constructions and seek technical assistance.

Considering retrofitting need of existing buildings at large scale, strong commitments and specific procedures are very much desired from government level as well as all other stakeholders. Implementation of the retrofitting process by individual house owners is apparently difficult mainly because of lack of awareness and technical understanding. Developing a quick reference guide on retrofitting of private and public buildings is likely to solve the present problem to a large extent. This will help the general public in understanding what retrofitting is about and how much it would cost.

So far NSET has an experience of seismic strengthening of more than 100 masonry buildings up to three storey and a few reinforced concrete frame system residential buildings. Though new materials and technology was tried at times, the conventional method of Jacketing or Splint and Bandage using GI wire mesh or steel with concrete or plaster has remained as the most appropriate method in terms of technical and economical feasibility. This is for masonry as well as for RC frame low rise buildings up to three storey. NSET next targets producing such guideline which is doable and applicable towards effective earthquake disaster mitigation.

Training on Vulnerability Assessment and Damage Assessment of Buildings

Considering the weaknesses in majority of building stocks in Nepal, training programs on Seismic Vulnerability Assessment and Damage Assessment have been designed and conducted to group of engineers. The training curricula have been designed to provide training to civil/structural engineers and practitioners on seismic vulnerability assessment of existing buildings in Nepal. It is a three days training package provided by experienced professionals engaged in seismic vulnerability assessment of existing buildings from NSET. Training materials are prepared based on NSET experience on assessing over three hundreds of private and institutional buildings in Nepal and available draft guideline on "Seismic Vulnerability Evaluation Guideline for Private and Public Buildings, Part I:Pre Disaster Vulnerability Assessment" for the building types in Nepal.

The training provides guidance on seismic evaluation procedure of common building types in Nepal and the region by qualitative method and enables participants to determine the probable performance of the assessed building in large scale earthquakes. The training participants learn the basic steps of seismic vulnerability assessment of a building and determine whether the building is within the acceptable limit of Life safety or needs demolition/ seismic strengthening. It is deemed that the use of the training manual will promote consistency in assessing the structural performance of existing buildings in earthquakes which was validated by past earthquake experiences. The outcome of the evaluation further helps the house owners and their engineers to find a suitable means to mitigate the damage in case the probable performance of the existing building in large earthquake is found not within the acceptable limit of Life Safety. The course contains 50% theory, 35% practical exercises and remaining 15% case study.

Similarly, a training package on damage assessment has been developed to impart skills to assess the damaged buildings in earthquake affected areas. Training manual on Damage Assessment has also been developed for post-disaster seismic evaluation which includes survey form for recording damage observations and providing recommendation for further actions. It includes processes of rapid and detail evaluations and discusses various likely damage patterns of the buildings and vulnerability or damage grade related to different damage patterns.

Pilot course on both the training courses on Seismic Vulnerability Assessment and Damage Assessment were conducted under the UNDP/CDRMP/Building Code Implementation project. The importance and need to develop national capacities of post-earthquake damage assessment became evident after the September 2011 Sikkim earthquake that affected eastern part of Nepal; Different agencies conducted damage evaluation of buildings while there was felt lack of a standard procedure. After the test course, a couple of trainings were conducted on Vulnerability Assessment. These trainings gave added benefit to the participants as they could learn vulnerability factors of the building, which is important to understand even for implementing new design and constructions.

Glimpse of training conducted on Earthquake Demage Assessment of buildings for Engineers, Lalitpur, Nepal 2012

Chapter 2

Enhancing DRR Planning and Implementation

Proper planning delineates the clear path of action. Benjamin Franklin is right to mention - if you fail to plan you are planning to fail. Planning is all about depicting complete picture of what, how and with what effect the activity is to execute! It's not the plan that is important, it's the planning. Planning is key to successful implementation of DRR actions. NSET is very much involved in enhancing DRR planning and their successful execution at community to local to regional and national level.

NSET has been managing disaster database which is the baseline for DRR planning. Adopting and utilizing most effective concepts and methodologies of traditional wisdom and scientific studies as well as tools and techniques to analyze for the purpose of deriving accurate solutions is what NSET strongly believes in. To more comprehensively prevent, prepare, respond to and recover from natural hazards, NSET is helping districts, municipalities and VDCs develop a Disaster Risk Reduction Master Plan. This is however complex and comprehensive process of series of multi stakeholders' consultations. NSET is also imparting knowledge and skills to community actors to assessing vulnerabilities and capacity and utilize that in preparing DRR plan of the community.

The DesInventar Database for Nepal Disaster Information/ Inventory Management System in Nepal

NSET with financial and technical support from UNDP in the year 2003 and with a consensus decision made in a workshop on disaster database established a systematic data inventory of natural disaster events in Nepal. A standard data collection format was developed and used to capture the data from different sources and entered into the DesInventar System. The effort concluded preparing comprehensive database of all disasters occurred during 33 years (1971-2003). Later, NSET continued to update the data on regular basis with its own resources for subsequent years. Up to date data is available in the DesInventar database at www.desinventar.net.

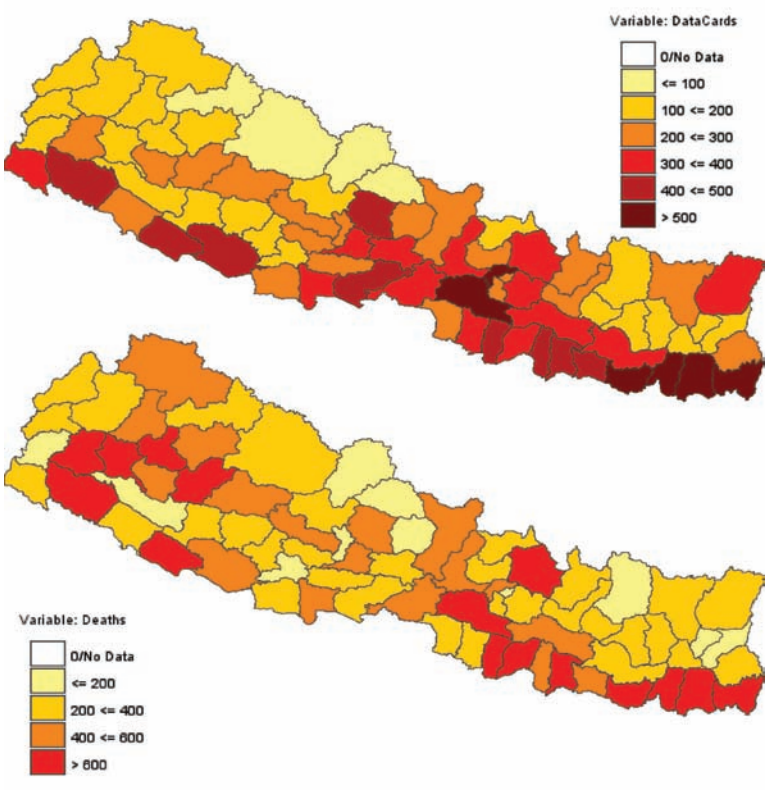
DesInventar is an inventory system to register data about characteristics and effects of diverse types of natural disasters, from global or national scales and or local level. This includes a software system with two main components a) DesInventar

module – which is regional and structural database through which the data is fed by filling in predefined fields and b) DesConsultar module that allows access to the database by queries that may include relations among the diverse variables of effects, types of events, causes, sites, dates, etc., including queries with tables, graphics and thematic maps. This was developed and successfully implemented by The Social Studies Network for Disaster Prevention in Latin America (LARED)

The DesInventar Database of Nepal collects the information from published print media (ie; daily newspapers) on daily basis. The information is refined with different level of verification. The attributes of such of the date includes- (hazard) type, cause, occurrence date, administrative location of the event. In addition to this, the system collects information on numbers of housing destroyed and damaged, number of affected population. The impact of event is also recorded.

Nepal DesInventar database includes attributes on the identified 28 types of hazard. As per their source of origin, these hazard types as they appear in the system are further categorized broadly into six categories if the events for the present purpose of categorization. In the database, different types of losses are recorded, as a) reported loss due to particular event, which is directly mentioned in the source of information, and b) calculated loss which is an estimate of the total value of property/infrastructure losses associated with each event.

DesInventar gives an opportunity for understanding of local level hazards and vulnerability for planning. Many organizations have been using this database for the hazard and disaster loss profile for national to local level (country profile to VDC/Municipality profile) for different types of hazards and associated loss in terms of casualty and other physical property. The application of disaster inventory information management system called DIMS has been taking significant role in disaster loss awareness for policy and decision makers as well as in academia.



Occurence of natural disaster events in Nepal 1971-2012

Loss of human lives due to disasters in Nepal 1975-2012

Data Source: DesInventar, www.desinventar.net

Strengthening Risk Sensitive Land Use Planning and Implementation (RSLUP) in Nepal

Kathmandu Municipality is facing a number of problems related to its growing population. One major issue of the city is congestion due to high population density. Population density in the city had crossed over 1,000 persons per hectare in some wards particularly in the city core area. This has resulted in several collateral concerns such as increased traffic, high level of waste generation, and increased demand for urban services and facilities. In relation to seismic hazards, most buildings are old and made of stone, brick and mud whose structural elements are unlikely to withstand strong shaking leading to their damage or structural collapse. Some buildings stand near river banks (Bagmati, Bishnumati and Dhobikhola) that are prone to liquefaction.

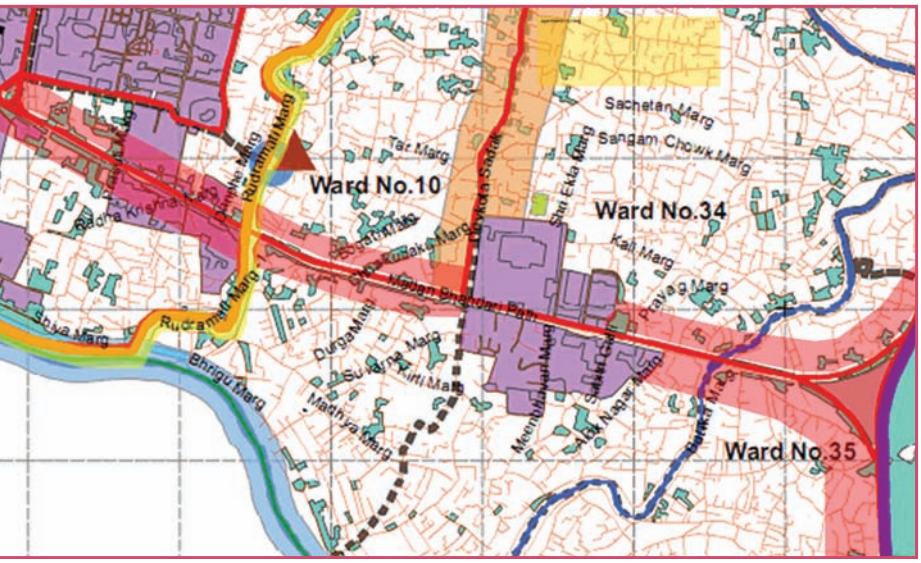
In 2010, the Kathmandu Metropolitan City prepared its first draft of risk sensitive land use plan (RSLUP), along with the KMC Sectoral Profile and Preliminary Zone Ordinance; these were products of a series of activities undertaken in two phases of a project titled "Disaster Risk Reduction in Megacities – A Pilot Application in Metro Manila and Kathmandu." The two phases were a collaborative undertaking between Kathmandu Metropolitan City (KMC), Earthquakes and Megacities Initiative (EMI), and the National Society for Earthquake Technology - Nepal (NSET), with support from the German Federal Foreign Office (FFO) through the Deutsches Komitee Katastrophenvorsorge (DKKV).

The Phase 1 of the project included the production of vulnerability and risk maps specific for Kathmandu City. These sets of information formed the bases for determining the implications on the future development and land use of KMC. Phase 2 of the project, included the development of a risk sensitive land use plan for KMC undertaken between June 2008 to January 2010

In 2011 NSET and EMI were again engaged by UNDP to provide Technical Services for Strengthening the Risk Sensitive Land Use Planning and Implementation (RSLUP) in Nepal.

The primary aim of the engagement was to provide technical support for the integration of risk-sensitive land use planning in local development processes and building by-laws primarily in KMC and draw from the learning process ways to extend risk sensitive land use planning to selected municipalities in Kathmandu Valley. The activities undertaken for the strengthening of RSLUP were; Review and consolidation of KMC RSLUP; Framework Development for RSLUP; Training and Capacity Building and Identification of Priority Areas for RSLUP formulation

Hence it is important to refine the RSLUP of KMC and use it as a continuing step to provide a better understanding of the planning process, institutions involved, plan outputs, review and approval process, and implementing tools to ensure a blueprint towards sustainable urban development of the Kathmandu Valley, including the municipalities, and the VDCs.



Blow Up of Indicative Location of the Proposed Commercial Strip

Development of Urban Risk Atlas for Municipalities of Nepal

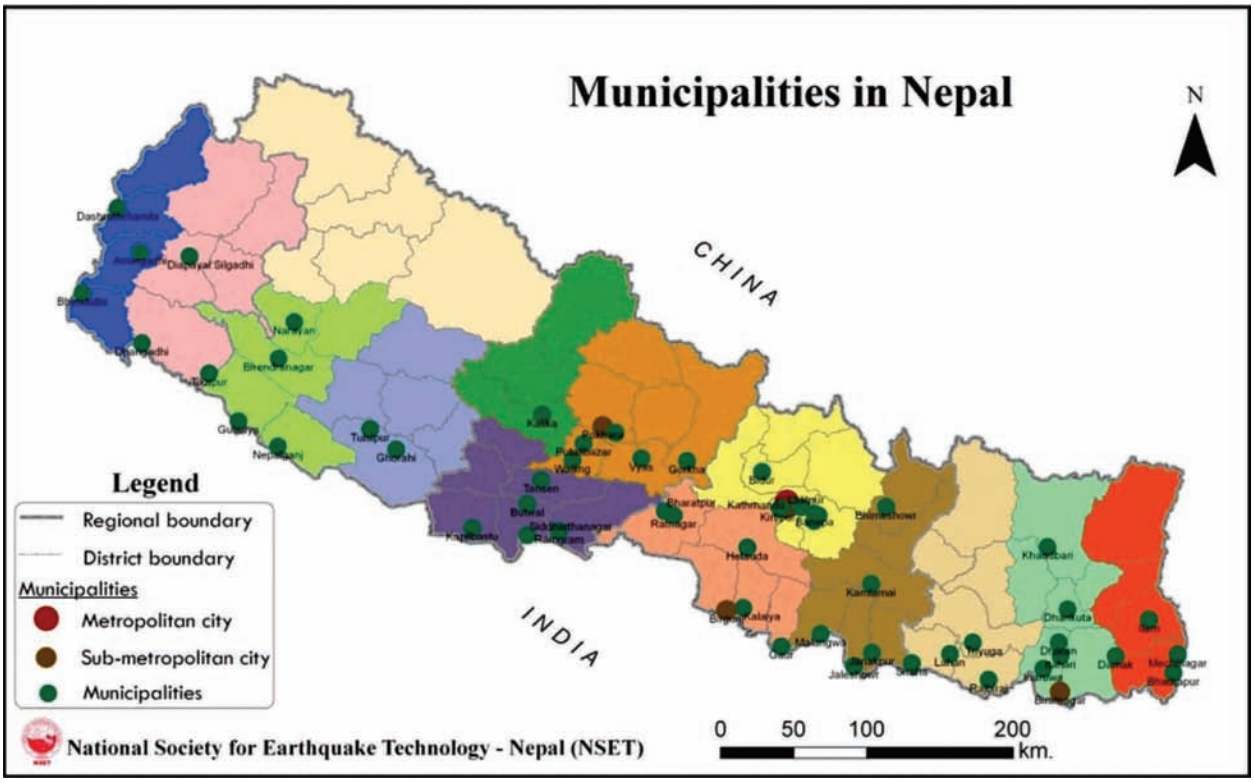
Urban Risk Atlas (URA) for municipalities of Nepal is one of the innovative task carried by NSET among many of its activities. The concept is to give an comprehensive idea in terms of disaster risk for each municipality and communicate the risks to local governments, affected communities as well as interested general public. The objective to develop the Atlas is to help decision-makers to increase disaster risk awareness and consider natural disaster hazards in their development projects (spatial, economical, infrastructure and social) to avoid, prevent and mitigate disaster risks at municipality level.

Atlas to be created for municipalities of Nepal unites good practices in DRR and DRM. Included maps have been developed according to the modern technologies and methodologies. This initiative incorporates the contribution from different agencies, university efforts and many other government and non-government institutions in terms of data sharing.

The key beneficiaries of the URA, are the national agencies working on DRM, local authorities responsible for local development, affected communities in risk zones, business sector, general public and other interested parties.

The main benefit of the approach is that the beneficiaries can obtain the information on qualitative dispersion of risks in the space that allows them to plan adequately their activities and implement natural disasters risk management activities at local level.

NSET has planned to complete earthquake risk assessment of existing all 58 municipalities of Nepal within the period of 2011-2014 and publish the outcomes in the form of an Urban Risk Atlas. Simplified risk assessment tool - RADIUS together with some other GIS models have been employed.



Municipalities in Nepal

Disaster Preparedness and Response Plan of Kathmandu District for effective response

As per the request of the Ministry of Home Affairs (MoHA), Government of Nepal, and District Disaster Relief Committee of Kathmandu District, National Society for Earthquake Technology Nepal provided technical support for preparation of Disaster Preparedness and Response Plan (DPRP) of Kathmandu District. This plan aims to help the district to minimize the injuries, loss of lives, property and development gains that is caused by different kinds of disaster like floods, landslides and epidemics every year in Nepal during the monsoon season as well as other hazards such as earthquakes, fire and others.

This plan has been prepared according to the planning guidelines endorsed by the MoHA. The DPRP prepared through discussions and consultations between all the stakeholders working on disaster risk management actively in Kathmandu District, Government Organizations and non-Government agencies, civil society, community representatives and political bodies under the lead role of the District Disaster Relief Committee.

Many formal and informal meetings were held and a Half day consultation workshop was organised by DDRC Kathmandu on September 2, 2012 , and the draft version of the plan was shared with district level stakeholders. Suggestions and recommendations received from the participants were incorporated in the Plan. The Draft version of the Plan has been submitted to DDRC for final comment. Once the comments received, final copy of the report will be submitted. The DDRC has planned the report to be endorsed and released by DDRC soon.

Similarly NSET is providing technical support to various other municipalities for developing Local Disaster Risk Reduction Master Plan such as in DHaran, Bhimdutta and Dhangadi Municipality.

Workshop on preparing local level Disaster Preparedness & Response Plan (DPRP), Dharan, Nepal 2013

Earthquake Safety Day (ESD)

Nepal observes Annual Earthquake Safety Day every year during 15 or 16 January (second day of the month of Magh according to Nepalese Calendar) in commemoration of the Great Nepal-Bihar Earthquake of 1934 by organizing different activities with the purpose of raising awareness on earthquake risk reduction and preparedness. Government of Nepal at NSET's request had declared this day as National Earthquake Safety Day (ESD) in the year 1999. Apart from creating awareness about earthquakes, another objective of the day is to share knowledge and information about safety measures and disaster risk management. It is, in fact, the culmination of earthquake risk management works implemented in the country in the preceding 12 months, and allows taking stock of the achievements and shortcomings. Every year since 1999, Nepal observes the ESD by organizing activities with the purpose of raising awareness on earthquake risk reduction and preparedness with wide participation of government organizations, municipalities, I/NGOs and local community. NSET manages ESD programs as a part of the national program, approved by the ESD National Committee, chaired by Hon. Minister for Home Affairs. Almost the whole month of Magh seems busy with earthquake related events in the country.

15th Earthquake Safety Day

Nepal marked its 15th Annual National Earthquake Safety Day (ESD) on January 15, 2013 with the main slogan:

"Earthquakes are unpredictable and can be deadly
Let's work together to save lives and property"

As in the previous years, week-long events were conducted this year also to observe ESD throughout Nepal as collaborative effort of various stakeholders under the leadership of Government of Nepal. Bhaktapur Sub Metro-Politian City hosted national programs this year.

Earthquake Memorial Meeting

To pay tribute to those deceased ones by past earthquakes in Nepal particularly those of 1934, 1988, 2011 and others many, 15th Earthquake Safety Day National Committee organized a Memorial Meeting at historical place of Earthquake Monument, Bhugol Park, New Road, Kathmandu in the morning of January 15, 2013. Deputy Prime Minister and Minister for Home Affairs Mr. Bijay Kumar Gachhadar, Home Secretary Mr. Navin Kumar Ghimire and number of distinguished personalities from various government, non-government and diplomatic missions extended heartfelt tributes and offered bouquets in the names of those victims.

Earthquake Safety Day National Meeting

Honorable, Deputy Prime Minister and Minister for Home Affairs, Mr. Bijay Kumar Gachhadar inaugurated the National Meeting of 15th Earthquake Safety Day 2013 amidst a large public gathering at Bhaktapur. Mr. Bijay Kumar Gachhadar also unveiled the Disaster Response Plan of Bhaktapur. Other dignitaries present on the occasion were Home Secretary Mr. Nabin Kumar Ghimire, Mr. Rammani Bhattarai, Chief Executive Officer of Bhaktapur Municipality and

Mr. Robert Piper, UN Resident and Humanitarian Coordinator along with various other high level government officials, UN agencies, donor agencies, national/international NGOs, academic institutions and the public as well as community organization.

Earthquake Safety Rally

Just prior to National Meeting, an Earthquake Safety Rally walked through inner city areas of traditional city of Bhaktapur. Various agencies joined hands together to exhibit their institutional as well as personal and community level commitments to earthquake safety promotion through awareness raising. Home Secretary Mr. Nabin Kumar Ghimire had flagged off to commence the rally.

Nationwide Earthquake Safety Drill

A nationwide earthquake safety drill: Drop, Cover and Hold exercise was conducted at 2:24 PM on the same day. A special siren was aired from Radio Nepal and other FM stations across the country as a notification of an earthquake. Everyone present in the meeting starting from the Chief Guest, other dignitaries on the dais to each and every individual in the audience performed this drill. After the drill everybody joined into a Human chain by holding hands as a symbol to express commitment towards earthquake safety.

Earthquake Safety Exhibition

An Earthquake Safety Exhibition was organized at Bhaktapur Durbar Square to disseminate information regarding earthquake risk reduction measures among the public. Honorable, Deputy Prime Minister and Minister for Home Affairs, Mr. Bijay Kumar Gachhadar inaugurated the “Earthquake Safety Exhibition” after concluding the national meeting. The distinguished guests also observed the stalls placed there by various governments, non-government and DRR related agencies.

National Symposium on Experiences on Earthquake Risk Reduction and Response

One of the key activities being continued from the very beginning of the annual earthquake safety day celebrations, the National Symposium on Experiences on Earthquake Risk Reduction and Response was organized during 10-11 January 2013 at The Hotel Everest, Kathmandu, Nepal. Honorable Vice Chairman of National Planning Commission Dr. Dipendra Bahadur Chhetri was the Chief Guest of the Inaugural Session and the session was chaired by Dr. Mahendra Subba, DG, DUDBC.

Street Drama : Ale Lale & Hami Banchyaun (We survived)

Shailee Theatre and Dabali Natya Samuha performed two different street dramas entitled ‘Ale Lale’ &“Hami Banchyaun” conveying the message of promoting Earthquake Safety amongst huge mass gathered at Bhaktapur Durbar Square where Earthquake Safety Exhibition was being organized and also in different parts of Kathmandu valley. Street Dramas have remained one very effective component of Public Awareness Programs.

Shake Table Demonstration

One of the major attractions of the Earthquake Safety Day, the Shake Table Demonstration was organized on January 18, 2013 amidst a huge mass at the Bhaktapur Durbar Square. It was jointly organized by Government of Nepal, Department of Urban Development and Building Construction (DUDBC), OXFAM, USAID and NSET.

Essay Competition (MeroSapanakoGhar- My Dream House) organized on the occasion of Earthquake Safety Day

The winners of the Essay Competition on MeroSapanakoGhar- My Dream House were awarded prizes. NSET had called for essay competition last year for schoolchildren on the occasion of 14th earthquake safety day. The title was given as MeroSapanakoGHar (My Dream House). The notice for the competition was circulated through Shiksyak Monthly (education magazine) and also through other informal sectors.

Earthquake Safety Walk”Walkathon”

As one of the concluding event for the 15th Earthquake Safety Day celebration, Earthquake Safety Walkathon was organized on January 19, 2013 in the morning at Patan starting from Lalitpur Sub Metropolitan Office. The event was jointly organized by Government of Nepal, Lalitpur Sub Metropolitan City and NSET in association with NRCS, Oxfam, LWF Nepal and Panchakanya Group.

Earthquake Safety Day (ESD) activities outside Kathmandu Valley

Apart from the National program various other programs were organized all over the country on the occasion of 15th Earthquake Safety Day.Government of Nepal along with various other organizations working in the field of Disaster Risk Reduction took the lead in organizing the events.

Earthquake Awareness Programs

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

The earthquake risk of Nepal is extremely high. What happened in Haiti, Pakistan, China and Japan during recent earthquakes give clear indication that Nepal may witness a death of tens of thousands of people and destruction of development achieved during the past hundred years in case of major earthquake. We cannot stop earthquakes to occur; the only way to reduce the risk is increasing the capacity of potential victims to cope with its impact. Capacity means the capability of individuals or communities to reduce the impact during an earthquake, which comes through awareness and preparedness. Considering this fact, NSET is focused on earthquake risk reduction through awareness and preparedness activities.

NSET believes that raising earthquake awareness is a major component for bridging the knowledge gap. Awareness helps to eradicate myths and fallacies and communities can be convinced of the impending seismic risk and also on how risk can be reduced. NSET along with many professional organizations has been working for earthquake awareness and preparedness using several innovative methods and means as listed below. This has raised significant awareness and enhanced the capacity among the commoner people and the policy makers.

Awareness Programs for Individuals and Institutions at NSET

- Orientation programs on Earthquake Safety
- Earthquake Mobile Clinics
- Shake Table Demonstration
- Earthquake Safety Day
- Friday Free Earthquake Clinic
- Earthquake Vulnerability Tour
- Media Activities: Radio/Television, Print Media, Developing IEC Materials

Chapter 3

Safer Schools

The reason why we need to emphasize disaster safety of schools is quite obvious. They dwell comparatively much higher population density under single roofs which simply projects the potential loss of lives in case devastating disasters were to occur. Children are the highest proportion in that population mix, while the children are the group at need of special attention in disaster events. Schools can serve as emergency shelters during adversities. And also, how quickly schools resume their normal routines helps community to bounce back in post-disaster situations. Further, almost everywhere in this globe, schools are the most effective hub to reach and disseminate knowledge and skills of community resiliency.

The findings of the survey of public school buildings of the KV earthquake carried out in 1998 were very alarming: as much as 60% of the public school buildings were identified as highly vulnerable. This situation urged NSET to implement vulnerability reduction programs in schools, which led to a pilot program of retrofitting of one of the public schools in a rural area of Kathmandu Valley in 1999.

Despite the high risk of earthquakes, school construction practices in Nepal usually ignore technical aspects of structural safety. Over 66 percent of the valley's public schools are likely to collapse if they were to experience intensity IX shaking. Estimated casualty figures for a scenario earthquake of IX MMI shaking during school hours in Kathmandu Valley are: 29,000 deaths (students, teachers and administrative staff-12%), 43,000 seriously injured (18%), total collapse of school buildings (66%), partial collapse (11%), and 23% of the buildings will suffer from minor to moderate damage.

The findings led NSET to advocate for School Earthquake Safety Program (SESP) in Nepal. SESP has been very successful in terms of developing appropriate technical methodologies and procedures for community-based implementation. The effort has demonstrated technical, economical and socio-cultural feasibilies of enhancing earthquake performance of about 44 public schools in Nepal located within the Kathmandu Valley and in districts located at various physiographic regions of Nepal from the high Himalayan settlements to the plains of Terai in the south. However, there are more than 34,000 public and private schools in Nepal, with their more than

82,000 buildings; and the challenge is to scale up the process of enhancing earthquake safety of schools for which institutionalization of the concept of SESP is necessary.

In 2010, the Government of Nepal along with development partners in Nepal, identified school DRR program as one of the five flagship programs of Nepal Risk Reduction Consortium (NRRC). The Flagship Area 1- School and Hospital Safety, which is led by the Ministry of Education/ Department of Education and coordinated by the Asian Development Bank (ADB) includes structural and non-structural aspects of making schools and hospitals earthquake resilient. A national level consultation workshop comprising the Government, development partners, UN and related stakeholders was organized in 2010 July to shape school vulnerability reduction program in Nepal. This was the milestone of the government since then, they gradually took the ownership of SESP and in 2012 alone, SESP helped implement seismic retrofitting of more than 65 school buildings in Nepal.

"Schools are the best point of entry for propagating disaster risk reduction at community level"

Building Earthquake resistant community through intervention at school is at the core of NSET's School Earthquake Safety Program. SESP has been developed and implemented for making schools safer against earthquakes by 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.

Earthquake vulnerability scenario of Nepalese schools

Kathmandu Valley

In case of a IX intensity level of shaking similar to that of 1934 earthquake during school hour,

- More than 60% existing buildings are not strong enough to sustain and would collapse,
- Additional about 13% school buildings are in a condition beyond retrofitting and need to be dismantled,
- The life of more than 29,000 school children is under threat (death) and another 43,000 would suffer injury if earthquake occurs during school hour.

National Scenario

In case of IX intensity level of shaking in any part of the country during school hour,

- 75% of the existing school buildings would be collapsed out of which about 15% is not in a condition of retrofitting, hence need to be demolished.
- About 1,11,000 school children could lose their lives and another 6,00,000 would suffer injury in-case of earthquake during school hour.

Source; Enhancing Earthquake Safety of Schools in Nepal (NSET/GFDRR publication)

Earthquake Preparedness in Schools (2010- 2012)

In the year 2010, in partnership with Department of Education, Regional Education Directorate, District Education Offices and through the funding support from UNICEF Nepal, NSET conceptualized a program called **Earthquake Preparedness in Schools**. The idea was to establish a system of earthquake preparedness in schools of Nepal that could serve as a replicable model to the entire country.

During the period of one and half years, NSET provided technical assistance to develop Master Trainers on earthquake preparedness in schools of Kathmandu Valley. A training curricula and a Training of Trainers (TOT) manual of 5-day master trainers and 3-day teachers training on earthquake preparedness were developed. DOE since has endorsed them as National curricula for wider implementation.

The program trained 81 Resource Persons (54 in Kathmandu Valley and 27 from eight district of the Eastern Region) through school based disaster TOT. A total of 2,580 numbers of teachers were trained at resource centre by these trained RPs under the leadership of DOE/RED/ DEOs. These trained teachers then conducted earthquake preparedness orientation to 12,000 teachers from 1,215 schools of 11 districts. A total of 2,43,000 students received 1-day orientation on earthquake safety and took part in the earthquake evacuation drill. Moreover to institutionalize the earthquake safety, student's earthquake safety club was established in 15 schools and light search and rescue materials and first aid kits were also prepositioned in five schools of the valley.

Students evacuating during the earthquake drill Nawalparasi, Nepal 2010

Developing a Strategy for Improving Seismic Safety of Schools in Nepal 2008-2010

NSET, through the support from GFDRR/ The World Bank, and in association with the Department of Education, Ministry of Education; Government of Nepal prepared a draft National Strategy on Improving Seismic Safety of Schools in Nepal. Two districts, Lamjung and Nawalparasi were selected for the implementation of pilot projects. The project implemented during August 2008- 2010 accomplished four major tasks such as:

Community people observing school retrofitting work, Nawalparasi, Nepal 2010

- Development of a sound understanding of the school systems including assessment of all school buildings of the two districts in terms of their vulnerability to earthquakes and identification of main weaknesses and possible structural and non-structural solutions for enhancing their seismic performance; SWOT analysis for school system,
- Development of earthquake risk scenarios for the school sector for serving as a basis for the formulation of a draft national strategy for enhancing seismic safety of schools in Nepal; formulation of a draft National Strategy for Enhancing Seismic Safety of Schools in Nepal.
- Implementation of seismic-resistant construction and seismic retrofitting of six school buildings to serve as demonstration models of good construction in the project localities. Several earthquake awareness and educational and training programs were implemented at the district headquarters and in the school localities for a variety of target groups including government officials, local residents, teachers and students, community based organizations and NGOs; and

Voices

Ms Kushum Bhandari
Student
Janaudaya Lower Secondary School, Sainbu, Bhainsepati, Lalitpur

"I was studying in Sindhupalchowk before joining this school; I did not know anything about earthquake safety before. After joining this school one year ago, I knew how to become safe during earthquake, what to do before, during and after an earthquake. I had shared this life saving technique with my brother, parents and other friend. I including my family members followed the technique of Drop, cover and hold during 18th September earthquake which helped me to become safer. I am concerned now because such programs are not conducted in all the schools of Nepal since almost all the schools are vulnerable to Earthquake. If possible, I request to conduct such program throughout the country. After learning such technique our friends will be safe from future earthquake."

- Identification of several replicable feasible actions that can be implemented in urban and rural areas of Nepal for enhancing earthquake safety of schools system

The total number of students trained directly under this program is about 7,000 and approximately 14,000 parents have received knowledge message on earthquake risk and ways of achieving disaster safety under this project. Approximately 1,107 school teachers have been trained in aspects of disaster safety and awareness. 124 masons received training on safer construction technique and retrofitting.

Capacity Development for School Sector Program Implementation

In June 2011, Ministry of Education, Department of Education (DOE), Asian Development Bank (ADB) with technical assistance from NSET conceptualized earthquake vulnerability reduction program to build on a 12-year long experiences of NSET in improving seismic performance of both school buildings and the school system of public schools mostly in Nepal. The idea was to retrofit all the vulnerable schools of Nepal by developing replicable potentials of methodologies. This is a pilot project being implemented in Kathmandu valley. The program started with the concept identified from the NRRC which identifies five flagship areas of intervention for disaster risk management in Nepal. Improving seismic safety of schools through structural and non-structural mitigation measures is one of them. The Department of Education implemented the pilot program 'Capacity Development for School Sector Program Implementation"for retrofitting of 15 schools in Kathmandu Valley during July 2011 to December 2011 with the support from the ADB and technical support from NSET. In continuation to this, Department of Education intends to scale up the retrofitting work every year. Currently, NSET is supporting DOE for retrofitting work of additional fifty school buildings of the valley.

TA- 7935-NEP. "Capacity Development for School Sector Program Implementation from ADB, a core expert group of NSET is providing Technical assistance to the DOE in planning and implementation of the school safety action plan support in assessment, design and supervision of 50 school buildings, develop manual on vulnerability assessment and retrofit design, training to 140 engineers, 400 masons, 500 teachers and 10,000 students.

Student observing the school retroffitting works, Kathmandu, 2012

Voices

Mr. Gangadhar Hada
Principal

"Kanya Secondary School has only one building and there is no space to construct other building as well. The existing building which is under retrofitting was constructed with poor design and material quality at foundation and ground floor level. School is in the core area of Bhaktapur with more than 400 students. If a residential building collapses only few numbers of people living in it suffer but if a school building collapse, hundreds of school going children will suffer. If Earthquake is to occur at a day time during school hour; life of 400 school students will depend upon the performance of this building. With the School Earthquake Safety Program being implemented; the retrofitting of school is under progress. We have also prepared Emergency Preparedness Plan and made all our students aware about what to do before, during and after the event of Earthquake. Now that the retrofitting of building was completed, We are living in more secure and safe building"

NERMP- School earthquake Safety Program

As a part of the regular ongoing program Nepal Earthquake Risk Management Program-NERMP II funded by USAID/OFDA, NSET is supporting different schools for retrofitting and reconstruction of vulnerable schools and also providing training to students, teachers, community people, parents and masons on earthquake safety.

Adarsha Saula Yubak Higher Secondary School, Sainbu, Lalitur was provided with technical assistance for making the school building safer from earthquake which covered detail design, quality assurance and construction management required for making the school safer. The construction of the two-storey RCC frame structure of the school was started in March 2011 and completed in December 2011. In the similar manner NSET is providing technical assistance for improving seismic safety of Daunne Devi Higher secondary School, Bardaghat, Nawalparasi and Saraswoti Higher Secondary School, Thakalmath, Bhaktapur. During the period, NSET provided intensive orientation and training on earthquake safety in 11 schools of Kathmandu valley. Awareness activities educated 1469 students and 89 teachers directly and 1600 household indirectly. Teachers were trained and schools were encouraged to prepare earthquake evacuation plan and conduct drill.

School undergoing construction, Daunne Devi Higher Secondary School, Bardaghat, Nawalparasi

Partnering with Nanyang Technological University (NTU)

NSET and DOE in collaboration with Nanyang Technological University (NTU), through Temasek Foundation are partnering in implementation of joint initiative on Training and Capacity Building on Seismic Strengthening for Master Trainers and Local Builders in Nepal" in the year 2012-2013. The objective of the project is to address and mitigate earthquake risks by promoting the use of strengthening technologies developed and implemented by Nanyang Technological University (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 included designing and retrofitting of six school buildings, on the job training to 120 masons on retrofitting, curricula development for engineers training and masons training and a 5-day retrofit design training for engineers.

Disaster Preparedness for Safer Schools in Nepal (DPSS)"

Based on the first phase experiences and outcome as well as realizing the extensive need of disaster preparedness in vulnerable schools in Nepal, Nepal Red Cross Society (NRCS) and National Society for Earthquake Technology-Nepal (NSET) have jointly been continuing the second phase of the program "Disaster Preparedness for Safer Schools in Nepal (DPSS)" with funding support from American Red Cross (ARC). The project started in February 2011 and is to last till January 2014.

Voices

Mr. Ram Prasad
Local Resident

Mr. Ram Prasad, Local resident, Gaindakot, Nawalparasi has employed trained masons from the school project for the construction of his new house, "I saw the earthquakes of Gujarat and Pakistan on television and large numbers of buildings were destroyed. Now I have decided to build my house with earthquake resistant techniques because I want my family and property to be safe. The masons involved in school construction are trained and I am sure that they can make my house safer. It is not difficult and there is no significant extra cost associated."

Student briefing on Emergency Evacuation Plan to Community People Devi Higher Secondary School, Bhaktapur

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.

The program includes 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, model of VDC level preparedness plan, district disaster preparedness plan, capacity building of local government/ technical staffs, community awareness and establishment of links between city/community preparedness plan and school preparedness plan. The second phase of the program envisions implementation of disaster preparedness training and disaster preparedness activities in selected schools of three districts in Nepal. DPSS II is being implemented in 220 schools. Among them, the program focused intensively in 55 schools (called core program schools) and the remaining 165 schools benefitted with orientations and trainings through the core program schools.

DPSS was conceptualized as a regional program proposed to be implemented in other 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 has been implemented in 50 schools from two districts of Nepal during the period of Nov 2009 to Oct 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 rescue, Vulnerability, capacity assessment and DP Planning were developed.

Wide incorporation of local stakeholder, government partners during implementation and high level of community acceptance demonstrated the DPSS program model as a sustainable and replicable one to other schools and community.

Practical excercise during Light Search and Rescue Training for School Teachers, Nagarkot, 2010

Disaster Preparedness for Safer Schools in Bangladesh

The DPSS program model is currently being replicated in Bangladesh. Bangladesh Red Crescent Society (BDRCS), IFRC Bangladesh Delegation & American Red Cross together with NSET are implementing the DPSS program in 50 schools of Dhaka and Rangpur Districts during the period of August 2012- January 2014. The program aims to achieve the objective that 30% of public schools participating in DPSS demonstrates greater safety through disaster preparedness and disaster risk; it strengthens community engagement and participation in disaster preparedness and disaster risk reduction to reinforce the resilience of schools participating in DPSS and enhances the capacity of BDRCS in school programming and UDRR planning, assessment and management to deliver trainings, raise awareness, implement disaster preparedness measures and advocate for standardization of disaster management in public schools.

First Aid Demonstration during drill, Agrani School and College, Dhaka, 2012

So far the program has developed several units of training curricula for School Based Disaster Preparedness (SBDP); Light Search and Rescue (LSAR); Vulnerability & Capacity Assessment (VCA) and Disaster Preparedness Planning (DPP) has been developed and 17 different trainings on SBDP TOT, Basic First Aid, Vulnerability and Capacity Assessment and Light Search and Rescue have been conducted based on the developed curricula for students, teachers & community members. Further Disaster Preparedness Plans for 20 Schools has been prepared.

Achievement during 2010- 2013

Sn	Activities	Number	Beneficiaries	Remarks
1	School Based Disaster Preparedness TOT	17	420	DOE, Unicef, NRCS, AmCross, IFRC, BDRCS
2	Light Search & Rescue Training	15	625	NRCS, AmCross, IFRC, BDRCS
3	Basic First Aid	69	1690	NRCS, AmCross, IFRC, BDRCS
4	School based VCA training	26	575	NRCS, AmCross, IFRC, BDRCS
5	Basic Disaster management training (3 days)	75	2150	NRCS, AmCross, IFRC, BDRCS
6	Teachers training on Earthquake Preparedness (3 days)	102	2770	DOE, Unicef
7	Student Orientation	1250	252000	DOE, Unicef, NRCS, AmCross, IFRC, BDRCS
8	Disaster Preparedness plan of schools	90	90 schools	DOE, Unicef, NRCS, AmCross, IFRC, BDRCS, ADB
9	Mason Training	5	152	DOE, ADB
10	On the job Mason Training	14	165	DOE, ADB, OFDA/USAID
11	Engineers Training	3	99	DOE, NTU
12	Evacuation Drill	1325	267200	DOE, Unicef, NRCS, AmCross, OFDA/USAID
13	Community Orientations/Visit	75	5000	NRCS, AmCross, OFDA/USAID
14	Partial Rectification	1	85	OFDA/USAID
15	Building Construction (Technical Support)	1	1200	OFDA/USAID

Source: Proposal of different projects under SESP combined results

Voices

Mr. Sanu Babu Gautam
Teacher

Mr. Sanu Babu Gautam, teacher of Janaudaya Secondary School, Bhainsepati, Lalitpur proudly shared, “We have won the battle against earthquake. We are feeling secured under the retrofitted school building. Our students and teachers are well trained and they know how to keep themselves safe during an earthquake.”

Students' Summit on Earthquake Safety (SES)

"Students' Summit on Earthquake Safety" is one of the integral component of NSET's School Earthquake Safety Program. NSET organizes the Summit annually since 2002 in association with the Government Agencies, NGOs, INGOs, UN Agencies; and Maiko High School Kobe Japan. It aims to enhance cooperation between the students of Japan and Nepal through learning experiences and sharing knowledge in disaster mitigation. The goal is to raise awareness for disaster preparedness among students, teachers, and other members of the community. The program is organized in the proximity of and in close collaboration with one of the schools that implemented SESP in that year. The program consists of educational, cultural, sports, social events that are geared toward enhancing friendship, understanding and sharing of disaster experiences.

SES 2012

"We the 150 participants of international Students' Summit on Earthquake Safety 2012, hereby pledge to make Nepal Disaster Resilient by reaching all families, Communities and settlements with disaster awareness message by 2032 A.D. We call upon all government, NGOs and private organizations as well as international development partners to join hands with us towards attending this common mission."

With this declaration the 3-day Students Summit on Earthquake Safety concluded on August 27, 2012 in Gaindakot, Nawalparasi.

NSET in association with Nepal Government, Ministry of Education, Department of Education with funding support from USAID, UNICEF, American Red Cross, Save the Children, OXFAM, Practical Action, Action Aid-Nepal, Plan-Nepal, Maiko High School Japan and Nepal Red Cross Society organized a 3-day Summit (SES2012) of 150 students from 39 public and private schools from all over Nepal during August 24-26, 2012 in Gaindakot.

Each school sent one female and one male student of Grade 7-12 plus one male or female teacher as a guide. Two teachers and 10 students of Maiko School, Kobe, Japan also attended the Summit at their own cost. Local Kalika High school and three local non-profits, namely, VDRC, Sahamati, and Trinetra co-hosted the meet. SES2012 fully achieved its three objectives:

a) propagate earthquake awareness all over Nepal using students as ambassadors,
b) share good national and international practices of school disaster preparedness, and
c) enhance fraternity among students through common understanding on disaster risk reduction.

The summit agenda included Awareness Rally, seminars for sharing of experiences in learning and implementing DRR, Excursions to several development demonstration sites such as community forestry, a retrofitted school, an old-age home, community cooperative, bee-farm that was supported by USAID, and a community radio station. An Earthquake Drill and a Shake Table Demonstration, and evening Cultural Shows by the participants were also in the agenda together with Creative Competitions on paintings 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 in Sendai, but were greatly encouraged by the fact that some of the participating Maiko High School students did work in east coast of Japan to assist the tsunami-affected children.

The Summit provided so much of enthusiasm to the participants that they wrote essays and poems expressing their commitments to DRR.

The SES2012 program was simple, but the impressions it made in the minds of 150 participants were everlasting. The DRR pledge the participants made in Summit Declaration will definitely make a big difference in making Nepal disaster-resilient. It is because the pledge came from children who are now confident of implementing the lessons on how to make their future safe against earthquakes.

Student Rally during the Summit

Friendship Soccer Match during the Summit

Publicatons

- Engineers Training (5-Day) on vulnerability assessement and retrofit design (DOE/ADB)
- Mason Training (5-Day)
- School based Disaster Preparedness (5-Day) English/ Nepali (NRCS/BDRCS/IFRC)
- 5-Day TOT manual on Earthquake Preparedness (DOE/UNICEF)
- 3-Day Teachers Training manual on Earthquake Preparedness (DOE/UNICEF)
- Light Search & Rescue Training (4-Day) English/ Nepali (NRCS/BDRCS/IFRC)
- Vulnerability & Capacity Assessment (3-Day) English/ Nepali (NRCS/BDRCS/IFRC)
- Earthquake Drill Handbook (English/Nepali) (NRCS/BDRCS/IFRC)
- Earthquake Drill Poster (DOE/UNICEF)
- Earthquake Safety Poster (DOE/UNICEF)

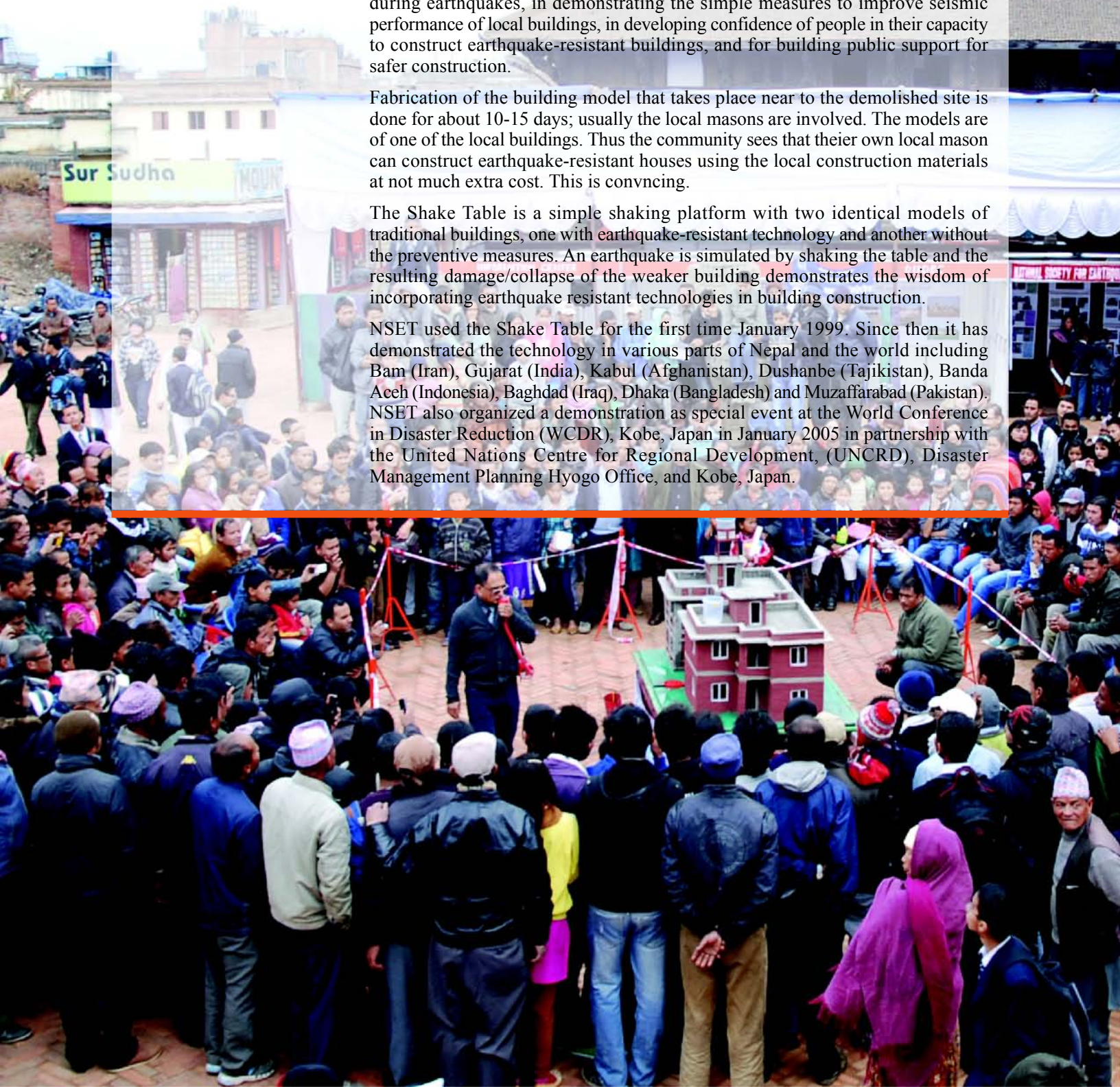
Shake Table Demonstration

The Shake Table Demonstrations that NSET uses is an innovative idea of bringing research equipment out from the laboratories to vulnerable communities, and improve the technology by adapting it to the local situation. Shaking table demonstration is a strong tool for awareness raising that translates technical knowledge in a language that is understandable to common mass. It has been found very useful in education of craftsman, convincing people, and trust building for earthquake resistant construction. This low-tech tool has been highly effective in educating non-technicians (ordinary people) about the behavior of buildings during earthquakes, in demonstrating the simple measures to improve seismic performance of local buildings, in developing confidence of people in their capacity to construct earthquake-resistant buildings, and for building public support for safer construction.

Fabrication of the building model that takes place near to the demolished site is done for about 10-15 days; usually the local masons are involved. The models are of one of the local buildings. Thus the community sees that theier own local mason can construct earthquake-resistant houses using the local construction materials at not much extra cost. This is convncing.

The Shake Table is a simple shaking platform with two identical models of traditional buildings, one with earthquake-resistant technology and another without the preventive measures. An earthquake is simulated by shaking the table and the resulting damage/collapse of the weaker building demonstrates the wisdom of incorporating earthquake resistant technologies in building construction.

NSET used the Shake Table for the first time January 1999. Since then it has demonstrated the technology in various parts of Nepal and the world including Bam (Iran), Gujarat (India), Kabul (Afghanistan), Dushanbe (Tajikistan), Banda Aceh (Indonesia), Baghdad (Iraq), Dhaka (Bangladesh) and Muzaffarabad (Pakistan). NSET also organized a demonstration as special event at the World Conference in Disaster Reduction (WCDR), Kobe, Japan in January 2005 in partnership with the United Nations Centre for Regional Development, (UNCRD), Disaster Management Planning Hyogo Office, and Kobe, Japan.



Chapter 4

Building Up the Capacities of the Communities Towards Disaster Risk Reduction

The Approach

The formal process of disaster risk reduction is very slow, and many times the impact does not trickle down to the community levels. Therefore, it is necessary to augment the formal process of top-down approach with that of a bottom-up approach by the community-based disaster management initiatives.

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 the various projects and programs of NSET since its very inception. The lessons are very encouraging: communities have accepted the idea of CBDRM and increasingly motivated towards actively implementing such initiatives.

NSET has come up with a three-pronged implementation strategy consisting of 1) Institutional Development, 2) Capacity Building, and 3) Demonstration. Networking with the local national and regional organizations has also been tried to enhance the sustainability of the disaster risk reduction endeavors.

Institutional Development

A local level Disaster Management Committee (DMC) is formed by the concerned local authority with the participation of the local people in each community. The Local Self-Governance Act (LSGA) 1999 has mandated local Governemnt also to work on DRM with necessary mechanisms but this is yet to bring into wide practices. The members of the committees work as a quasi-government body of the local government.

Capacity Building

The members of the Community Disaster Management Committees are trained so that they can work in the disaster risk reduction and preparedness sector. Five day training on Community Based Disaster Risk Reduction is organized for the committee members in the initial stage of the project. All the activities related to the project are then conducted by the committee with the technical assistance of

NSET. Further the committees themselves organize various awareness and training programs as per the project guidelines for the community volunteers to build the capacity of the DMC.

Model Demonstration

The DMC is facilitated to plan and implement some of the priority actions from the master plan prepared for the community. Such actions vary according to the timeline and the resources available during the project. Some of the example are painting the earthquake response plan on the wall of the school, small scale non structural mitigation in the CBDRM and or Local Government premises, bamboo diversions and bamboo retaining walls for river training works and landslide protection and an earthquake resistant model Building within the community.

In addition to these three strategies, the DMCs also are being associated with the local, national as well international networks to share experiences and learn from each other. These strategies have contributed to technology transfer which enable the DMCs to conceptualize, formulate, plan and implement various risk reduction activities at the local level. The best part of this process has been that the DRMCs learn the entire process while implementing the activities. The "learning by doing process" has proved to be one of the best ways of transfer of skill including the detailed processes.

Enhancing community capacities in mainstreaming community based disaster risk management

NSET implemented this project with the funding support from Lutheran World Relief. It aimed at institutional development, capacity building and sustainable activities in Disaster Risk Reduction at the community level. The program had six major objectives related to empowering the grassroots community including women, children, people with disabilities, under-privileged and marginalized population. The project worked in three communities in Kathmandu Valley viz. Alapot Village Development Committee, Ward Number 12 of Lalitpur Sub-Metropolitan City and Ward Number 18 of Kathmandu Metropolitan City with active participation of concerned local government. Thus, the project envisaged making the three project communities of Kathmandu Valley disaster resilient achieving its setout objectives.

Community Based Disaster Risk Management Group (CDMG) was formed in each of the program communities. A five day training program on Community Based Disaster Risk Management was conducted for the representatives of the Disaster Management Committees (DMC) and the concerned authorities. DMC members have been trained on the basics of Community Disaster Risk Management. The trained persons are now capable of planning and implementing Community Based Disaster Risk Management initiatives.

Community representatives in LSAR training at practical station on Fire Safety

The DMCs with technical assistance from NSET, organized a 3-Day training program on Participatory Hazard, Risk, Vulnerability and Capacity Assessment for 30 local volunteers in each of the program communities. Each project community has at least 24 trained volunteers who can assess the hazard, risk, vulnerability and capacity of their respective communities. The trained volunteers along with other members of the community carried out the participatory Hazard, Risk, Vulnerability and Capacity Assessment of each of the three communities and prepared the Disaster risk management master plan of the communities. The master plan so prepared was discussed and endorsed by the community stakeholders in the presence of the local government officials.

One school was selected in each community to implement the school based disaster management program. Under this objective an orientation program on DRR was conducted in each selected school and the School Based Community Disaster Preparedness Plan was prepared.

The DMCs secondly painted the school earthquake response plan in the outer walls of the selected three schools.

Community representatives presenting on VCA findings in Alapot, Kathmandu

Community representatives performing vulnerability and capacity assessment in Lalitpur-12

Voices

Sushila Shakya

Secretary, Ward level Disaster Management Committee

Lalitpur Sub-Metropolitan City (LSMC)

Our DMC has been very much participative. This is led by ward secretary, and comprises of the Municipal staff and community representatives. Nearly two-third members are women.

We are now focusing our activities considering multi-hazards. We conducted awareness programs and various trainings in our community with the help of NSET, the Municipality and other agencies.

Recently we mobilised community volunteers in door-to-door campaigns where we provided each family with posters and fliers on disaster preparedness focusing mainly on earthquake and fire safety. We also made photo exhibitions in Earthquake Safety Day and Lalitpur Mahotsav.

We have learnt DRR is not one time activity but a continuous process and sustainability of efforts is main challenge.

Three primary health centres were selected one in each program community for the preparation of Health centre based disaster response plan. The health centre officials got oriented on DRR and a disaster response plan of the health centre was drafted.

Non-structural vulnerability reduction works were carried out in the selected schools and primary health centers in the three communities which made them safe from existing nonstructural hazards.

Glimpse of Mason Training at Community in Kathmandu-18

Further, to upgrade the skill of the practicing masons of their community a five day training program for masons on Earthquake Resistant Construction Technology was organized by the three DMCs in all the three program communities with technical assistance from NSET. Each community has now at least 25 trained masons who can construct earthquake resistant buildings.

All the program activities were designed so as to enhance skill on right based approach and the networking among CBOs, and other civil society organizations on policy development and best practices sharing in disaster risk management framework.

The concerned authorities have endorsed the DMC as an entity within formal structure of the Metropolitan City and Village Development Committees. Preparation of Community Based Disaster Response Plan and its approval from the respective Metropolitan City and the Village Development Committees are in process.

Further as a support to the DMCs to carry out some of the action plans of the master plan prepared, one day fire response training was organized in three project communities. Each project community now has 30 trained small scale fire fighters. In addition the selected school, health center and the DMC office have installed one fire extinguisher in each of the project communities. Alapot and 12 LSMC have 30 meters of hose pipe and KMC 18 has 60 m long hose pipe prepositioned.

A total of 2350 households were made aware on earthquake and fire through the Door to door campaign conducted by the DMC in the project communities.

Voices

Rachana Sharma

Member, Disater Management Committee, Kathamandu Municipality ward 18, Naradevi

My name is Rachana Sharma; I am a housewife and a social worker. I have heard very little about earthquakes and was scared even thinking about it before. After taking the training given by NSET on earthquake safety I feel I can be safe from earthquakes. I got to know that we should build our house earthquake resilient, prepare an emergency bag (GO BAG) and follow safe behavior during earthquakes. People have started hearing our suggestion positively after we took the training on disaster preparedness.

VCA Training participents from Alapot VDC performing practical exercise in their community

Outcome / Achievement

- Permanent quasi government disaster risk management committees formed in three communities
- Each of community is empowered with an effective number of trained persons
  - Community Based Disaster Risk Management -7
  - Hazard Vulnerability and Capacity Assessment -27
  - Masons for Earthquake Resistant Building Construction -30
  - Community Light Search and Rescue (CLSAR)- 30
  - Fire Response training- 30
- Community Based Disaster Risk Reduction Master Plan of Alapot VDC, 18 Ward KMC and 12 Ward LSMC
- CLSAR tools and equipment kit prepositioned in 4 strategic locations of each community
- 2350 households benefitted from the Door to door campaign on earthquake and fire
- High level peoples participation with direct involvement up 24% of the entire population of the communities

Voices

Ram Sharan Phuyal

VDC Secretary of Aalapot, Coordinator Disaster Management Committee Aalapot

People have become more conscious on the earthquake since NSET entered Alapot village development committee. There used to be some talk before, but there was lack of knowledge to build safe houses. It was only after the earthquake resistant school built by NSET during 2001-2002, that the people became more aware on earthquake safety.

I think Government of Nepal should seriously think on minimizing the day to day disasters that may take peoples' life. It will not take much time to reduce the disaster if the government strictly implements the Building Code and publicizes it intensively making presence in poor villages by presenting model programs.

Friday Free Earthquake Clinics (FEC)

Every Friday afternoon, NSET has been providing free consultations to the house owners or potential house owners who want to retrofit or are planning to construct their new houses implementing earthquake- resistant techniques. This weekly consultation program, conducted by engineers of NSET, focuses on earthquake resistant building construction.

In the clinic, earthquake engineers read the building design, discuss pertinent issues with the house-owner, and provide prescription for improving earthquake performance of the new construction considering all constraints. The concept of "incremental safety" is adopted.

The earthquake clinic is open to everybody, house owners, masons, contractors, technicians and others who want to learn about the earthquake resistant technology.

The program also provides orientations and guidance for earthquake preparedness for individuals and family. All are encouraged to register their name in advance and invited at NSET for receiving free consultation. The program is getting popular these days among the people and the visitors come for both purposes. During last ten years more than 1,800 people visited NSET. Moreover, it has been observed that during last two years people are more concerned about building construction; it may be the indirect impact of devastating earthquakes in Haiti, Chile and Japan and the recent earthquake of September 2011.

Chapter 5

Enhancing the Emergency Response Capacity

Nepal is regarded as one of the most disaster-prone countries in the world. The country is exposed to multiple hazards, most prominently earthquakes, floods, landslides, windstorms, hailstorm, fires; glacial lake outburst floods (GLOFs), and avalanches. Rapid population growth, poor land use planning, precarious settlement patterns, and inadequate enforcement of building codes compound these natural hazards. Natural catastrophes are just part of the hazard picture. Nepal's history of recurring natural disasters necessitates a culture of preparedness.

A preparedness culture is founded on the shared understanding that future disasters will occur and that every person has a responsibility to prepare for and respond appropriately to these incidents. The benefits of cultivating a preparedness culture are obvious. The human impact of disasters will be reduced, emergency response professionals will be able to perform critical tasks more effectively, and recovery from disasters will be faster and more efficient. The question is not whether there should be a culture of preparedness in the country, but how do we create such a culture?

Light Search and Rescue Training participants in practical station, NSET, 2012

In the quest to create and enhance the culture of preparedness, NSET has incorporated Disaster Preparedness and Emergency Response in its each and every program and activities. NSET with a team of committed individuals are working for developing strategies and imparting ideas/skills to enhance the capacity regarding disaster preparedness and emergency response.

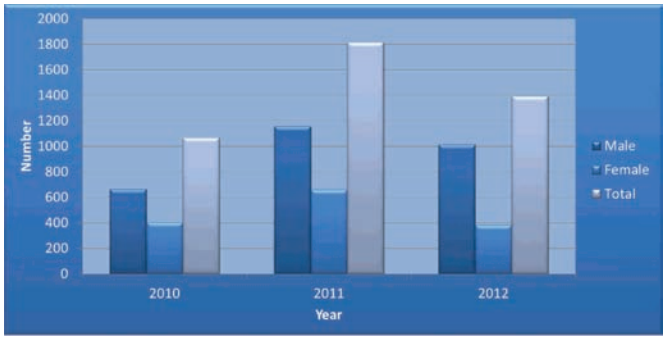
Enhancing Capacities of Institutions and Communities for Disaster Preparedness and Emergency Response

NSET through its Disaster Preparedness and Emergency Response (DPER) division is assisting communities and institutions to develop and enhance their disaster preparedness and emergency response capacities.

General Awareness and Orientation Programs are being conducted mainly focusing on earthquake risk reduction and preparedness measures. A total of 4272 participants (2832 male and 1440 female) were provided with earthquake orientation and evacuation drill programs from 87 institutions and communities in the year 2010-2012.

Year	Male	Female	Total
2010	663	402	1065
2011	1157	657	1814
2012	1012	381	1393

Number of people who participated in the orientation program on earthquake safety in the year 2010-2012

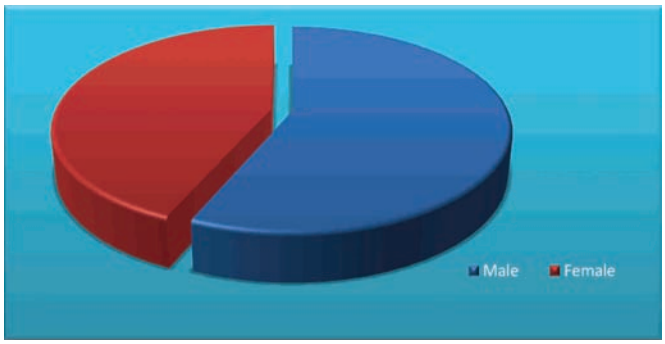


To further enhance the emergency response skills of individuals NSET has been providing Light Search and Rescue (LSAR) training, Basic Emergency Medical Response (BEMR) at institutional and community level.

Light Search and Rescue (LSAR) trainings are concerned in developing emergency responders in institutional and community level for carrying out operations during emergencies using locally available tools and equipment. Such trainings not only enhance the capacity of institution or community but also administrate the spontaneous search and rescue operations and thus avoid the further loss and injury. A total of 432 participants (231 male and 201 female) have been trained on LSAR in the year 2012.

Year	Male	Female	Total
2012	231	201	432

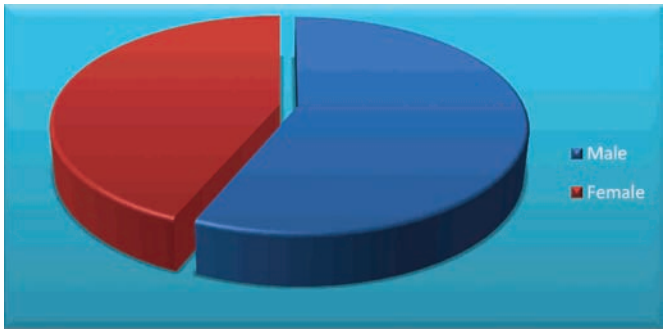
Number of people who participated in the orientation program on Light Search and Rescue Training in the year 2010-2012



Basic Emergency Medical Response (BEMR) Course is developed with a focus to prepare more number of individuals in all 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. BEMR is a recently started course and a total of 85 people have been trained so far.

Year	Male	Female	Total
2012	48	37	85

Number of people who participated in the orientation program on BEMR in the year 2010-2012



Besides the preparedness trainings, NSET is providing assistance to different national/international organizations, and the Government agencies to develop Earthquake Preparedness and Response Plans (EPRP). EPRPs are prepared based on the organizational structure, capacity, available facilities and local situation of the respective organizations. The plans guide the organizations to design and implement the activities for preparedness; to develop the skill and capacity for effective response during earthquake; and plan for quick repair, restoration of damaged physical entities for continued functioning of the organization after earthquake.

NSET is also assisting to prepare the emergency survival kit to the individual, household and community/institutional level. Earthquake Go Bag, Household Emergency Kit (HH Kit), Light Search and Rescue Kit (LSAR Kit), Pre-Positioned Emergency Rescue Stores (PPERS) are the earthquake preparedness tools devised and recommended by NSET for individual, household and community level. Nonstructural assessment and the mitigation measures are also a part of the activity. Stockpiling of emergency supplies (food/nonfood items), Water Sanitation and Health, Communication plan during emergencies, Business continuity plan and vulnerability capacity assessment are the other major activities. NSET continuously explores new ideas and indulges in research pertaining to disaster preparedness and emergency response.

Community people particiapating in LSAR practical exercise, Lalitpur, 2011

Earthquake orientation class, Kathmandu, 2012

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). Asian Disaster Preparedness Center (ADPC) and National Society for Earthquake Technology-Nepal (NSET) are implementing Objectives 1 and 2, and Objective 3 respectively.

PEER Objectives and NSET's Role

Objective 1 - Community Action for Disaster Response (CADRE), implemented by ADPC in ten countries namely, Bangladesh, Cambodia, India, Indonesia, Lao PDR, Nepal, Pakistan, Philippines, Vietnam, Thailand (Implementing Agency – ADPC)

Objective 2 - Hospital Preparedness for Emergencies (HOPE), implemented by ADPC in ten countries namely, Bangladesh, Cambodia, India, Indonesia, Lao PDR, Nepal, Pakistan, Philippines, Vietnam, Thailand (Implementing Agency – ADPC)

Objective 3 - Medical First Responder (MFR) and Collapsed Structure Search and Rescue (CSSR), implemented by NSET in six countries namely, Bangladesh, India, Indonesia, Nepal, Pakistan, Philippines (Implementing Agency – NSET)

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

The overall goal of the program is to: Reduce mortality in mass casualty events and increase survival rates of disaster victims in the selected target countries of Asia.

The Objective 3 of the PEER Stage 3 is as follows:

Goal

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.

Objective

In order to achieve program goal and objective, NSET works with national governments (nodal agency) of PEER countries in developing qualified instructors for MFR and CSSR courses. Developing highly qualified MFR and CSSR instructors is important 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.

Practical exercise of Collapsed Structure Search & Rescue (CSSR) training

Practical exercise of Medical First Responder (MFR) course

Medical First Responder (MFR) Course

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

MFR training curriculum highlights on 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 and Childbirth emergencies.

Participants are also taught on human anatomy and bodily systems, the emergency medical services (EMS) systems, report writing, and principles of multiple or mass casualty incidents (MCI).

Collapsed Structure Search and Rescue (CSSR) Course

Collapsed Structure Search and Rescue (CSSR) Course aims to provide individuals with collapsed structure rescue tasks the knowl¬edge and skills necessary to search for, stabilize and extricate victims trapped in collapsed structures using the safest and most appropriate procedures. Similar to MFR Course, CSSR course target participants are emergency and disaster first response groups.

CSSR training curriculum highlights on 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 stabilizing loads and Pre-hospital treatment.

PEER Instructors Development Process

MFR and CSSR Courses are the basic courses prior to completing instructors' courses.

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

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

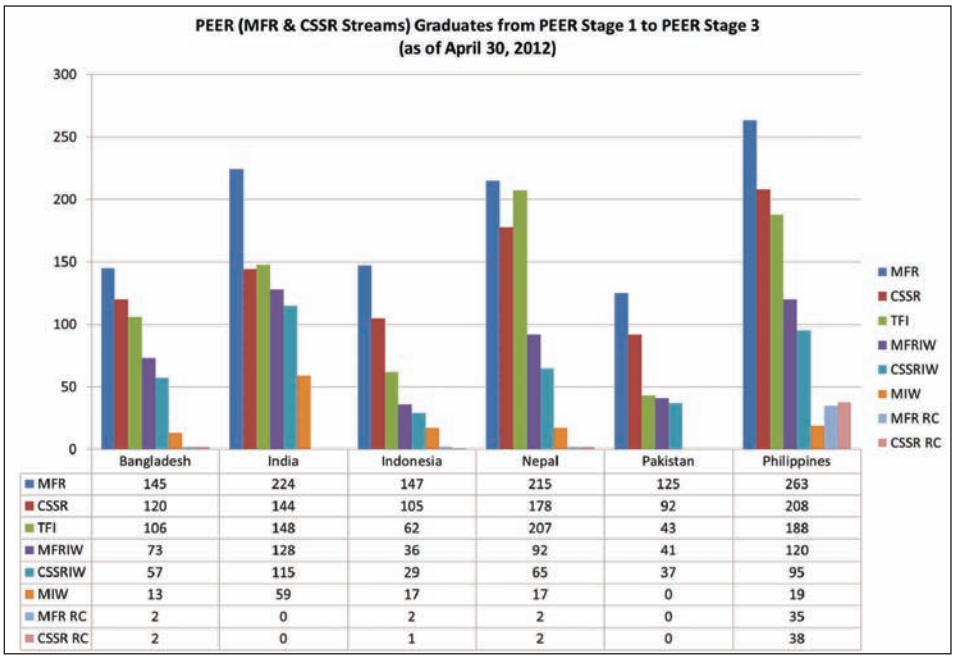
MFRIW and CSSRIW graduates qualify to serve as instructors while MIW graduates are experienced MFR/CSSR instructors who qualify to serve as course coordinator and course monitor to a PEER course.

PEER MFR-CSSR stream of courses for instructors' development

Achievements

During PEER Stage 3 (2009-2014), NSET conducted 50 different training programs in six PEER beneficiary countries from 2010 until date. Through these training events, NSET managed to develop MFR and CSSR graduates in six beneficiary countries. As of April 30, 2013, there are a total of 1,119 MFR graduates, 847

CSSR graduates, 754 TFI graduates, 490 MFRIW graduates, 298 CSSRIW, 125 Master Instructors, 41 MFR Refresher Course (MFR RC) graduates and 43 CSSR Refresher Course (CSSR RC) graduates.



	Bangladesh	India	Indonesia	Nepal	Pakistan	Philippines
MFR	145	224	147	215	125	263
CSSR	120	144	105	178	92	208
TFI	106	148	62	207	43	188
MFRIW	73	128	36	92	41	120
CSSRIW	57	115	29	65	37	95
MIW	13	59	17	17	0	19
MFR RC	2	0	2	2	0	35
CSSR RC	2	0	1	2	0	38

Next Steps

Over the past 15 years of PEER implementation in Asia, PEER plays an important tool by creating a knowledge foundation in developing curricula for emergency responders training in the program beneficiary countries. Further, PEER countries have benefitted from the development of instructors and training system in the country, hence, PEER can be used as an important tool in designing a national training strategy for emergency responders.

PEER Impact

PEER Stage 2 (2003-2009) pursued institutionalization of PEER in partner countries. In the process of institutionalization and nationalization of the program, NSET through PEER has supported all 6 program countries for the conduct of PEER courses through Full Funding Scheme and Partial Funding Assistance Program (PFAP). It was in PEER Stage 2 (2003-2009) when PFAP was conceptualized and introduced. In PFAP, both NSET/PEER and the government/partnering institute share the cost of training expenses. This methodology aims to promote program ownership and gradual program handover to beneficiary countries and partner institutes. This methodology is being continued in PEER Stage 3 (2009-2014). Since 2010, NSET in collaboration with 6 partner countries organized 33 PEER course events through PFAP.

In order to strengthen PEER institutionalization, NSET assisted PEER countries in adapting MFR and CSSR curricula based on national setting. After completing adaptation process, there was an apparent need for translation of PEER training programs into national languages to provide more efficiency in training of national instructors and responders. During PEER Stage 3, NSET has completed MFR and CSSR translation into Bangla (Bangladesh) and Nepali (Nepali) languages. Urdu (Pakistan) version of MFR and CSSR courses is yet to be tested and finalized.

Emergency Response By PEER Trained Professionals

PEER-trained graduates and instructors are deeply engaged in advocacy and participation in DRR-related initiatives such as in INSARAG exercises, and also deployed in emergency/disaster response operations. A latest example is the recent building collapse incident in Bangladesh where Fire Service and Civil Defence of Bangladesh, PEER partner training institute, and other program partners in the country shared their experience to NSET described below:

On April 24, 2013, Fire Service and Civil Defence (FSCD), along with Bangladesh Army, Border Guard of Bangladesh, Rapid Action Battalion, police and other organizations were heavily engaged in the rescue operations for the collapse of Rana Plaza, an eight-storey building in Savar. Approximately more than 2,400 persons have been pulled out alive and accounted for. After 10 years of PEER training, FSCD rose up to the challenge posed by devastating events like this recent incident. FSCD demonstrated their most efficient and effective rescue operation so far - thanks to the continued capacity development support given by PEER in Bangladesh during the last 10 years. Approximately 150 of FSCD staff members and 100 of their trained community workers were heavily engaged in every shift during the rescue operations. Their operation was directly supervised by the newly appointed DG Brigadier General Ali Ahmed Khan, the Directors of Training and Operation and people like - Mr. Muhammad Mamun, Mr. Babul Chakraborty, and Mr. Iqbal Bahar Bulbul, the pillars of PEER in FSCD. Dhaka's local community workers including people from the lowest economic strata (e.g. rickshaw pullers), also did a fantastic job in rescuing the trapped people, risking their own lives, by providing voluntary assistance through provision of drinking water and other emergency survival and food items to the people trapped.

It is noteworthy that the success of PEER in Bangladesh is being replicated by FSCD through further adaptation of the PEER MFR-CSSR curriculum to suit training of community volunteers in priority areas of Bangladesh. PEER played an important tool by creating a knowledge foundation in developing curricula for emergency response volunteers training. PEER MFR-CSSR instructors of FSCD are serving as trainers in developing 62,000 volunteers all over Bangladesh.

FSCD search and rescue team works with other responders in breaching the collapsed structure to search for trapped persons

FSCD was heavily engaged in rescue operations, along with other groups like Bangladesh Army, Border Guard of Bangladesh, Rapid Action Battalion, police and other organizations

Expert use power tools and equipment provided by US government and used by PEER-trained rescuers of FSCD

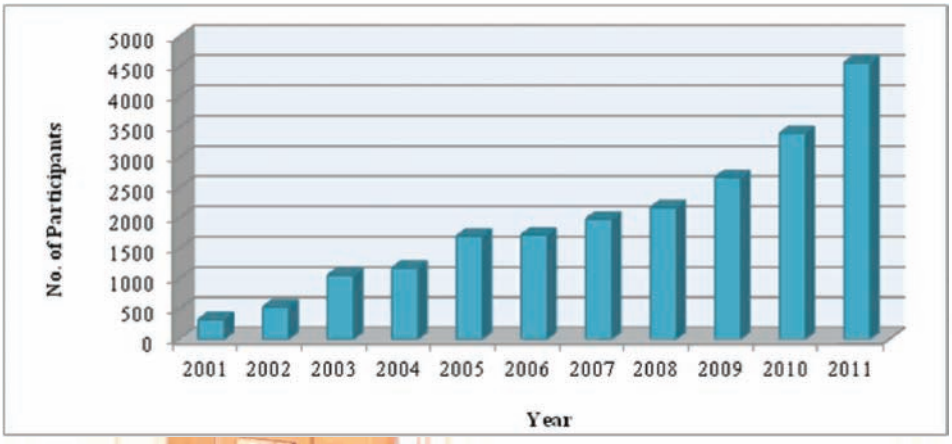
FSCD rescue team extricates a live person from the rubble

Orientation Programs on Earthquake Safety

Keeping in mind that a massive awareness program for making individuals from all communities and different stakeholders prepared is a must for achieving disaster resilient community, NSET has been conducting regular earthquake orientation programs since its establishment for different level of stakeholders in Nepal. Usually such program is conducted by NSET upon request of the agencies or organization. However, for marginalized people, if realized, NSET itself conducts such programs. Mainly the orientation programs are focused on: earthquake basics and existing risks in Nepal; earthquake preparedness and risk reduction measures; ways to respond during and after earthquake; pre-positioning emergency supplies; acquiring lifesaving skills; and safer construction etc. However, the presentations vary slightly depending upon target audience, and interest of audience.

Looking at the trend of orientation programs conducted during last ten years we can see that each year the number of participants is increasing. During this period more than 21,000 people have taken part in this program. It means, virtually, the earthquake awareness massage is conveyed to more than 21,000 families. Earlier we had to convince people to participate, but now people are demanding such programs for their communities, schools, organizations, and even for families.

Data and trend of orientation programs conducted during last ten years



Chapter 6

Capacity Building for Earthquake Resistant Construction

The focus of training and capacity building activities is on creating or further developing one's abilities. NSET recognizes the critical role of training in achieving this. 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 program.

NSET has been implementing various earthquake risk-reduction training programs aimed at a diverse target audience. It has ready to use modules for training masons, contractors, technicians, junior engineers, engineers, schoolteachers and policy/decision makers. NSET has organized many of these courses in collaboration with Nepal's Department of Urban Development and Building Construction (DUDBC), municipalities, professional societies, business community and other partner institutions.

Engineers' Workshop on "Seismic Vulnerability Assessment of Existing Buildings"

24 engineers from Department of Education including 2 from private firms participated in the Engineers' and Sub-engineers workshop on "Seismic Vulnerability Assessment of Existing Buildings" held on 19-21 June, 2011 at Agricultural Training Centre, Thimi, Bhaktapur. The program was organized by Department of Education, Government of Nepal and sponsored by Asian Development Bank. NSET provided the technical assistance. The overall objective of the training was to provide training to sub/civil engineers and structural engineers on seismic vulnerability assessment of existing buildings in Nepal. The training participants were able to learn the basic steps of seismic vulnerability assessment of a building and determine the probable performance of the building in large scale earthquake. The assessment methodology also helps in determining whether the building is within the acceptable limit of Life safety or needs demolition/ seismic strengthening of a building.

Engineers' Workshop on "Design on Seismic Retrofitting of Masonry Building"

Engineers Workshop on "Design on Seismic Retrofitting of Masonry Building" was conducted on 26-30 June, 2011 at Hotel Elephant Head, Nagarkot. The program was organized by Department of Education, Government of Nepal with technical support from NSET and sponsored by Asian Development Bank. There were altogether 30 numbers of participants from Department of Education which include 2 from private firm. The program objective was to share the basic concept of analysis and retrofit

design of masonry buildings that are abundantly available in Nepal. The participants were able to learn the analysis and retrofit design of masonry buildings by manual method and similarly the construction process and technology of the most feasible retrofit method in Nepal.

Engineers' training on "Seismic Vulnerability Assessment of Buildings: Pre-Disaster"

Engineers' training on "Seismic Vulnerability Assessment of Buildings: Pre-Disaster" was conducted on 23-25 November 2011 at Greenwich Hotel, Lalitpur. The program was organized by Department of Urban Development and Building Construction (DUDBC), Government of Nepal with technical support from NSET and financial support from United Nations Development Program. There were altogether 31 numbers of participants from different municipalities, DUDBC, engineering colleges and engineers' association. The overall objective of the training was to provide training to engineers on seismic vulnerability assessment of existing buildings in Nepal. The training participants were able to learn the basic steps of seismic vulnerability assessment of a building and determine the probable performance of the building in large scale earthquake. The training participants raised the need of such vulnerability assessment trainings in larger scale for engineers and practitioners in Nepal.

Glimpses of Engineer's Training on Earthquake Resistant design of RC frame building, Dhulikhel, 2012

Engineers' training on "Seismic Damage Assessment of Buildings"

Engineers' training on "Seismic Damage Assessment of Buildings" was conducted on 28-30 November 2011 at Greenwich Hotel, Lalitpur. The program was organized by Department of Urban Development and Building Construction (DUDBC), Government of Nepal with technical support from NSET and financial support from United Nations Development Program. There were altogether 33 numbers of participants from different municipalities, DUDBC, engineering colleges and engineers' association. The overall objective of the training was to provide training to engineers/practitioners on assessment of buildings damaged in earthquake to determine the earthquake effects and the extent of damage requiring the building to be repaired, retrofitted or demolished. The training participants were able to learn the procedures for post earthquake safety evaluation of buildings. In the event of any kind of earthquake in Nepal, the training participants can make a structural damage assessment of buildings in the affected area.

Development of training manual for engineers' training on basic seismic safety and practical design exercises

Engineer Training Manual on "Earthquake Resistant Design of Buildings" prepared under Earthquake Risk Reduction and Recovery Preparedness Program (ERRRP-NEP/07/010) was revised and updated. The revision was mainly focused on design of RC frame building using standard structural engineering software and meeting the codal requirements for seismic safety.

Engineers training on 'Seismic Vulnerability Assessment and Retrofit of Buildings'

A three day training program on "Seismic Vulnerability Assessment and Retrofit of Buildings" was jointly conducted by NSET and Dharan Municipality for the engineers at Dharan Municipality on 4 - 6 July 2012. A total of 22 engineers benefited from the training program.

Engineers training on 'Earthquake Basics and Earthquake Resistant Design of RC Frame Buildings'

34 engineers got benefitted from the engineers training on 'Earthquake Basics and Earthquake Resistant Design of RC Frame Buildings' conducted jointly by NSET and UNDP at Dhulikhel during August 27 to September 2, 2012. The main objective of the training was to focus on recent trend and practices on design of earthquake resistant RC frame buildings using code provisions. SAP, the structural engineering software, was used as a tool for the analysis part.

Training on "Seismic Vulnerability Assessment of Buildings" for Engineers

NSET jointly with UNDP and Nepal Engineers' Association (NEA) conducted a training course for engineers on "Seismic Vulnerability Assessment of Buildings" at Lalitpur during 27 -29 November, 2012. 34 engineers were trained on the skills for assessing seismic vulnerability of existing buildings

Training the Masons on Earthquake Resistant Building Construction

Masons are the key actors who translate designs into reality, especially in developing countries where more than 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" and "how". At present, the mason training program of NSET, which combines class-room training with hands-on field exercises, has become very popular in Nepal and abroad. NSET organized such training programs also in different countries including Afghanistan, India, Iran, Indonesia, Pakistan, Japan and Tajikistan.

More than 3,000 Masons across the country have been trained by NSET. The map shows the geographical coverage of mason training programs conducted by NSET.

With an objective to enhance 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 program to the local masons at different places during the period.

- In order to support Vyas municipality for Building Code Implementation and to enhance the capacity of local masons and municipality professionals, a 5day Mason Training on Earthquake Resistant Building Construction was conducted for the masons of the Vyas municipality at Damauli, Tanahau during 11-15 June 2011. Altogether 30 masons got trained on earthquake resistant construction. The training was organized by Vyas municipality and NSET provided the technical assistance.
- 24 Masons from Kathmandu got trained from the mason training program held during 5-9 December 2011 in association with Manamaiju Village Development Committee (VDC) and District Development Committee (DDC) Kathmandu.

"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 program."

- 33 masons from Kirtipur municipality acquired knowledge and skills on earthquake resistant construction technology through the mason training program held in Kirtipur in collaboration with UNDP and Kirtipur Municipality during 26 - 30 March 2012.
- A total of 92masons acquired knowledge and skills on earthquake-resistant construction technology from 3 different mason training programs held in Lalitpur and Kathmandu in collaboration with UNDP and the concerned municipalities during May-June 2012.
- Further 3 different mason training programs were conducted in Kathmandu in collaboration with UNDP and Kathmandu Municipality during August-September 2012.
- Among those three, one mason training was targeted to the women masons only. A total of 98 masons including 30 female masons acquired the knowledge and skills on earthquake resistant construction technology.
- NSET in association with the Kathmandu Earthquake Resistant Building Construction Technician Group (Trained masons group) conducted a mason training program to the 33 local masons of Syuichatar VDC, Kathmandu during18 - 22 March 2013.

"Owner Builders' Training on Earthquake Risk Reduction" for house owners

With the main goal of making the urban communities safe from earthquake and to enforce the implementation of Nepal National Building Code five different Owner Builders Trainings on Earthquake Risk Reduction were conducted under the program "Support Quality and Implementation of Nepal National Building Code (NBC)". The training was jointly organized by UNDP, the municipalities and NSET. The prime objective of this endeavor was to orient and train the owner builders on earthquake risk reduction through such training programs in the selected municipalities of the valley.

The training programs were held in two municipalities; Kirtipur and Lalitpur Municpality, two trainings in Kirtipur and the next three in Lalitpur Municipality during the months of November and December 2012.

Approximately 165 community members including housewives, volunteers, and social mobilizers got trained on Earthquake Risk Reduction including basic nonstructural earthquake risk mitigation. The training curricula included the awareness, education as well as skill based deliverables. It consisted of background information on earthquake basics, the existing earthquake risk in Kathmandu Valley, earthquake preparedness and mitigation measures and the safe construction methods of load bearing buildings and Pillar system buildings. The training also included hands on exercise on Non Structural Vulnerability Assessment and the basic earthquake preparedness activities for an individual, family and neighborhood level.

Community volunteers, social mobilizers and women are the most important part of the community; they are the backbone of the community for development and play a vital role in the society for awareness raising, safe building constructions and other activities as well. In addition, Women or the Housewives in Nepal, urban housewives in particular play important role in housing and building construction as they play a direct role on making the decisions for any action to be taken by the family like repairing a house, adding up of floors or construction of a new house, buying a house, buying new furniture etc. Therefore this training program is believed to leave a significant impact on the earthquake risk reduction of the community.

Apart from these standalone training programs various other training programs were conducted as a part of the project activities.

Training to House Owners on Earthquake Risk Reduction, Lalitpur, 2012

Video Toolkit for Earthquake Safe Building Practices in Nepal

Kathmandu valley is the most vulnerable urban area in world (GHI 1999). Other many cities and urbanizing villages are also contributing not the less adding on risks. Considering the fact that in every week there is 150 numbers of building permits being issued in Kathmandu city only, one can imagine the massive trend of building construction in the valley. Further, 90% of total building stock in the valley is non-engineered and owner driven and the construction trend is still going on the same way. These buildings, in fact, add up to seismic vulnerability of the city. To cater to the knowledge building among the house owners on earthquake safe building practices, Video Toolkit has been envisaged to be an effective medium with wider outreach as the electronic media and in particular the television has the deep penetration among the audience and has the immediate impact on the viewers. A comprehensive Toolkit showing the proper construction methodology of each element of buildings in a very layperson's language is conceptually a volume of Toolkit broken down into 15 minutes series covering one activity of building at a time.

The video toolkit has been presented by Government of Nepal, Ministry of Urban Development, Department of Urban Development and Building Construction with the help of United Nations Development Programme (UNDP), Nepal Comprehensive Disaster Risk Management Programme (CDRMP). NSET partnered with Watchdog Media Services to provide technical assistance in the production of this set of material.

Contents and Episodes:

S.N.	Content	Episodes & Duration
1	Need of earthquake safer building construction – why we need to construct earthquake safer houses, how we can achieve earthquake safety (General)	1 episode (16 mins.)
2	Planning and configuration – shape, size, orientation etc. of earthquake safe houses	1 episode (15 mins.)
3	Site effects, site selection and site improvements	1 episode (15 mins.)
4	Construction materials and quality control – material qualities, material selection and construction processes	1 episode (15 mins.)
5	RCC Frame Buildings – starting from foundation to roof level	3 episodes (15 mins each)
6	Load Bearing Masonry Houses (Brick and Stone masonry in cement mortar) – starting from foundation to roof level	2 episodes (15 mins each)
7	Rural construction – Low strength masonry (Brick in mud, stone in mud, earthen construction) – foundation to roof level	1 episode (15 mins.)
8	Repair, maintenance and retrofitting of existing buildings	1 episode (15 mins.)
9	Mitigation of non-structural hazards in buildings, building services and utilities	1 episode (15 mins.)
Total		12 episodes
10	Single 30 minute summary of all episodes	1 video

Chapter 7

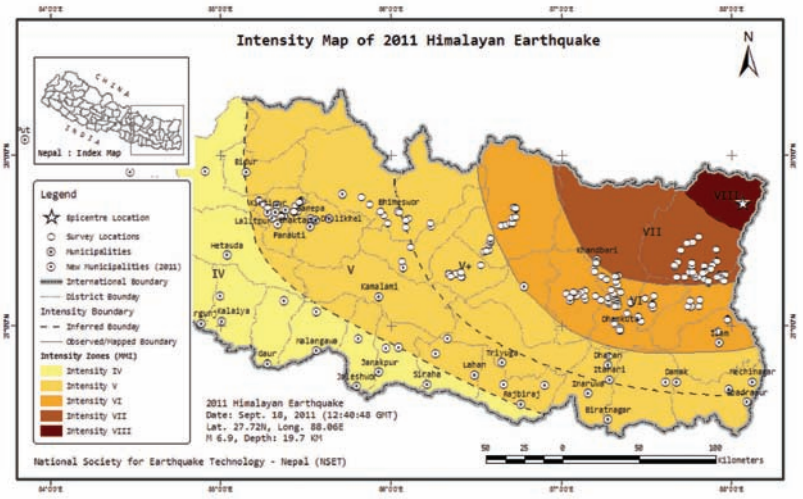
Response to 2011 Himalayan Earthquake:

Efforts Towards Build Back Better

A magnitude 6.9 earthquake near Nepal-Sikkim border on September 18, 2011 caused widespread damage to the infrastructure in Sikkim and Nepal and killed more than 111 people in Sikkim and 9 in Nepal. More than 47,000 people were displaced, almost 8,000 houses were destroyed and more than 13,000 damaged in the eastern part of Nepal. Several hundred schools and classrooms as well as dozens of health posts and public buildings also suffered damage (IFRC, 2012). 27 districts of Nepal were declared as affected by the earthquake leaving thousands of houses damaged beyond repair. Immediate repair and construction works were carried on extensively locally. But the worries were whether there had been needful supports provided to BUILD BACK BETTER!

Realizing the need to implant a culture of safety in the reconstruction process, NSET stepped in with its efforts towards Build Back Better.

NSET at first conducted field based intensive damage assessment works in affected areas. NSET formed 8 teams of 3-4 professionals, altogether 29, that visited defined locations of affected areas mainly eastern Nepal and also in Kathmandu Valley and covered most part to gather on-site damage information. These technical assessments were also intended to identify damage patterns in different building typologies so as to assist formulate more accurate futuristic solutions. And then NSET mobilized resources at the optimum possible extent to impart knowledge and skills to local people on earthquake safe construction. The programs were conducted under Nepal Earthquake Risk Management Program Stage II (NERMP2) supported by USAID/OFDA.



The first phase (December-January 2012) of the program covered three pilot districts (Phidim, Paanchthar; Phungling, Taplejung and Ilam) and in the second phase (March 2012) Khandbari, Sankhuwasabha and Myanglung, Terhathum districts of the eastern Nepal were covered.

NSET team conducted District level orientation-workshop in the three pilot districts (Phidim, Paanchthar; Phungling, Taplejung and Ilam), the most affected districts to propagate the message of earthquake safety along with the lesson learned from the September earthquake and the program activities to be implemented at district level.

Different stakeholders including Chief District Officers, Local Development Officers, District chiefs of Nepal Army, Nepal Police and Armed Police Force, Government representatives, District Office and technical representatives of NGOs, media representatives and district representatives of political parties participated in the workshop.

In that period repair and reconstruction works were being carried out extensively in the earthquake affected areas but still most of the constructions were owner built with the help of local masons. The huge devastation by the recent quake had made them think on the mode of construction they had been following up till then. People wanted their houses to be earthquake resistant but no technical solutions was made possible to serve them. NSET's approach of imparting the knowledge and skill to the local people on earthquake safe construction through mason training programs and earthquake safety orientations in schools and communities were found to be highly effective and appreciated.


Orientation to school children and training on earthquake safe reconstruction in eastern Nepal

In the first phase a total of four intensive 5-day Mason training program on earthquake resistant construction and retrofitting conducted in the most earthquake affected localities;

- Chyangthapu, Panchthar district,
- Sinam, Taplejung District,
- Ranke Bhanjyang, Panchthar-Ilam boundary and
- Maipokhari, Ilam district

Voices

Bir Bahadur Gurung
Chamaita-2, Ilam

Participant of the Mason training program

"The training is very helpful. We had only heard of earthquake but didn't know what to do during earthquake. Now I am clear on that. After receiving first day class, I asked my wife to be prepared with earthquake Go Bag. I also told my friends and my colleagues to be prepared with Go Bag and nonstructural mitigation."

Total 143 masons from 26 VDC's of four districts were trained on earthquake resistant construction through this program.

The local communities, the students and teachers of the three districts were also oriented on earthquake preparedness and safer construction. There was active participation from wide range of the community including the youths, volunteers, professionals, political party representatives and general public from the locality.More than 220 students and teachers from three different schools Bishnu H. Secondary School, Chyangthapu, Sinam Higher Secondary School, Sinam and Maipokhari Secondary School, Sulubung were oriented on earthquake safety.

Visible Impacts

- Some changes and improvements in the behavior of the masons towards earthquake safety of the buildings was observed.
- Taplejung Mason's Group for Earthquake Resistant Building Construction was established with a mission to construct earthquake resistant building only in the community
- Small scale Nonstructural mitigation works carried out by the government officials at their offices, by local hotel owners of Maipokhari, Chilingdin Sinam and Chyangthapu, Police officers of Chilingdin and some other local stakeholders
- There were remarkable number of participants from government and civil society organizations who can further contribute towards earthquake risk reduction through influencing other institutions and at the same time incorporate the components of earthquake safety in the development plans and programs of the districts.
- There was good participation from the media in the district workshop. Local newspapers and FM radios covered news on Earthquake Safety Day, earthquake preparedness and mason training and contributed to making people aware on earthquake risk.

"Earthquake Recovery and Disaster Risk Reduction Capacity Building Program: Resilience and DRR Training" (ERDRR)

Complementing to its efforts towards Build Back Better, NSET further provided technical assistance to Rural Access Program (RAP) for implementing "Earthquake Recovery and Disaster Risk Reduction Capacity Building Program: Resilience and DRR Training" (ERDRR) in Khotang, Bhojpur, Sankhuwasabha and Terhathum districts of Eastern Development Region.The capacity building program focused on producing trained human resources in the field of disaster risk reduction at the local level.

More than 95 people of the eastern region have now acquired the knowledge and skill required for planning and implementing Community Based Risk

Mason Training in earthquake affected area of eastern Nepal

Community based Disaster Risk Reduction (CBDRR) Training in Eastern Nepal

Reduction (CBDRR) activities in the community through the series of CBDRR trainings conducted through the ERDRR program. The School Based Disaster Preparedness Training program conducted enhanced the capabilities of the school teachers in disseminating earthquake preparedness activities and conducting earthquake evacuation drills in the schools.

benefitted from the Basic Technical Training and Training on Retrofitting Vulnerable buildings conducted as a part of the program. The training enhanced the knowledge and skill of engineers for design and construction of earthquake resistant buildings including seismic retrofitting of vulnerable buildings which was the prime necessity of the region at the moment.

With the purpose of developing active instructors to conduct various training programs at the community level in the remaining VDCs, Training for Instructors (TFI) Course was organized for the selected participants of those three trainings. The TFI participants further, observed other related training programs conducted by NSET professionals including their involvement in the entire planning process. Those to be trainers then conducted training programs in close supervision and guidance of NSET professionals before they were certified as trainers. This system of producing trainers came with years of experience of regional and national projects carried out by NSET.

Similarly series of Masons Training Programs on earthquake resistant construction was also conducted which produced nearly 80 required trained human resources to construct earthquake resistant buildings in the affected area.

Apart from the training programs a series of District Level Awareness Program on Community Based Disaster Risk Reduction was also organized for the major key stakeholder institutions within the district headquarters. The program conducted in all the four district headquarters was useful in acquiring an enhanced level of cooperation from the local government and line agencies for the project activities.

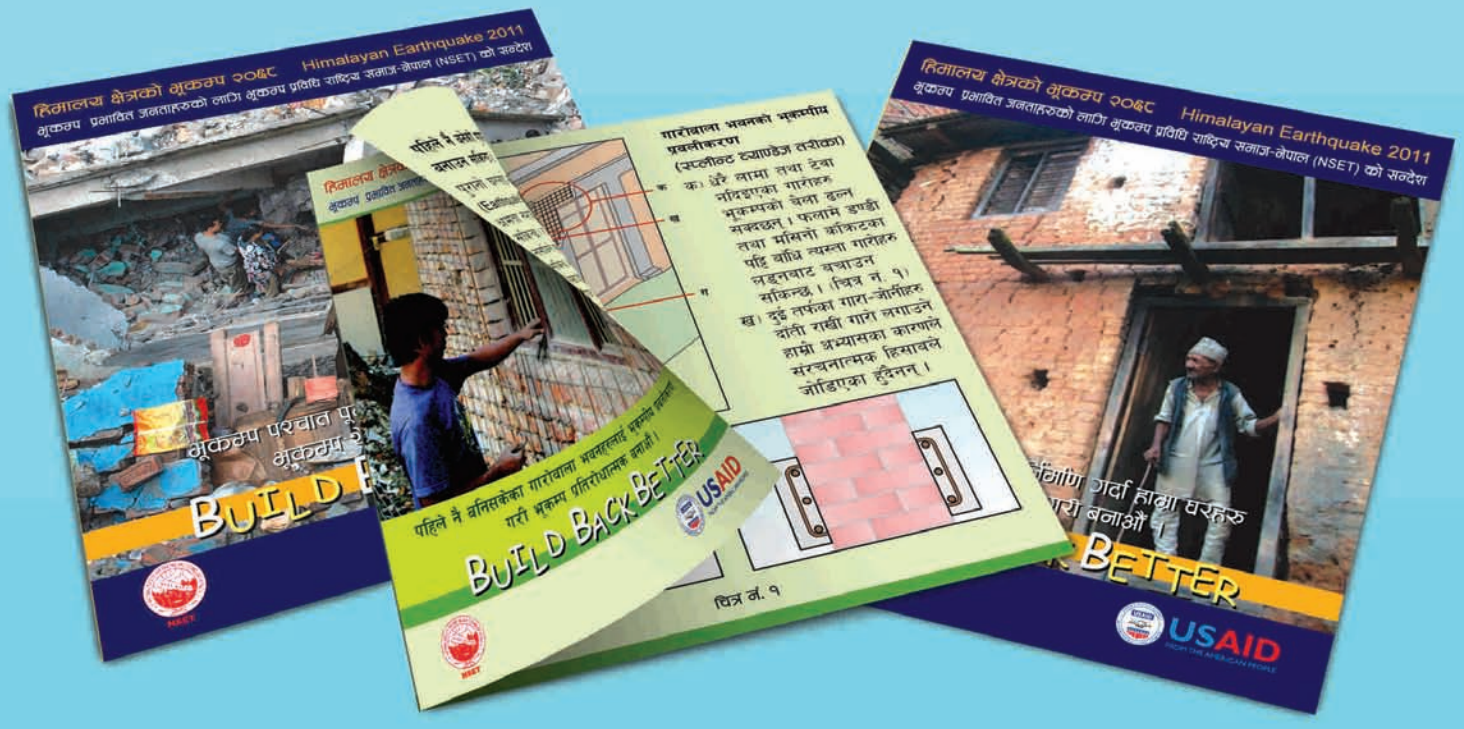
Number of Participants in the Training Programs

SN	Program	Date	Number of Participants		
			Female	Male	Total
1	CBDRR I	1-6 Aug 2012	1	19	20
2	SBDP	8-9 Aug 2012	1	27	28
3	CBDRR II	11-16 Aug 2012	2	26	28
4	BTT	12-16 Aug 2012	1	33	34
5	TFI	18-22 Aug 2012	1	31	32
6	MT I Dhankuta	24-28 Aug 2012	0	32	32
8	MT II	10-14 Sep 2012	0	24	24
9	MT III	10-14 Sep 2012	0	22	22
10	CBDRR III	21-25 Nov 2012	11	12	23
11	CBDRR IV	7-11 Dec 2012	11	13	24
Number of participants in the training programs			28	239	267

Number of Persons Participating District Orientation Programs

SN	Program	Date	Number of Participants		
			Female	Male	Total
1	Community Orientation	28 Aug 2012	8	30	38
2	District Orientation on CBDRR Sankhuwasabha	26 Nov 2012	2	24	26
3	District Orientation, CBDRR Khotang	10 Dec 2012	1	23	24
4	District Orientation, CBDRR Terhathum	16 Dec 2012	3	37	40
5	District Orientation, CBDRR Bhojpur	23 Dec 2012	1	23	24
	Total participants of the orientation programs		15	137	152

Preliminary vulnerability maps of the entire four project district were also produced based on the data available from District Disaster Preparedness and Response Plan and brief observations made during the visit to the project district by the CBDRR experts and geologists from NSET with active involvement of local stakeholders.



Earthquake Mobile Clinics (EMC)

"Mobile Earthquake Clinic" was started by NSET to provide on-site consultation in aspects of earthquake- resistant building construction. It is an innovative initiative of NSET where a team of earthquake engineer / structural engineer, technician and masons visit different locations / building construction sites in and around Kathmandu valley and provide technical advice on earthquake resistant construction. The clinic is conducted with an objective to bring knowledge of safer building construction at the construction site of informal buildings, assist Building Code implementation at site level, monitor impact of earthquake awareness and further stimulate the house owners, builders to consider earthquake risk.

During these years, the clinic has covered hundreds of buildings within Kathmandu Valley and has successfully served as an onsite implementation of Building Code. Remarkable improvements in building construction has been observed since then as- Stirrups shape, size and spacing, size of structural members like column and improved detailing in connections (beam column joints), protection of infill walls etc. Most of house owners got to know about the earthquake risk in Kathmandu Valley and they were convinced on the benefits of seismic resistant construction and its economy.

Through NSET's Mobile Earthquake Clinic, knowledge of safer building construction has been disseminated in a very effective manner.

Chapter 8

Involvement of Private Sector in Disaster Risk Management

The private sector has a vitally important role to play in averting disasters, safeguarding economies of nations, communities, and themselves.

From the disaster risk management perspectives, private sector entities have two-fold role: 1) building resilience of their businesses; and 2) contributing as a part of corporate social responsibility in enhancing community resilience. The participation of the private sector is essential, and should be a perpetual process. Therefore, it is necessary to raise awareness of the private sector, convince that earthquake risk management is much more than "charity", demonstrate the economic, social and corporate feasibility of investing on disaster risk reduction, and pursuade that it is a sound investment to be done.

The role of private sector in disaster risk reduction beyond charity is being recognized and discussed in several recent disaster related events in Nepal. Many private institutions and group of companies and individuals such as manufacturers, local clubs have shown keen interest on implementing initiatives for disaster risk reduction in Nepal.

Promoting Public Private Partnership for Earthquake Risk Management (3PERM)

NSET is implementing the program "Promoting Public Private Partnership for Earthquake Risk Management (3PERM)" with the funding support from USAID/OFDA during October 2011 – September 2014. This program envisions on tapping the vast potentials of private sector for contribution to earthquake risk reduction.

Public Private Partnership (PPP) for Disaster Risk Management (DRM) is a new concept in Nepal. However this approach promises to be one of the most effective approaches as it helps creating win-win situation by:

- Sharing roles by the public and private sectors in disaster risk management,

- Unleashing the local potentials in fulfilling the roles expected by the society, not only as a responsibility but as “business as usual”,
- Contributing to: reduce disaster risks, protection of the environment, raising voice for a better governance including making cities safer by better enforcement of the building codes; enhancing both the government's and companies‘ ability to recover from earthquake losses.

Major activities of the program are:

“Massive Awareness Campaign” on ERM

A massive awareness campaign is being conducted for raising general awareness on Disaster Risk Management. The campaign itself is being conducted on a public private partnership approach through collaboration with 20 FM radio stations, 2 TV stations, 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, Display boards with earthquake safety, Door to door campaign, Street dramas, thematic video films are being used in order to generate massive awareness among the people.

Weekly half an hour radio programs "Earthquake Safety” is being produced and aired from 20 Radio stations all over the country. A number of Audio PSA’s with earthquake safety message has been produced and are being broadcasted from 20 radios 10 times daily regularly. Local radios are also producing and airing promos and PSAs locally on their own.

Television program has been in the form of regular weekly magazine format and weekly Talk show. Under weekly television program, a special episode "Earthquake Special" has been continuing to produce and broadcast from Nepal Television. This

Regional Meeting with Media Partners (Radios)

In order to orient the production team of the 20 selected radio stations across the country on the subject matter so that they understand earthquake basics and the key issues in the area of Earthquake Risk Management and hence produce the remaining part of the program locally 4 different regional meetings were conducted at four different regions across Nepal.

Regional Meeting in Itahari with 5 Radios in the East

Regional Meeting in Nepalgunj with 6 Radios in the Mid-Far West

Regional Meeting in NSET Hall, Sainbu with 5 Radios in the Central region

Regional Meeting in Tansen with 4 Radios in the West

In the meet a presentation was made on Earthquake basics and key issues in the area of Earthquake Risk Management. Participants interacted much on fundamental understanding and their practicalities and also shared their experiences & further ideas on how this effort of massive awareness campaign through FM Radios can be better impacting. In the meeting Conceptual brainstorming and the review of Radio Magazine Formats was carried out.

is a regular weekly 10 minute magazine format. A DRR focused Television Talk Show 'SANKALPA' has been started from Nepal Television, the state owned national television channel. Another Talk Show "Talk of the Town" has been started from Image Channel, one of the leading private channel of the country.

Enhancement of Public Private Partnership for Earthquake Risk Reduction

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 consultative and brainstorming meetings, workshops has been initiated with major business houses, corporate associations, bankers and insurers, hotel associations network, travel and tourism associations etc.

So far top seven private sectors, 16 corporate sectors, including the professional societies such as the Nepal Engineers Association (NEA), Society of Nepalese Architects (SONA), Nepal Engineering Council (NEC), RUPSON, corporate associations such as FNCCI, NATTA, HAN, TAN has been the part of the process.

Various orientation programs on earthquake safety and talk programs on urban regeneration have also been conducted for the Rotary Clubs, Community Groups and Professional Societies.

Workshop on "Understanding Potential Impact of Natural Disaster on Banking and Insurance Sectors & the need for Preparedness"

Realizing the need and importance of preparedness and policy development even in banking and insurance sectors, a one day workshop on 'Understanding Potential Impact of Natural Disaster on Banking and Insurance Sectors & the need for preparedness was held on 21 December, 2011 at Hotel Yak and Yeti, Kathmandu, Nepal. It was jointly organised by USAID, Nepal USA Chamber of Commerce and Industry (NUSACCI), and NSET.

One hundred and eighty six participants representing the 33 prime banks and 21 insurance company representatives, 24 reporters from 16 different Media were present at the workshop.

Mr. Anil Shah from NUSACCI was the Master of Ceremony (MC) of the Workshop. Honorable Minister Barsha Man Pun, Ministry of Finance graced the workshop as the chief guest. The workshop was initiated with a brief formal opening session addressed by Honorable Finance Minister Pun, President of NUSACCI Mr. Narendra Basnyat, His Excellency Scott H. Delisi, US Ambassador and Executive Director, NSET Mr. Amod Mani Dixit.

The workshop initiated a dialogue among various stakeholders of banking and insurance sectors which can enhance the earthquake awareness and can promote the private organizations to manage the risk as well.

The increased awareness of the private sector on different aspects of disaster risk management would potentially be helpful in creating demand and putting pressure on the part of government and public sector for favorable and conducive policy and legal environments and also in enhancing the level of commitments and potential energy and leadership of private sector to consider Earthquake/Disaster Risk Management as one of the priority areas for mainstreaming into the development processes.

Understanding Potential Impact of Natural Disaster on Corporate Sector and the Need for Preparedness

With an objective to increase disaster awareness and to promote public private partnership for earthquake risk management in Nepal a half day workshop on 'Understanding Potential Impact of Natural Disaster on Corporate Sectors & the need for Preparedness was held on 1 April, 2013 at Butwal Chamber of Commerce Hall, Butwal, Nepal. The workshop was jointly organized by Butwal Chamber of Commerce and Industry (BuCCI), USAID and NSET under the program 'Promoting Public Private Partnership for Earthquake Risk Management (3PERM).

The program was attended by high level officials from Rupandehi districts comprising of the Acting Chief of Rupandehi district Administration office, Local Development Officer (LDO) of Rupendehi District Development Committee, Acting President of BuCCI, past presidents of BuCCI and NSET Representatives. There were around hundred participants at the workshop representing the District level government officials, District CCI members and private sectors, Local NGOs, Media people and NSET representatives. The workshop brought about a realization among the participants on the role of corporate sector in disaster risk Management and the need of disaster recovery and Business Continuity Planning. It initiated a dialogue among various stakeholders of Butwal Chamber of Commerce and Industry which can enhance the earthquake awareness and can promote the private organizations to manage the risk as well.

Half Day Workshop on "Disaster Preparedness of Tour and Travel Business Sector"

With a view to bring travel and tourism sector stakeholders in disaster risk reduction process and raise disaster risk awareness in this sector by implementing various collaborative works together , a half-day workshop on "Disaster Preparedness of Tour and Travel Business Sector" was organized on 28 April 2013 at Hotel Radisson, Kathmandu. The half-day workshop was jointly organized by Nepal Association of Tour and Travel Agents (NATTA) and NSET with the support from USAID/OFDA. There were around one hundred and forty participants at the workshop representing the travel and tourism business sector, other tourism sector business associations, Nepal Tourism Board, Govern-ment and Media representatives. The workshop was initiated with a brief formal opening session attended by high level officials. Mr. Naveen Kumar Ghimire, Secretary, Ministry of Home Affairs , Mr. Purna Chandra Bhattrai, Joint Secretary, Ministry of Culture, Tourism and Civil Aviation, Mr. Robert Friedman, Regional Advisor, Office of Foreign Disaster Assistance (OFDA/USAID), Mr. Pavitra Karki, President, Nepal Association of Tour and Travel Agents (NATTA), Mr. Madhusudan Acharya, 1st Vice President, NATTA and Mr. Amod Dixit, Executive Director of NSET.

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 NSET has gained positive responses from several interaction programs and local and national level workshops held involving local residents, social and political leaders. Government Bodies such as the Kathmandu Metropolitan City Office and Department of Urban Development and Building Construction has assured to support urban regeneration initiatives through their annual program and budgetary provisions.

Transformation of the city core: Left photo (before regeneration), right photo (after regeneration)

National Workshop on Private Sector Engagement in Pilot Urban Regeneration Program in Kathmandu City Core

A Half-day Workshop on "Private Sector Engagement in Pilot Urban Regeneration Program in Kathmandu City Core" was organized on September 16, 2012 in order to discuss the challenges and opportunities of Public private partnership for the urban regeneration in the city core areas of Kathmandu, i.e.; Ward No: 23 and some parts of Ward-21, and to share the initiatives taken so far, at the DUDBC Meeting Hall, BabarMahal, Kathmandu. The workshop was jointly organized by Ministry of Urban Development (MoUD), Department of Urban Development and Building Construction (DUDBC), UNHABITAT, Federation of Nepalese Chamber of Commerce and Industries (FNCCI) and NSET with support from USAID/OFDA.

There were approximately one hundred participants at the workshop representing local and central government agencies such as Ministry of Urban Development, Department of Urban Development and Building Construction, Kathmandu Valley Town Development Committee, KMC, KMC 23 Ward Office, private sector, housing sector, media people, local leaders and residents of the pilot site. The half day workshop comprised of an opening session followed by a technical session, panel discussion and a concluding session. The opening session of the workshop was attended by high level officials from Ministry of Urban Development, Department of Urban Development and Building Construction (DUDBC), Ministry of Federal Affairs and Local Development (MoFA&LD), Kathmandu Valley Town Development Authority (KVTDA), Kathmandu Metropolitan City Office (KMC) and UNDP.

Workshop Outcome

- There has been a consensus that the concept is very good and it has to be done at any costs and at the earliest possible
- Although it's very challenging, we can do it, we have to do it. There are lots of examples within country and outside the country
- The pilot project in Kathmandu should be replicated to other cities of the country also
- There was consensus on the need of urban regeneration– to enhance the quality of life; to conserve the cultural heritage; to reduce the risk of earthquakes and disasters and for sustainability and economic development and diversification

Earthquake Safety Awareness Campaign

NSET and Jagadamba Steels Pvt. Ltd. collaborated for a wider media campaign on promoting Earthquake Safety in Nepal. Under the joint initiative, series of Earthquake Resistant Construction Techniques have been massively disseminated through National broadsheet Newspapers & periodicals. The concepts and ideas shared are simplified versions of construction technologies based on scientific studies and year-long experiences of NSET & many other institutions. The messages have been developed in such a way that it could be individually complete & clear as well as together comprise a set of safe construction techniques in sequence.

Also the collaboration conducted television campaign with the similar purpose. Television PSAs have been produced and disseminated through different Television stations.

another avenue, “Mobile Clinic” aimed at conducting site visits at different localities with pre-plan and give consultation to under-construction buildings’ owners/constructors. The campaign had been named as “OPERATION SAFE CONSTRUCTION”. On such occasions, NSET Professionals served door to door campaign to brief on & impart safe construction knowledge & techniques to the working people and house owners.

This joint initiative has been found to be an exemplary model for Public-Private Partnership (PPP).

NSET Collaborations with Media

Earthquake Special in JanaChaso (TV magazine from Nepal Television)

NSET in collaboration with Watchdog Media Services has been broadcasting 8 minutes special episode on Earthquake (BhukampaVishesh) on the Weekly TV Magazine; 'Jana Chaso' (Public Concerns) of Nepal Television . The main objectives program is to raise public awareness about the risk of earthquake in Nepal among the wider range of population (urban as well as rural areas), to share the ideas, issues and knowledge about earthquake safety in Nepal among the partners and stakeholders; politician, the government & non-government sectors and local communities; and also to support policy advocacies.

Talk of the Town (TV Talk show from Image Channel Television)

NSET and Media Help Line collaborated to produce the weekly program "TALK OF THE TOWN' focused on promoting Earthquake Safety in Nepali communities. The half-an-hour program being broadcasted through Image Channel Television every Saturday at 8:30PM with recast is well known as a complete social hard talk. The main objectives of this series of TV program have been to raise public awareness about the risk of earthquake in Nepal among the wider range of population (urban as well as rural areas), to share the ideas, issues and knowledge about earthquake safety in Nepal among the partners and stakeholders; politician, the government & non-government sectors and local communities; and also to support policy advocacies. The program is presented by Media Help Line in association with NSET under USAID/OFDA funded program OFDA funded program "Promoting Public Private Partnership for Earthquake Risk Management -3PERM")

Sankalpa Talk Show (TV talk show from Nepal Television)

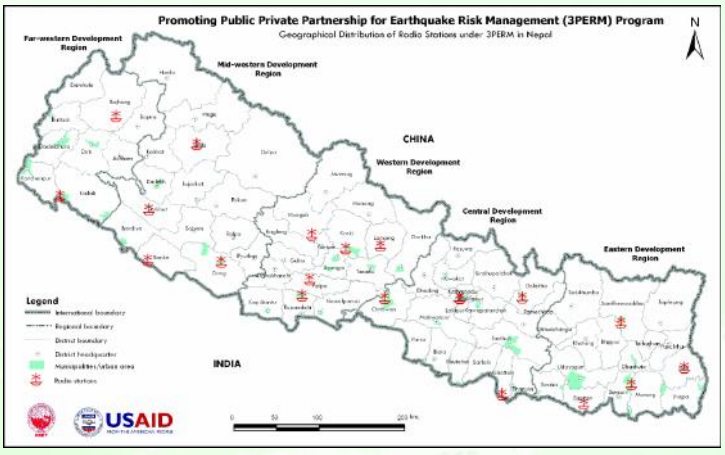
NSET and Watchdog Media Services collaborated to produce a weekly program, a DRR focused Television Talk Show 'SANKALPA' from Nepal Television, the state owned national television channel every Saturday at 7:25-7:55PM with recast. The program is focused on promoting earthquake safety among the wider range of population both rural and urban in Nepal. The program is presented by Watchdog Media Services (in association with NSET under USAID/OFDA funded program OFDA funded program "Promoting Public Private Partnership for Earthquake Risk Management -3PERM")

Earthquake Special in Radios

Earthquake Safety Message from 20 Radio Stations across the Country

Under 3PERM program, 20 Radio stations spread across the country, among from community run as well as commercially operated, are broadcasting half an hour weekly program on Earthquake Risk Reduction. The weekly program has been conceptualized to disseminate information and knowledge on Earthquake Safety promotion. Also, Public Service Announcements (PSAs) on Earthquake Safety promotion are being aired daily at least 10 times from the respective Radio stations.

Radio Station	Address	Program day/time
Radio Chhinnamasta FM	Rajbiraj, Saptari	Wednesday 8:00-8:30PM
Khandbari FM 105.8 MHZ	Khandbari-1, Sankhuwasabha	Wednesday 7:00-7:30PM
Radio Nepalbani F.M.94.9	Ilam Municipality-1,	Saturday 7:00-7:30PM
Saptakoshi FM	Itahari, Sunsari	Saturday 7:00-7:30PM
Kalinchowk FM	Bhimeshwor -1, Dolakha	Wednesday 7:00-7:30PM
Radio Rudraksha (103.4 Mhz.)	Jaleshwor-5, Mahaottari	Thursday 7:00-7:30PM
Radio Sagarmatha 102.4 MHz	Bakhundole, Lalitpur	Tuesday 7:30-8:00PM
Radio Triveni 100.6 Mhz	Bharatpur-11, Chitwan	Tuesday 7:30-8:00PM
Ujyaalo 90 Network	Jawalakhel, Lalitpur	Friday 7:30-8:00PM
Radio Annapurna 93.4 MHz	Gairapatan 4, Pokhara	Saturday 5:30-6:00PM
Radio Marsyangdi 95 MHz	Besishahar-2, Tribeni Tole, Lamjung	Tuesday 7:00- 7.30 pm
Shreenager FM Palpa 95.5	Tansen, Palpa	Saturday 8:00- 8.30 pm
Butwal FM Rupandehi, Butwal 94.4	Butwal, Rupandehi	Sunday 7:30-8:00PM
Radio Myagdi 104.4 MHZ	Arthunge-1, Myagdi	Friday 7:30-8:00PM
Bulule FM Surkhet	Birendranagar, Surkhet	Tuesday 7:00- 7.30 AM
Radio Krishansar F.M.	Nepalgunj-16 Sirjanamarg, Banke	Thursday 7:30-8:00AM Repeat Saturday 7:30-8:00AM
Radio Karnali, 105.2 MHz	Mahat-1, Jumla	Tuesday 8:00-8:30PM Repeat Sunday 7:30-8:00AM
Radio Swargadwari, 102.8 MHz	Tribhuwan Nagar-11, Shivabasti-Dang	Thursday 7:30-8:00AM
Dinesh FM 93.8 MHz	Dhangadhi, Kailali	Friday 6:00-6:30PM
Saipal FM 100.6 MHz	Hemantawada-1, Bajhang	Tuesday 7:30-8:00PM



Chapter 9

NSET involvement in National, Regional and Global Initiatives

To establish and maintain cooperative relationships and networking with as many organizations and disaster management practitioners as possible, and to contribute further to international efforts for disaster risk reduction is very essential. Good practices and experiences gained needs to be shared within the nation and across the globe.

NSET is committed to increase collaboration among INGOs/NGOs and other stakeholders, transfer knowledge and reach out to the largest number of people as possible.

NSET is the national member of the International Association for Earthquake Engineering (IAEE). Since 1993, NSET has been a member of the World Seismic Safety Initiative (WSSI). It organized the High Level Meeting of WSSI in Nepal in 1993, even before the official registration of the organization. It is also a member of various disaster reduction networking groups worldwide.

NSET is the Founder Member and a Board Member of the Asian Disaster Reduction and Response Network (ADRRN), which is a regional network consisting of 34 national NGOs from 16 countries across the Asia-Pacific region.

NSET is the Founder Member of Disaster Preparedness Network (DPNet-Nepal) which was established in 1996 as a loose association of individual organizations working in DRR and Development sector in Nepal.

Also NSET is a Founder Member of the Coalition for Global School Safety (COGSS), a Founder Member of the International Live Lessons Transfer Network (TeLLNet) and a member of a host of other networks as well as national and international technical committees.

Towards strengthening its networking and outreach, NSET has promoted various innovative initiatives during 2010-2012.

- NSET is the founding member of recently formed network named National Network of Women for Community Resilience – Nepal, a national network of 7 NGOs of

diverse expertise to reach to the most vulnerable communities by engaging grass root women leaders across the county on three main areas of disaster management- awareness, coordination and capacity building of women in making the community resilience from disasters. Apart from the member organizations, it is also supported by HUAIROU Commission and GROOTS International. NSET also intends to implement disaster risk reduction programs through this national network.

Earthquake Preparedness of Communities through Women's Network: A Collaborative Initiative

Involvement of women and women's groups/networks has been identified as one of the effective way to motivate, mobilize communities to reduce the risks and enhance the preparedness of communities. With a view to enhance the awareness of women's group members and house-owners on earthquake risk and risk reduction measures, the members of National Network of Women on Community Resilience (NNWCR) - NSET, Lumanti and two grassroots women network such as Community Women Forum (CWF) of Thankot and Kirtipur Women's Group (KWG) came together with a program on earthquake preparedness and mitigation in a collaborative approach.

The program 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.

- NSET as an active member of the Asian Disaster Reduction and Response Network (ADRRN), this year hosted ADRRN Roundtable in Kathmandu. ADRRN Roundtable Dialogue entitled “Disaster Risk Reduction in Areas of Conflict” was convened by the Asian Disaster Reduction and Response Network (ADRRN) with the support from The Australian Agency for International Development (AusAID) during Feb 2-4, 2011 at Park Village Resort and Hotel, Budhanilkantha, Kathmandu, Nepal. It was the first since it’s founding for the ADRRN to convene a conference focused on human-induced disaster, or specifically, armed conflict.

  The two and a half day meeting was attended by 14 participants from 6 different countries viz Pakistan, Afghanistan, Srilanka, Philippines, Indonesia and Nepal. For the entire period, the participants extensively engaged themselves in sharing each other’s experience. The Roundtable was a platform for colleagues who came from countries in situations of armed conflict, and for some - post conflict, and, therefore, had the ground-based experience and expertise in peace and development, to share their respective views, insights and learning as well as recommendations. The meeting was divided into six different Country Specific Thematic presentations.

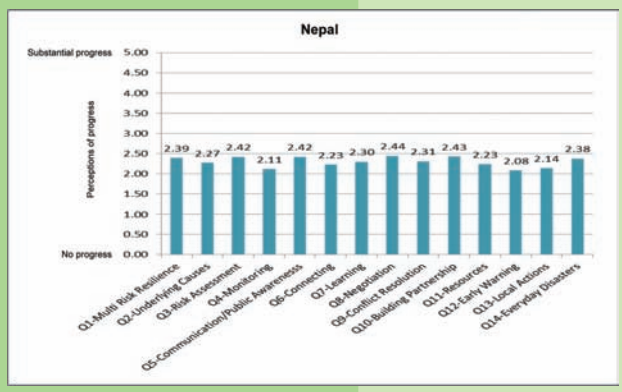
  The participants of the meeting came up with a conclusion that the meeting was very fruitful in sharing of experience, insights and learning from others and that such roundtable meeting needs to be scaled up engaging the donors, the government, the private sector, media and other concerned stakeholders. The ground-based insights of community leaders and NGO peace builders and development facilitators have to be raised to higher levels of policy advocacy in regional and international forums on the subject of sustainable peace and development engagement.

Views from the Frontline

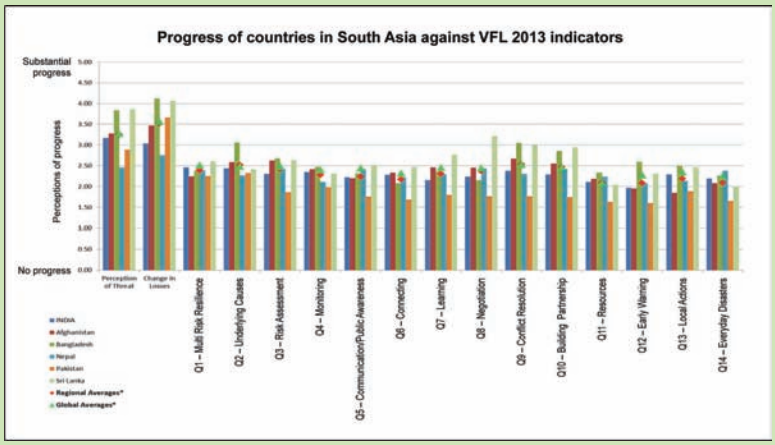
NSET is the national coordinator for Nepal and the regional coordinator for South Asia for the 'Views from the Frontline' survey which is the part of a global effort led by Global Network of Civil Society Organizations for Disaster Reduction (GNDR) in the year 2009, 2011 and 2013.

Views from the Frontline (VFL)' is an action-research project undertaken by civil society stakeholders in conjunction with government bodies. It aims at measuring progress towards implementation of the Hyogo Framework for Action (HFA) at the local level through the participation of different stakeholders across developing countries and regions. The main goal of 'Views from the Frontline' is to support the effective implementation of the HFA to build the resilience of vulnerable people and communities at-risk to disasters. This independent review is being coordinated by the Global Network for Disaster Reduction (GN) and implemented by civil society actors. It seeks to complement the biennial national level HFA Monitoring and Progress Review being facilitated and coordinated by the UN-ISDR.

The first edition of VFL 2009 showed that in Nepal DRR activities were very limited and that the communities are not prepared to respond to the myriads of disasters. The assessment process continued in 2011 and the assessment focused at the role of local governments in DRR at the local level. The overall average score of 2.05 for the local governance indicators from the VFL 2011 showed that still there is a long way to go. The present VFL 2013 focused on Action and Learning. Altogether 14 different Participating Organizations (POs) across the country including DRR Volunteers were involved in the VFL 2013 survey process. And a total of 917 survey forms from different parts of the country were administered. The survey results showed that the Action and Learning Indicators have low scores and are rated at similar levels; the average score of 2.30 indicates that the progress is to a very limited extent/ there are some activities but significant scope for improvement.



Progress of Nepal against VFL 2013 indicators



National Workshop: Multi-stakeholder consultation for monitoring of progress on HFA implementation at local level

The Hyogo Framework for Action (HFA) monitoring and review process is intended to promote a collaborative approach to measure progress through the engagement of multiple stakeholders from government, civil society, private sector and communities. UNISDR has been facilitating a multi-tier HFA review process that is currently concentrated at the national and regional level. More than one hundred countries have been carrying out the review process at the national level since 2008. Including local governments and civil society organizations (CSOs) to bring in the local perspective in monitoring HFA progress was recommended in the Chair's summary of the second

session of the Global Platform for Disaster Risk Reduction 2009. A third tier of HFA review process at the local level is being initiated to bring the local perspective to the national HFA review process.

In support of the widespread application of multi-stakeholder and multi-level HFA monitoring a series of five pilot countries (Armenia, Mozambique, Peru, Indonesia, Nepal) workshops were planned in partnership with the Global Network of Civil Society Organizations for Disaster Reduction (GNDR) and DG ECHO. The workshop in Nepal was one of such five pilot country workshops to review progress on implementation of HFA at the local level.

The workshop was focused on enabling a structured dialogue between different state and non-state actors active in disaster risk reduction at national and local levels. Bringing together national and local level perspectives will help to establish a clear picture of progress. This can then be used to guide policy discussions, identify gaps and formulate actions that will accelerate progress of the HFA at national and local levels.

The workshop aimed to establish a clear picture of progress of the HFA at national and local levels by bringing together national and local actors working in disaster risk reduction sector with the following specific objectives:

- To initiate a multi stakeholder dialogue at the local level with local specific set of indicators that contributes to the national level dialogue and the reporting process;
- To introduce a local HFA monitoring and review framework and gather feedback on the tools and processes; and
- To reach consensus and mutual understanding among different national and local actors on the needs and priorities for disaster reduction, leading to agreed actions and collaborative approaches to accelerate implementation of the HFA.

The workshop was organized by Ministry of Home Affairs (MOHA) of the Government of Nepal under the general guidance of the UNISDR Regional Office at Bangkok. Ministry of Local Development (MOLD) supported the workshop in bringing local authorities to the workshop. The NSET, coordinated and conducted the workshop as the local civil society partner.

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

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, 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.

The collaborative research project on "Earthquake without Frontiers: A Partnership for Increasing Resilience to Seismic Hazard in the Continents" was launched in Nepal formally on 16 January 2013. This Earthquake without Frontiers (EwF) project launch meeting and workshop was hosted by NSET. The event brought together more than 25 national-level stakeholders involved in earthquake risk reduction in Nepal including representatives from government ministries and departments; international organizations including the UNDP; funding agencies such as the World Bank, DFID; NGOs; and universities.

Live interactive Video conferencing in other parts of the world during the workshop added more value to the event.

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 trainings during the period.

Mr. Amod Dixit participated and contributed in "HFA Local Level Workshop" organized by ISDR Bangkok during 7-8 March, 2011. The workshop was focused on issues of HFA traslation at local level in South and South east Asia.

Mr. Ranjan Dhungel participated in "Workshop in Increasing Resilience to Natural Hazards" at Durham University, UK in March 2011

Mr. Amod Dixit attended "Disaster Reduction Hyperbase - DRH Meeting" at DPRI Kyoto University during 24-25 March,2011 in Kyoto University, Japan.

Mr. Bijay K. Upadhyay participated and participated in "ISDR Asia Partnership (IAP) Meeting" held in Jakarta, Indonesia during 29-31 March, 2011

Mr. Amod Dixit contributed in High level forum on “Mainstreaming Disaster Risk Reduction in Asia- Moving Faster from Policy to Practice" during 11-17 April 2011 in Washington DC, USA.

Mr. Amod Dixit served as a Resource Person on "Disaster Risk Reduction Training Course" organized by UNDP/ Egypt during 22-26 May 2011 in Cairo, Egypt.

Mr. Surya Narayan Shrestha participated in "1st Annual Regional Earthquake Response Seminar" during 30 May-2 June 2011 held in Dhaka, Bangladesh.

Mr. Amod Dixit attended Global Earthquake Model (GEM) Outreach Meeting held in Beijing, China during 7-9 June 2011. He sits in Scientific Board of GEM.

Mr. Amod Dixit attended "TAC Meeting on Development of Practitioners Primer on Disaster Risk Management Practices in Asia" held in Bangkok, Thailand during 13–14 June, 2011.

Mr. Amod Dixit attended Executive Committee Meeting of Asian Disaster Reduction and Response Network (ADRRN) held in New Delhi, India during 1-2 September 2011. He sits in the Board of ADRRN.

Regional workshop of GEM held in Nepal

The Global Earthquake Model (GEM) Foundation, Italy and NSET jointly organized a South Asia Participatory Workshop of the Global Earthquake Model (GEM), and also a GEM Technical Training on 'The Methodologies and Tools for Seismic Hazard and Physical Risk Assessment at the Dhulikhel Lodge Resort, Dhulikhel, Kabhrepalanchowk, Nepal during 1-3 March 2013. The program was sponsored by US Agency for International Development (USAID).

The main purpose of the GEM South Asia Participatory Workshop was to promote collaboration among South Asian countries in aspects of earthquake risk management through participation and use of GEM resources. The purpose of organizing the GEM Technical training (GEMTRAIN) was to explain to the young professionals of the region the methodologies of hazard, physical risk and integrated risk assessment developed and promoted by GEM. This facilitated uniform understanding and promoted discussion and sharing of information on seismology and earthquake engineering. Both Senior Experts and decision-makers and young experts from South Asian countries attended the Workshop and the Training program.

Mr. Amod Dixit contributed in "Launching of the GRIP-backed Center of Excellence for Risk Assessment and Management" held in Shanghai, China in October 2011.

Mr. Amod Dixit joined in Provisional program: Disaster risk reduction in Asia: Identifying and maximizing opportunities for Action held in Bangkok, Thailand in February 2012.

Annual General Assembly of Asian Disaster Reduction and Response Network (ADRRN) was held in Phnom Penh, Cambodia in February 2012. From NSET, Mr Amod Dixit and Mr. Yogeshwor Parajuli participated in the meeting.

Mr. Amod Dixit contributed in "2nd Technical Advisory Panel Meeting for Development Practitioner's Handbook on Urban Disaster Risk Management (UDRM) in Asia" held in Bangkok, Thailand in March 2012.

Mr. Amod Dixit contributed in "A consultative meeting of the Global earthquake Model (GEM) on School Safety " in Pavia, Italy during 28 - 30 March 2012.

Mr. Nirakar Joshi joined "Training Program on Humanitarian Response Mechanism" organized by ADRRN in partnership with UN-OCHA in Manila, Philippines in March, 2012.

Mr. Amod Dixit contributed in "Meeting of Consultative Group (CG) of the Global Facility for Disaster Reduction and Recovery (GFDRR)" at The World Bank in Washington DC during 15-17 April 2012.

Mr. Amod Dixit attended "Semi-Annual meeting of the Global Earthquake Model (GEM) Foundation" hosted by Taiwan Earthquake Model (TEM) at Academia Sinica in Taipei, Taiwan ROC during 6-9 June 2012.

Mr. Amod Dixit joined CAPRA Training on ‘2012 Understanding Risk Forum’ at Cape Town, South Africa organized by Government of South Africa and The World Bank in Cape Town, South Africa during July 2-6, 2012.

Ms. Hima Shrestha contributed in Regional Workshop on "Knowledge-sharing for effective earthquake risk reduction in South Asia" formulated by the Bureau for Crisis Prevention and Recovery (BCPR) with funding from the Government of Japan held in New Delhi during July 12-13, 2012.

Mr. Ganesh Jimee joined in "International Visitors Leadership Program (IVLP) on Emergency Preparedness and Crisis Management in USA" funded by US Department of State (DOS) during August 20- September 12, 2012.

Mr. Amod Dixit participated in "National Conference on Disaster Management: Lessons Learnt from Past Disasters in India" organized by Sikkim State Disaster Management Authority and Land Revenue and Disaster Management Department, Gangtok, India during September 17-18, 2012.

15th World Conference on Earthquake Engineering (WCEE) held in Lisbon, Portugal during September 24-28, 2012. This year more than 3000 participants from all over the world attended the conference. 16 Papers from Nepal were selected for the mega event and the event was participated by 14 delegates from Nepal, 4 from Department of Education, Government of Nepal and 10 from NSET. From NSET were Mr. Amod Dixit, Mr. Yogeshwar Parajuli, Mr. Surya Narayan Shrestha, Mr. Surya Bhakta Sangachhe, Mr. Surya Prasad Acharya, Mr. Bijay Upadhyay, Mr. Ganesh Jimee, Ms. Hima Shrestha, Ms. Maritess Tandingan and Ms. Niva Upreti.

Mr. Surya BhaktaSangachhe and Mr. Gopi Krishna Basyal participated in the "Training on Risk Sensitive Land Use Planning (RSLUP)" organized by Earthquakes in Megacities Initiatives (EMI) in Philippines, Manila during October, 14-21, 2012.

First international planning conference of partners of Earthquakes Without Frontiers Consortium Project (Earthquakes without Frontiers: A Partnership for Increasing Resilience to Seismic Hazard in the Continents) held in Cambridge University, London, UK during October 19-21, 2012. Mr. Surya Narayan Shrestha from NSET contributed in the conference.

Mr. Khadga Sen Oli participated in "5th Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR)" held in Yogyakarta, Indonesia jointly hosted by the Indonesian National Agency for Disaster Management (BNPB) and the United Nations International Strategy for Disaster Reduction (UN-ISDR) during October 22-25, 2012.

Mr. Ramesh Guragain contributed in "URBAN RISK Management Workshop (Urban Risk Management - Arab States Community of Practice 2012)" organized by UNDP in Cairo, Egypt during November 4-6, 2012.

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

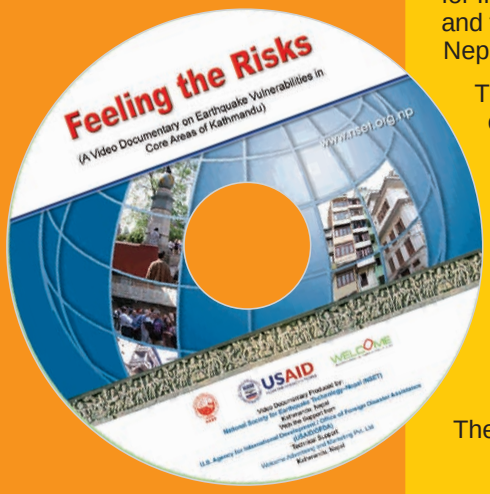
Ms. Bhubaneswari Parajuli participated in "Training program on Disaster Response and Recovery" organized by Mercy Malaysia with financial support from MTCP (Malaysian Technical Cooperation Program) in Kuala Lumpur, Malaysia during 18 – 23 Feb, 2013.

Mr. Ganesh Kumar Jimee contributed in “South Asian Citizen Forum”, a workshop on Disaster Risk Reduction (DRR) conducted by SEEDS India with financial support from UNICEF in Delhi during 11-12 March, 2013.

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

Feeling the Risks

(A Video Documentary on Earthquake Vulnerabilities in Core Areas of Kathmandu)



NSET has produced Feelings the Risks (A Video Documentary on Earthquake Vulnerabilities in Core Areas of Kathmandu) with the support from United States Agency for International Development (USAID) / Office of Foreign Disaster Assistance (OFDA) and technical assistance from Welcome Advertising & Marketing Pvt. Ltd., Kathmandu, Nepal.

The vulnerability and high earthquake risk of Kathmandu valley can be felt and observed through simply walking around few core city areas in Kathmandu. Earthquake Vulnerability Tour that NSET is executes is hence a walking tour to such core areas to observe and feel the earthquake vulnerabilities. This short video is the visual compilation of one of such routes of vulnerability tour in Kathmandu, the route of Bhugol Park - Indra Chowk – Chokhachhen Galli – Itum Bahal where we can see much vulnerability, increasing risks, traditional wisdom & local capacities to cope with potential threats.

witness the ground situations is believed to be a factual help to planning processes of comprehensive disaster risk management at community to national level.

The video is available at: http://www.youtube.com/watch?v=VZL4-Ui4p4g

Vulnerability Tour to City Core Area of Kathmandu and other Cities

Earthquake walks (Vulnerability Tour) to City Core Areas of Kathmandu and Patan

Earthquake Vulnerability Tours conducted by NSET are used as a vehicle for raising awareness and educating people on ways to reduce earthquake risks gradually.

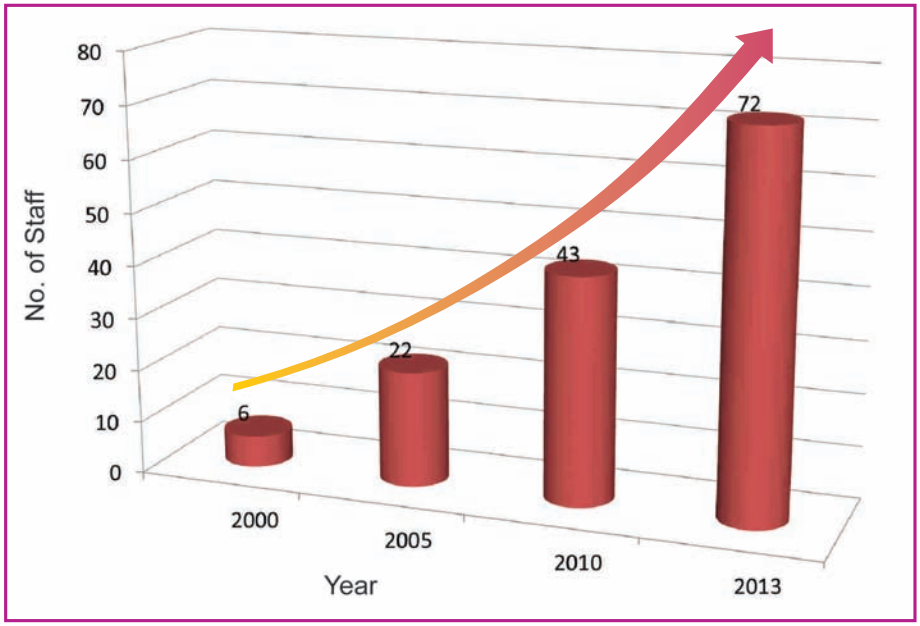
The Earthquake Vulnerability Tour is an innovative awareness tool initiated by NSET. It is a guided tour in which the participants are taken along certain pre-identified routes in the city and are encouraged to discuss the risks as well as measures to reduce them. The tour aims to point out how vulnerable the city's buildings and critical facilities, such as schools and fire stations, are to earthquakes. NSET believes that this tour will help to know the ground reality of our cities which may help to reduce the level of earthquake risk in our cities. The tour mainly focuses on qualitative observation of building conditions along with lifeline and their combinations. Selection of the route is based on the visitor's interest, time, and level of their knowledge. It is anticipated that "champions" volunteers will create similar guide and tour for similar cities. So far NSET has conducted more than 100 earthquake vulnerability tours for national and international experts, decision makers, responders, media personnel and community leaders in one of the most risk cities of the world, Kathmandu.

Chapter 10

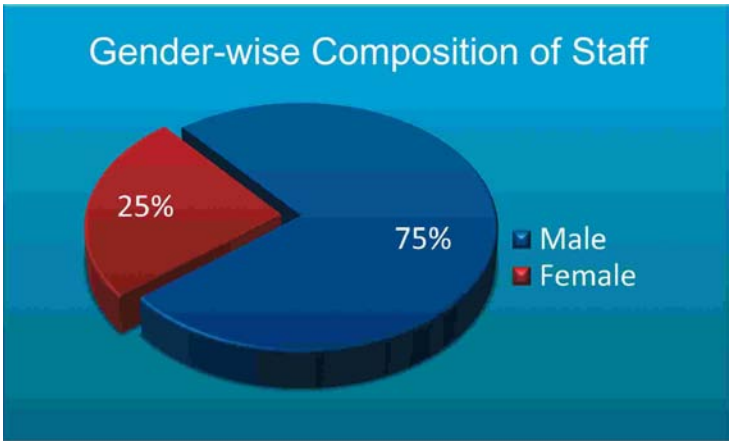
Organizational Development

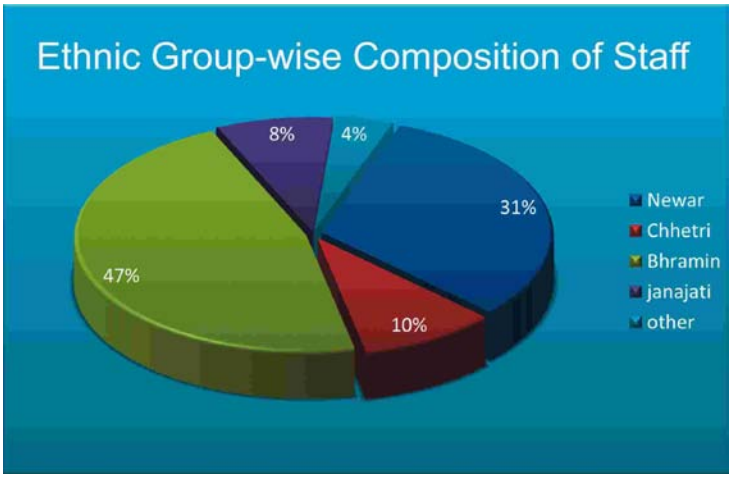
NSET: Then and Now

NSET started its first project, the Kathmandu Valley Earthquake Risk Management Project (KVERMP) in 1997. During that period NSET had a total staff of five and barely enough equipment in its office. With the growing years, NSET has developed as an organized institution with large number of qualified staff and physical facilities. The following figures and chart shows the organizational development of NSET.

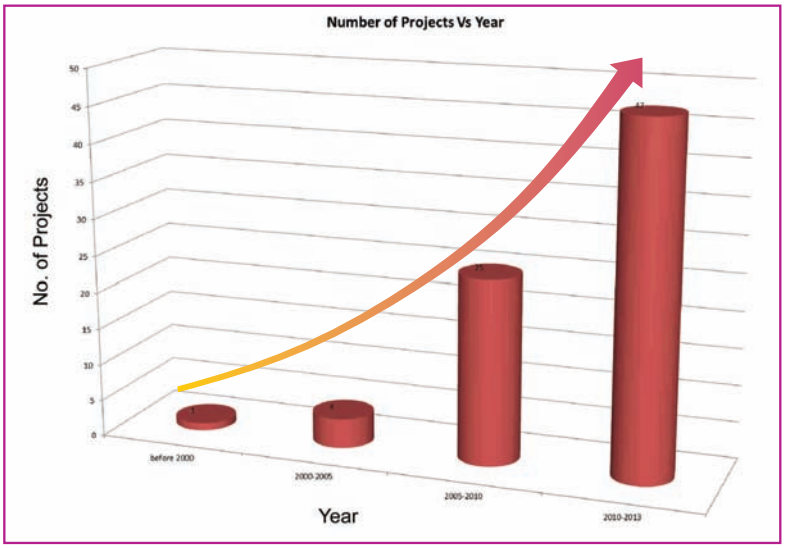


Growth in the number of staff



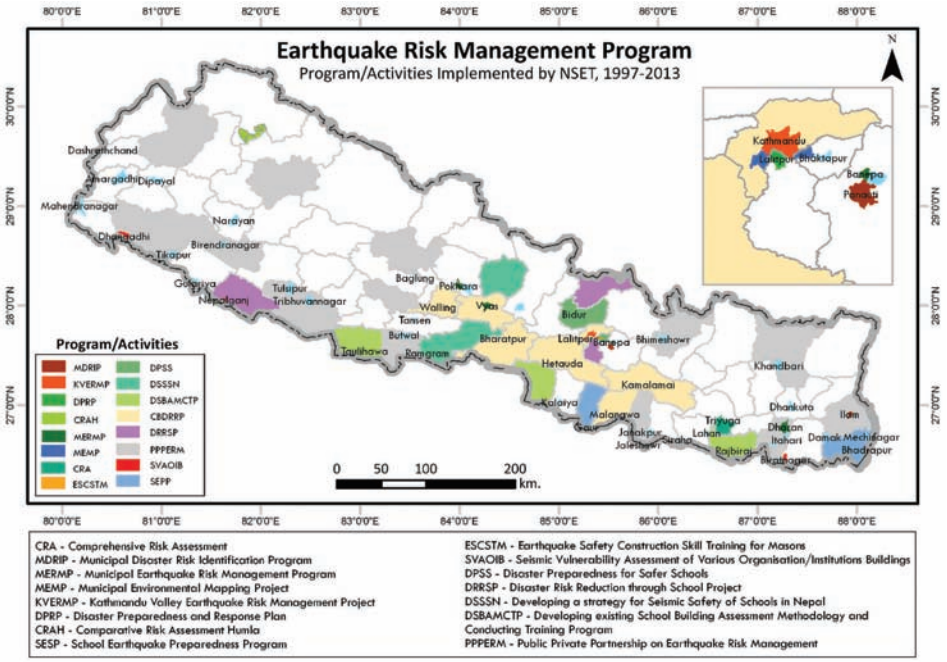


NSET had started off with just two-three projects in hand in the earlier years and the coverage area was also limited. Whereas in the recent years the number of projects has increased considerably. Also the geographical coverage has expanded significantly.



Growth in the number of projects

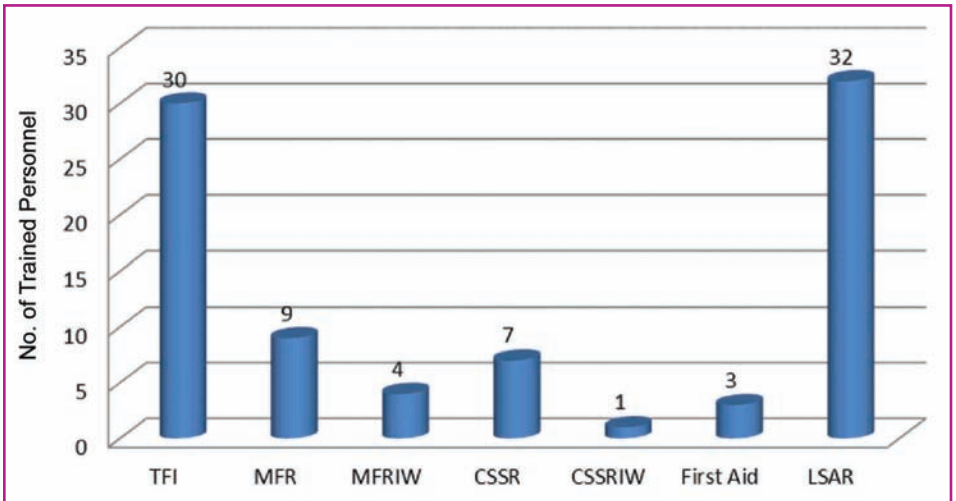
Geographical Coverage of NSET



In-house Capacity Enhancement

Capacity Development of Staff / Professionals

Capacity building of staff is an integral component of organizational development. NSET is committed to build the capacity and enhance the knowledge of its staff members through various trainings and human resource development programs so that the staffs could be encouraged to deliver innovative and quality works.



Training for Instructors (TFI)	Medical First Responder (MFR)	Medical First Responder Instructor Workshop (MFRIW)	Collapsed Structure Search & Rescue (CSSR)	Collapsed Structure Search & Rescue Instructor Workshop (CSSR)	First Aid	Light Search & Rescue (LSAR)

Trained human resource in verious emergency response functions

Adoption of Amateur Radio for Emergency Communication in Nepal

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 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.

Amateur Radio was first operated in Nepal in 1955, but in contrary to its long history, Nepal still has only a handful of licensed amateur operators. Adding up in the list of just half dozen operators, 21 persons have passed exams conducted by MOIC in November 2011 for Operator's License. With the view to enhance Ham spirit in Nepal, NARL, CAN-USA and NSET in association with IOM, IOE, CAN & IDCC jointly conducted first ever exercise of "Hospital Network" to check how emergency communication could be established from health facilities. Licensed Operators transmitted the vital statistics of the hospital from selected five hospitals namely; Teaching Hospital, Army Hospital, Civil Hospital, Bir Hospital and the Chhetrapati Free Clinic to the NET Control (Command System) at NSET Building exclusively using Ham Radio.

CAN-USA has contributed nine Handheld Radio sets to operators and also equipments for a functional cross band repeater now installed at NSET. Experience has repeatedly shown that Amateur Radio saves lives following disasters.

HF Station set up at NSET

Nepal's Amateur Radio community is progressing appreciably during the later time. Now the organized efforts are more focused on strengthening Nepali Amateur Radio as one of the most reliable communication means for Disaster Emergencies. In order to help establish link, HF Station has been set up at NSET on June 8, 2012 with a call sign of 9N1KS.

A modified Kenwood Ham Band HF Transceiver (TS-120) lend by Mr. SK Kharel (9N1AA) was set up by Nepali OMs 9N1AA and 9N1HA. The transceiver equipment was later replaced by Kenwood TS-570S G Radio donated by Dr. Charlse Harpole (K4VUD).

After establishing HF station, demonstration was made on how such communications could be established. First few QSOs (communications) established were with ham radio operators from India, Indonesia, Argentina and Thailand. Ham operators from NARL, NSET and IOE observed and learned about the procedures.

Earlier in April 2012, repeater Kenwood TM-V71A, a UHF/VHF Cross-band was installed at NSET which is allowed for any 9N Ham to use. CAN-USA had then donated the equipment together with 8 more Handheld Radios for Nepali new Hams from NSET & IOE and also provided technical support for operating such technologies. The 9N1KS repeater is located atop the NSET building on the southern outskirts of Kathmandu transmitting on 145.000MHz and receiving on 434.500MHz with no tone.

NSET Emergency Response Plan

NSET envisions its physical facilities and personnel to be a strong resource during earthquake disaster situations. It will serve as Emergency Information Center to assist the response effort by the government, international and local agencies. Therefore, NSET has to have a strong emergency response system. With this consideration, NSET has developed and has been practicing an Emergency Response System.

The emergency response system is in the written form as a "Earthquake Preparedness and Emergency Response Plan (EPER)". Key components of the system are:

1) Emergency communication system
   - Communication tree considering the location of staff members' residences
   - Staff members' emergency contact detail (In Case of Emergency – ICE)
   - Emergency Diary including important contact numbers
   - Satellite phones and HAM Radios
2) Emergency response teams with clearly identified risk and responsibilities
   -First Aid/Medical response Team
   -Damage Assessment Team
   -Search and Rescue Team
3) Emergency Evacuation plan for NSET building
   - Safe and unsafe places
   -Immediate gathering places
   -Evacuation routes
   -Assembly areas
4) Prepositioning of critical supplies
   -Reserve Fuel (diesel) sufficient for 3 months (for backup generator and vehicles)
   -Food Items (sufficient for 50% of its staff for 1 month)
   -Earthquake Survival kits (Earthquake Go Bag) with all staff members
   -Household Emergency Kit at residences of staff members
5) Trained Emergency Response Teams andEquipment sets
   - 2squads of Medical First Responders (MFR)
   -1 squad of Collapsed Structure Search and Rescue (CSSR) personnel
   -1 complete set of MFR equipment
   -1 complete set of CSSR equipment
   - 1complete set of Community Level Light SAR equipment
   - 1 big store of Pre - positioned Emergency Rescue Supply (PPERS)- (130personal can be mobilized with the set)
6) Provision of tents and furniture to set up an emergency office
   -1 big tent to set up emergency office
   -Portable tables and chairs
   -Tent for toilets and showers

In addition NSET has continuously functioning system of;

- Structural and non- structural vulnerability assessment and vulnerability reduction in the office premise
- Structural and non- structural vulnerability assessment and vulnerability reduction at residences of staff members
- Orientation and training of staff members and families
- Emergency Response Drill(2 times a year)

All activities are conducted as per Annual Emergency Preparedness Calendar.

NSET Communication System

NSET understands the vital role of communication system in the disaster risk management. Therefore, NSET has a robust communication system.

Major components of the communication system are:-

- A fully equipped server room with various high end servers namely
  - Mail Server
  - File Server
  - Web Server
  - Backup Server and
  - GeoNode Server
- All workstation are connected with high speed internet
- Robust backup system for internet connectivity
- Primary connection –Optical Fiber Lines
- First backup- Radio links connection
- Second backup –Thin route VSAT connection

Mobile VSAT facility- Thin Route VSAT System

Thin Route VSAT (A very small aperture terminal (VSAT), is a two-way satellite ground station antenna with a dish antenna that is smaller than 3 meters) solution is for the backup connection to existing Radio and Fiber link that connect our office to internet. This solution will bypass the entire terrestrial route and connect our office directly to the internet from Mercantile-Kantipath Hub.

With this technology NSET can have fully redundant backup for fast and reliable internet connectivity with 99% of network uptime. This system can also be used to multicast the content to remote locations in effective way. Above all, fast establishment of the connectivity despite of geographical difficulty is the key charm of this device.

- All meeting rooms are available with Wi-Fi system
- A radivision video conference system
- System of IP cameras for live video streaming of workshops, meetings, seminars organized in NSET meeting rooms.

- A network of CCTV cameras with night vision for continuous monitoring of activities within NSET premises.
- 4 sets of Satellite phones for emergency communication: Thuraya Hughes 7101 with the numbers 8821687729380, 8821687729048, 8821687701277 and 8821687729179
- 5 sets of low range Walkie Talkie: Binatone MR200

Ham Radio:

VHF Repeater - Call sign 9N1KS, Type - Kenwood TM-V71A, UHF/VHF Cross-band installed atop the NSET building, Frequency - Transmitting on 145.000MHz and receiving on 434.500MHz with no tone.

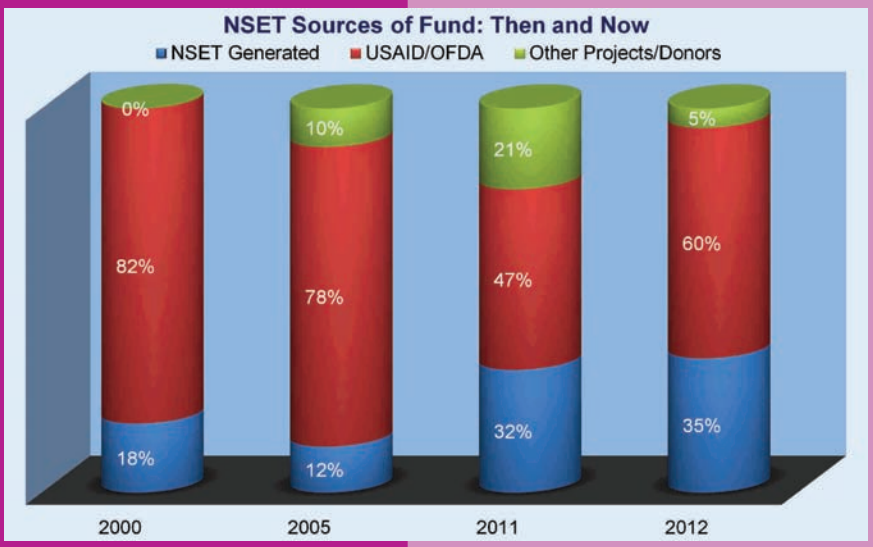
HF Repeater: Call sign 9N1KS, Kenwood TS-570S G Radio, Half wavelength sloper Dipole Antenna capable of transmitting and receiving at 20m Band (14MHz)

Licensed Ham Operators from NSET

9N1SS **9N1GJ** **9N1NU** **9N1NS** **9N1KS**

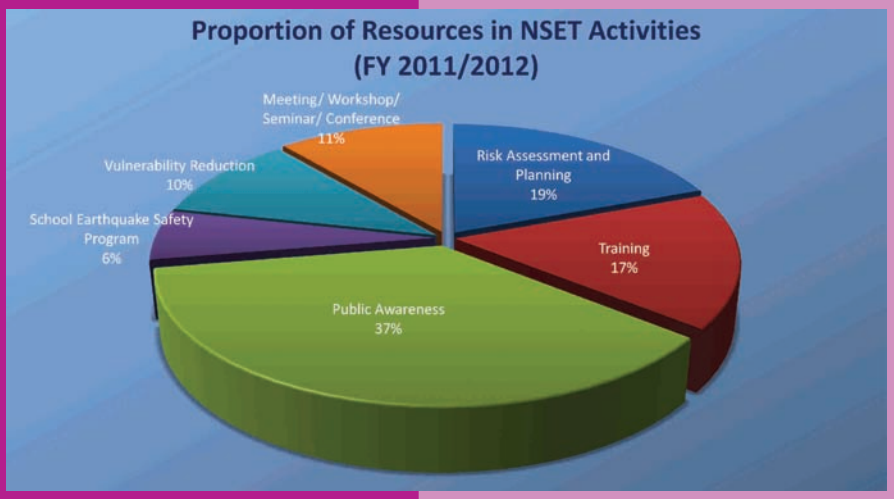
Financial Sustainability

NSET has been continuously trying to diversify its sources of funds so as to ensure financial sustainability. Earlier, NSET had to depend large on a single source of fund i.e USAID/OFDA. However, financial status reports show the trend of funding sources of NSET.



There is a gradual increase in NSET generated funds through selling of its services in the form of building vulnerability assessment of existing buildings, orientation programs and emergency preparedness planning and drills.

In terms of expenses, there has been almost a consistent trend in pattern of expenses of funds. As observed in 2012, significant proportion of the expenses has gone to awareness raising efforts. Approximately equal proportions have been spent on Trainings and Capacity Building; Risk Assessment, Planning and Implementation; and also on Risk Reduction Activities.



While continuing and emphasizing on raising awareness, the need is also to shift the paradigms more towards risk reduction efforts and build local capacities to enhance disaster resiliency of communities. Together working in more coordinated and organized ways with the Communities, Government Agencies, UN Systems, CBOs, NGOs, INGOs, Private sectors and many more stakeholders we can achieve this goal.

This is hence NSET still need financial support, still have to raise funds, and still have to provide fee-based services to be able to pay all efforts at numerous points at need. Developing local capacities , sharing of knowledge and experiences, helping develop local resilience are ruling criteria for NSET services, that we deliver in cooperation with Government and non government partners at local, national and also in international level.

National Society for Earthquake Technology - Nepal

Income and Expenditure Statement

for the period from Shrawan 1, 2067 to Ashad 32, 2068

Particulars	Schedule	NSET NRs	NERMP I NRs	NERMP II NRs	PEER NRs	SESP/Unicef NRs	SESP/World Bank NRs	DPSS I /ARC NRs	DPSS II /ARC NRs	CBDRM/LWR NRs	Current Year NRs	Previous Year NRs
Income												
Professional Service Charge		24,671,288.76	-		-	-					24,671,288.76	24,114,276.39
Earthquake Safety Day		1,067,000.00	-		-	-					1,067,000.00	1,956,500.00
USAID/OFDA Grant/UNDP			155,075.88	4,458,353.85	62,834,657.62						67,448,087.35	70,113,929.09
Action Aid Nepal												705,924.00
World Bank			-		-		5,670,986.40				5,670,986.40	3,780,657.60
American Red Cross								13,909,660.19	2,036,926.02		15,946,586.21	2,239,586.37
LWR							-			5,884,809.25	5,884,809.25	-
Unicef						1,045,220.00					1,045,220.00	-
PEER Overhead (PEER III)	V	2,927,914.05	-		-	-					2,927,914.05	3,157,908.81
PEER G & A (PEER III)	V	12,286,319.42									12,286,319.42	6,874,766.71
PEER G& A (PEER II)	V	(364,687.78)									(364,687.78)	-
Donation for CELC NSET building		150,963.75									150,963.75	-
Contribution from/For Publication		128,150.00									128,150.00	286,915.00
Membership Fee		5,500.00									5,500.00	-
Income from Other Sources		3,634,712.02			(2,235,246.60)		1,939,551.44				3,339,016.86	2,507,973.81
Total Income		**44,507,160.22**	**155,075.88**	**4,458,353.85**	**60,599,411.02**	**1,045,220.00**	**7,610,537.84**	**13,909,660.19**	**2,036,926.02**	**5,884,809.25**	**140,207,154.27**	**115,738,437.78**
Expenses												
SESP Expenses - Reconstruction and Wages	VII	1,367,131.90	-		-	-					1,367,131.90	429,201.34
Public Awareness	XI	3,114,213.97	(64,378.18)	462,590.49	-	-		1,156,751.95			4,669,178.22	982,124.16
Earthquake Safety Day	VIII	1,425,807.61	(41,200.24)		-	-					1,384,607.37	1,536,770.12
Workshop/Training/Seminar	IX	3,931,673.58	-		36,035,590.69	742,810.00	49,264.00	1,957,832.12	67,805.62	3,418,899.20	46,203,875.21	12,071,053.98
Travel Expenses	X	1,149,872.28	-	-	372,738.07	-	41,899.58	397,442.29	255,286.62		2,217,238.84	3,327,184.07
Administrative Expenses	VI	43,805,298.90	88,261.00	3,804,167.41	28,166,537.88	302,410.00	50,874.14	5,178,042.38	1,493,098.04	1,151,109.26	84,039,799.01	91,476,879.83
Exchange Gain/Loss			(41.25)		(23,684.53)	-	-		41.25		(23,684.53)	237,948.08
Total Expenditure		**54,793,998.24**	**(17,358.67)**	**4,266,757.89**	**64,551,182.11**	**1,045,220.00**	**142,037.72**	**8,690,068.74**	**1,816,231.53**	**4,570,008.46**	**139,858,146.02**	**110,061,161.59**
											-	
Excess of Income Over Expenditure		(10,286,838.02)	172,434.55	191,595.96	(3,951,771.09)	-	7,468,500.12	5,219,591.45	220,694.49	1,314,800.79	349,008.25	5,677,276.51
Opening Balance		72,708,856.02	(177,366.70)		11,781,960.48	-	(7,468,500.12)	(4,942,722.39)			71,902,227.29	66,583,587.94
Exchange Fluctuation			4,932.15	(3,759.38)	(474,649.64)	-		(276,869.06)	(4,330.33)	(25,798.22)	(780,474.48)	(358,637.16)
Adjustments relating to errors relating earlier years								-			-	
Balance of funds as on Ashad 32, 2068		**62,422,018.00**	(0.00)	**187,836.58**	**7,355,539.75**	-	-	**(0.00)**	**216,364.15**	**1,289,002.57**	**71,470,761.06**	**71,902,227.29**

XII

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

Amod Mani Dixit
(General Secretary)

Shiva Bahadur Pradhanang
(President)

Yogeswar K. Parajuli
(Treasurer)

Tika Sharma
(Finance Director)

Shashi Satyal
Partner
T R Upadhya & Co.
Chartered Accountants

Date: 9 September 2011
Place: Kathmandu

National Society for Earthquake Technology - Nepal

Balance Sheet
As at 32 Ashad, 2068

Particulars	Schedule	As at 32 Ashad, 2068 NRs	As at 31 Ashad, 2067 NRs
Assets			
Fixed Assets	I	52,554,662.29	56,246,196.80
Receivables	II	16,849,882.25	29,555,992.80
Cash & Cash Equivalents	III	15,770,131.85	17,003,547.97
Total Assets		**85,174,676.39**	**102,805,737.57**
Liabilities			
Vehicle Loan			551,419.10
Current Liabilities	IV	13,703,915.33	30,352,091.18
Surplus as per Income & Expenditure Statement		71,470,761.06	71,902,227.29
Total Liabilities		**85,174,676.39**	**102,805,737.57**

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)

Yogeswor K. Paraiuli
(Treasurer)

Shashi Satyal
Partner
T R Upadhya & Co.
Chartered Accountants

Tika Sharma
(Finance Director)

NSET

Date: 9 September 2011
Place: Kathmandu

National Society for Earthquake Technology - Nepal

Income and Expenditure Statement
for the period from October 1, 2011 to July 15, 2012

Particulars	Schedule	NSET NRs	NERMP II NRs	PEER III NRs	DPSS II /ARC NRs	MERLIN I NRs	WASH/OXFAM NRs	3 PERM NRs	SESP-UNICEF II NRs	CBDRM/LWR NRs	Current Year NRs	Previous Year NRs
Income												
Professional Service Charge		27,557,609.75									27,557,609.75	25,503,854.46
Earthquake Safety Day		708,381.00									708,381.00	1,610,750.00
USAID/OFDA Grant/UNDP			14,736,166.65	61,799,445.44							76,535,612.09	63,147,081.04
Action Aid Nepal											-	
MERLIN						2,288,100.00					2,288,100.00	
WASH/ OXFAM							2,575,148.20				2,575,148.20	
PERM								8,004,734.06			8,004,734.06	
World Bank (SESP)											-	1,890,328.80
American Red Cross					2,559,411.60						2,559,411.60	
Lutheran World Relief(LWR)										-	-	3,216,040.60
Unicef									30,055.77		30,055.77	1,075,400.00
PEER III and 3PERM	V	18,064,273.57		-							18,064,273.57	14,041,512.57
ARC												10,807,926.32
Donation for CELC NSET building											-	
Contribution from/For Publication		19,629.40									19,629.40	989,981.25
Sale of GO Bag		1,392,773.80									1,392,773.80	
Membership Fee											-	
Income from Other Sources		1,551,611.07									1,551,611.07	1,935,709.16
Total Income		**49,294,278.59**	**14,736,166.65**	**61,799,445.44**	**2,559,411.60**	**2,288,100.00**	**2,575,148.20**	**8,004,734.06**	**30,055.77**	**-**	**141,287,340.31**	**124,218,584.20**
Expenses												
SESP Expenses - Reconstruction and Wages	VII	30,000.00	-	-	-	-	-	-	-	-	30,000.00	88,709.00
Public Awareness	XI	46,596.00	491,825.30	-	-	-	-	3,468,514.77	-	-	4,006,936.06	3,746,201.92
Earthquake Safety Day	VIII	78,629.25	813,433.95	-	-	-	75,000.00	-	-	-	967,063.20	1,425,807.61
Workshop/Training/Seminar	IX	933,800.45	2,951,190.79	33,951,002.35	65,474.13	-	-	208,587.90	-	1,355,479.82	39,465,535.44	38,601,685.88
Travel Expenses	X	878,270.80	157,218.75	317,879.09	256,859.86	-	-	14,498.35	-	-	1,624,726.84	1,670,281.17
Administrative Expenses	VI	27,720,708.75	15,475,393.44	24,249,876.61	3,182,078.10	1,315,922.13	1,396,772.57	9,980,527.61	-	110,211.55	83,431,490.76	83,730,248.10
Exchange (Gain)/Loss		(884,989.44)	(191,893.37)	68,735.64	(33,225.62)	-		(50,997.10)		(37,793.39)	(1,130,163.27)	(627,151.30)
Total Expenditure		**28,803,015.81**	**19,697,168.86**	**58,587,493.69**	**3,471,186.47**	**1,315,922.13**	**1,471,772.57**	**13,621,131.53**	**-**	**1,427,897.98**	**128,395,589.05**	**128,635,782.38**
Excess of Income Over Expenditure		20,491,262.78	(4,961,002.21)	3,211,951.75	(911,774.87)	972,177.87	1,103,375.63	(5,616,397.47)	30,055.77	(1,427,897.98)	12,891,751.26	(4,417,198.17)
Opening Balance		61,905,096.56	844,318.80	(1,451,681.22)	426,589.80				(30,055.77)	2,376,635.04	64,070,903.21	68,434,515.61
Exchange Fluctuation			(220,538.22)	26,159.75	(3,663.65)			(379,661.57)		226,453.34	(351,250.35)	53,585.78
Adjustments relating to errors relating earlier years											-	
Balance of funds as on July 15, 2012		**82,396,359.14**	**(4,337,221.62)**	**1,786,430.28**	**(488,848.73)**	**972,177.87**	**1,103,375.63**	**(5,996,059.05)**	**-**	**1,175,190.40**	**76,611,404.13**	**64,070,903.22**

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

Amod Mani Dixit
(General Secretary)

Shiva Bahadur Pradhanang
(President)

Yogeshwar K. Parajuli
(Treasurer)

Tika Sharma
(Finance Director)

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

Date:
Place: Kathmandu

National Society for Earthquake Technology - Nepal

Balance Sheet
As at July 15 2012

Particulars	Schedule	As at 15 July, 2012 NRs	As at 30 September, 2011 NRs
Assets			
Fixed Assets	I	57,301,168.71	57,007,026.44
Receivables	II	12,778,529.66	18,634,431.28
Cash & Cash Equivalents	III	21,152,417.36	8,605,599.65
Total Assets		**91,232,115.73**	**84,247,057.38**
Liabilities			
Current Liabilities	IV	14,620,711.81	20,176,154.16
Surplus as per Income & Expenditure Statement		76,611,404.13	64,070,903.22
Total Liabilities		**91,232,115.73**	**84,247,057.38**

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:
Place: Kathmandu

NSET

Annex 2: NSET Management 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: NSET Staff

President/ED/DED's Office	
Mr. Shiva B. Pradhanang	President
Mr. Amod Mani Dixit	Executive Director
Mr. Surya N. Shrestha	Deputy Executive Director
Mr. Ramesh Guragain	Deputy Executive Director
Ms. Rita Thakuri	Admin Assistant
Administration	
Ms. Niva Upreti	Administration Manager
Mr. Bijendra Shrestha	Information System Officer
Mr. Anjan Bhandari	Jr.Administration Officer
Mr. Nischal Sedhain	Jr.Procurement Officer
Mr. Milan Gurung	Office Assistant
Ms. Samjhana Tathal	Admin Assistant (Reception)
Mr. Bishnu K.Thapa	Storekeeper
Mr. Hari Adhikari	Technician/Librarian
Mr. Ichcha Ram Parajuli	Assistant IT Technician
Mr. Gopal P.Chaulagain	Driver
Mr. Buddha K. Shrestha	Driver
Mr. Damber Shrestha	Driver
Mr. Lal B. Pradhan	Office Boy
Mr. Dan B. Koirala	Office Boy
Mr. Ujjal Dhakal	Office Boy
Mr. Sanjeep Pode	Janitor
Ms. Mina Shrestha	Cleaner
Finance	
Mr. Tika Sharma	Finance Director
Mr. Sudhar M. Tuladhar	Account Manager
Mr. Ranjan K. Ghimire	Accounts Officer
Ms. Rekha Rani Verma	Account Assistant
CBDRM	
Mr. Bijay K. Upadhyay	Director-CBDRM
Ms. Omkala Khanal	Social Mobilizer
Mr. Sarad Wagle	Civil Engineer
Mr. Bishnu Hadkhale	Social Mobilizer
EERT	
Ms. Hima Shrestha	Director-EERT
Mr. Minesh Tamrakar	Structural Engineer
Ms. Rajani Prajapati	Structural Engineer
Ms. Rachana Kansakar	Draft Person
Ms.Kirty Tiwari Jaishi	Structural Engineer
Mr. Bipin Kumar Gautam	Structural Engineer
Mr. Kuber Bogati	Structural Engineer
Mr. Bryce James Harris	Australian Volunteers

UDRM/GIS

Mr. Gopi Krishna Basyal	Geographer/Urban Planner
Ms. Bhubaneswari Parajuli	Gender, Social and Env.Mgmt. Sepecialist
Mr. Suresh Chaudhary	Urban Planner/Geographer
Mr. Sujan Raj Adhikari	Geologist

SESP

Mr. Surya P. Acharya	Director-SESP
Mr. Ranjan Dhungel	Civil Engineer
Mr. Nirakar Joshi	Architect
Mr. Puspa Panthi	Civil Engineer
Mr. Bimal Thapa	Civil Engineer
Mr. Bal K. Kasula	Construction Technician
Mr. Bal Krishna Khadgi	Construction Technician

DPER/PEER

Mr. Ganesh Kumar Jimee	Director- DPER
Ms. Maritess Tandingan	Lead Trainer
Mr. Sanju Sharma	Training Coordinator
Mr. Sanjeev Ram Vaidya	Information Management Specialist
Ms. Manisha Pantha	Staff Nurse
Mr. Sandeep Pandey	Civil Engineer
Mr. Kamal Raj Gurung	Admin Assistant

3PERM

Mr. Surya Bhakta Sangachhen	Project Manager/3PERM
Mr. Khadga Sen Oli	Advocacy and Outreach Manager
Ms. Nisha Shrestha	Disaster Risk Communication Officer
Mr. Chandan D. R. Magar	Graphics/Web Disigner
Ms. Dibya Bajracharya	Graphics Disigner
Mr. Upendra Kumar Raut	A/V Technician
Ms. Sweta Sinha	Media Officer
Ms. Situ Chitrakar	Architect
Mr. Kalyan Bista	PPP Consultant

BCIPN

Mr. Suman Pradhan	Project Manager/BCIPN
Mr. Dev Kumar Maharjan	Structural Engineer
Mr. Kapil Bhattarai	Civil Engineer
Mr. Deepak Saud	Civil Engineer
Mr. KishorTimsina	Civil Engineer
Mr. Shamir Kumar Singh	Sub Engineer
Mr. Laxmi P Bhatta	Sub Engineer
Mr. Ran B Limbu	Sub Engineer
Ms. Pavitra KC	Social Mobilizer

Annex 4: NSETs Partners

National

- Armed Police Force
- B.P. Koirala Institute of Health Sciences
- 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
- Institute of Engineering, Tribhuvan University
- Institute of Medicine, Tribhuvan University
- Kathmandu University
- Lumanti
- Ministry of Education and Sports
- Ministry of Health and Population
- Ministry of Home Affairs
- Ministry of Local Development
- Ministry of Environment, Science and Technology
- Ministry of Physical Planning and Works
- 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
- Nepal Academy of Fine Arts (NAFA)
- National Network of Women for Community Resilience
- Nepal Army
- Nepal Amateur Relay League (NARL)
- Nepal Forum for Environmental Journalists
- Nepal Bureau of Standards and Metrology
- Nepal Engineering College
- Nepal Engineering Council
- Nepal Engineers Association
- Nepal Geological Society
- Nepal Red Cross Society
- Nepal Police
- National Police Academy
- Rotary Clubs
- Social Welfare Council
- Society of Consulting Architectural and Engineering Firms
- Society of Nepalese Architects
- PARADIGM-Nepal

International

- Action Aid International Nepal
- All India Institute of Hygiene & Public Health (AIIH&PH), India
- Ambullan 118 of Indonesia
- American Red Cross
- Amity Public Safety Academy of Philippines
- 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
- Boarder Security Force of India
- Building Research Institute of Japan
- CAN-USA
- Central Reserve Police Force , India
- Christian Aid-UK
- Commissionerate of Health & Medical Services, Gujarat, India
- Church World Service - Pakistan/Afghanistan
- Center for Participatory Research and Development, Bangladesh
- 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
- 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
- Indian Tibetan Boarder Police (ITBP), India
- Indonesian Red Cross
- International Centre Integrated Mountain Development
- International Association of Earthquake Engineering
- International Resources Group
- Janathaksan, Sri Lanka
- Jakarta Fire Services, Indonesia
- Japanese International Cooperation Agency
- Jawaharlal Institute of Post Graduates Medical Education & Research (JIPMER), India
- 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
- Office of Foreign Disaster Assistance of United States Agency for International Development (OFDA/USAID).
- Oxfam GB Nepal
- Plan Nepal
- Pattan Development Organization, Pakistan
- Practical Action, Nepal
- Philippines General Hospital
- Reynolds Geo-Sciences Limited, UK
- Safety Solutions Incorporated, USA
- SAARC Disaster Management Center, India
- 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
- UN-HABITAT
- World Health Organization
- World Seismic Safety Initiatives

Appreciations, Endorsments and Testimonials

Sardar Riaz Ahmed Khan
National Programme Manager

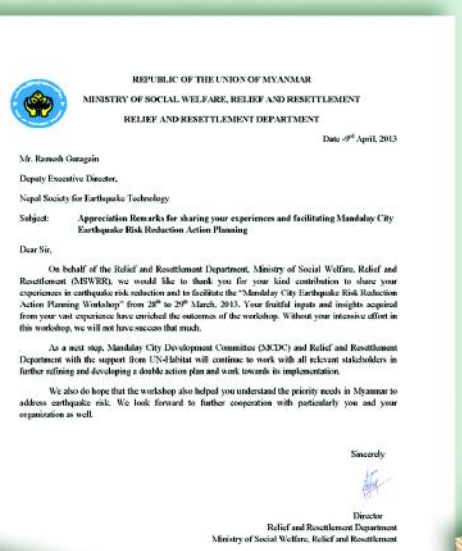
March 9, 2006

LETTER OF APPRECIATION

1. This Letter of Appreciation is awarded to the National Society for Earthquake Technology – Nepal (NSET) in recognition of their exemplary contribution towards achieving the goals and objectives of the "**Capacity Building for Reconstruction of Earthquake Affected Areas of Pakistan (Bagh and Muzaffarabad)**", a component of "**Sustainable Emergency Housing Reconstruction Programme in NWFP and AJK Earthquake Affected Areas through Community Mobilization and Participation**" implemented by UNDP Pakistan in collaboration with the Government of Pakistan after the 8 October 2005 Kashmir Earthquake.

2. We highly appreciate the innovative approach of NSET in the design and delivery of the training curricula on enhancing seismic performance of vernacular buildings for engineers/architects, building technicians/sub-engineers, masons and the owner-builders. The training programs were well connected with awareness-raising initiatives and demonstration programs such as "shaking Table demonstration" and "model earthquake-resistant buildings" the latter have been constructed as permanent functioning structures in strategic locations (Bagh and Muzaffarabad.

3. Sound engineering knowledge on vernacular buildings, combined with a mission-mode zeal and dedication of NSET professionals and their hands-on approach in raising earthquake awareness greatly enhanced the effectiveness of the program by creating [illegible] of the trainees towards earthquake reconstruction. Additionally, the [illegible] part of wider networking among professionals to enhance a culture of



REPUBLIC OF THE UNION OF MYANMAR
MINISTRY OF SOCIAL WELFARE, RELIEF AND RESETTLEMENT
RELIEF AND RESETTLEMENT DEPARTMENT

Date :9th April, 2013

Mr. Ramesh Guragain
Deputy Executive Director,
Nepal Society for Earthquake Technology

Subject: **Appreciation Remarks for sharing your experiences and facilitating Mandalay City Earthquake Risk Reduction Action Planning**

Dear Sir,

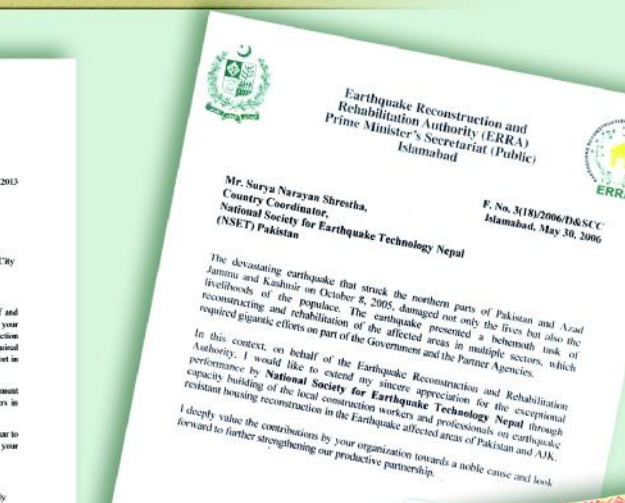
On behalf of the Relief and Resettlement Department, Ministry of Social Welfare, Relief and Resettlement (MSWRR), we would like to thank you for your kind contribution to share your experiences in earthquake risk reduction and to facilitate the "Mandalay City Earthquake Risk Reduction Action Planning Workshop" from 28th to 29th March, 2013. Your fruitful inputs and insights acquired from your vast experience have enriched the outcomes of the workshop. Without your intensive effort in this workshop, we will not have success that much.

As a next step, Mandalay City Development Committee (MCDC) and Relief and Resettlement Department with the support from UN-Habitat will continue to work with all relevant stakeholders in further refining and developing a double action plan and work towards its implementation.

We also do hope that the workshop also helped you understand the priority needs in Myanmar to address earthquake risk. We look forward to further cooperation with particularly you and your organization as well.

Sincerely

Director
Relief and Resettlement Department
Ministry of Social Welfare, Relief and Resettlement



Earthquake Reconstruction and Rehabilitation Authority (ERRA)
Prime Minister's Secretariat (Public)
Islamabad

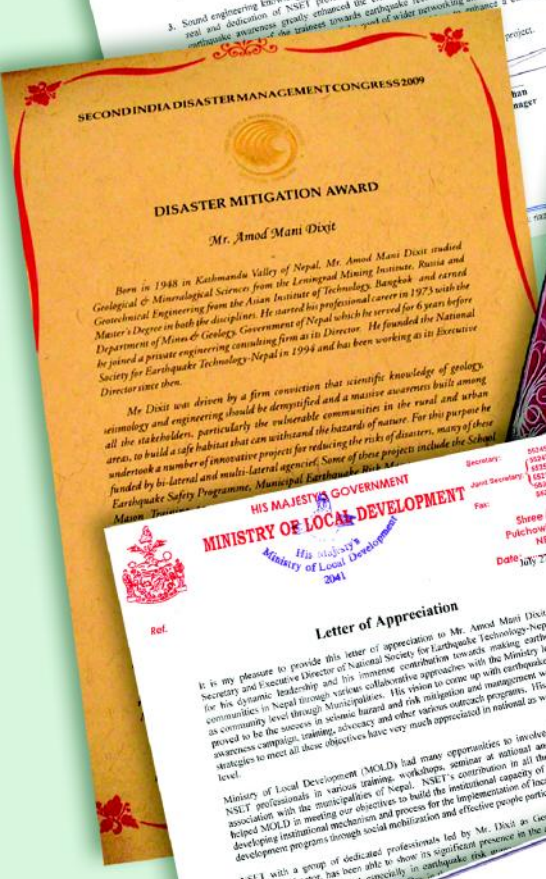
Mr. Surya Narayan Shrestha,
Country Coordinator,
National Society for Earthquake Technology Nepal
(NSET) Pakistan

F. No. 3(18)/2006/D&SCC
Islamabad, May 30, 2006

The devastating earthquake that struck the northern parts of Pakistan and Azad Jammu and Kashmir on October 8, 2005, damaged not only the lives but also the livelihoods of the populace. The earthquake presented a behemoth task of reconstructing and rehabilitation of the affected areas in multiple sectors, which required gigantic efforts on part of the Government and the Partner Agencies.

In this context, on behalf of the Earthquake Reconstruction and Rehabilitation Authority, I would like to extend my sincere appreciation for the exceptional performance by **National Society for Earthquake Technology Nepal** through capacity building of the local construction workers and professionals on earthquake resistant housing reconstruction in the Earthquake affected areas of Pakistan and AJK.

I deeply value the contributions by your organization towards a noble cause and look forward to further strengthening our productive partnership.



SECOND INDIA DISASTER MANAGEMENT CONGRESS 2009

DISASTER MITIGATION AWARD

Mr. Amod Mani Dixit

Born in 1948 in Kathmandu Valley of Nepal, Mr. Amod Mani Dixit studied Geological & Mineralogical Sciences from the Leningrad Mining Institute, Russia and Geotechnical Engineering from the Asian Institute of Technology, Bangkok and earned Master's Degree in both the disciplines. He started his professional career in 1973 with the Department of Mines & Geology, Government of Nepal which he served for 6 years before he joined a private engineering consulting firm as its Director. He founded the National Society for Earthquake Technology-Nepal in 1994 and has been working as its Executive Director since then.

Mr Dixit was driven by a firm conviction that scientific knowledge of geology, seismology and engineering should be demystified and a massive awareness built among all the stakeholders, particularly the vulnerable communities in the rural and urban areas, to build a safe habitat that can withstand the hazards of nature. For this purpose he undertook a number of innovative projects for reducing the risks of disasters, many of these funded by bi-lateral and multi-lateral agencies. Some of these projects include the School Earthquake Safety Programme, Municipal Earthquake Risk Ma[illegible] Mason Train[illegible]

His Majesty's Government
Ministry of Education & Sports
Department of Education
District Education Office, Kathmandu

Education Day 2058

CERTIFICATE OF APPRECIATION

We take great pleasure in honouring **NATIONAL SOCIETY FOR EARTHQUAKE TECHNOLOGY, NEPAL** with this certificate of appreciation in accordance with the decision taken by the District Education Committee, Kathmandu, on Falgun 8, 2058 (February 20, 2002) for valuable contributions in the Physical development of different general School of Kathmandu District.

We thank you for all your support and solicit such patronage even in future from your side.

Bajaram K.C.
District Education Officer
Member-Secretary
District Education Committee

Sanujaman Shrestha
Chairman
District Education Committee

Narayan P. Saud
Hon'ble Minister of State
for Education and Sports
Chief Guest

State of the Azad Jammu & Kashmir, Pakistan and
United Nations Development Programme (UNDP), Pakistan
award this

Certificate of Appreciation

to

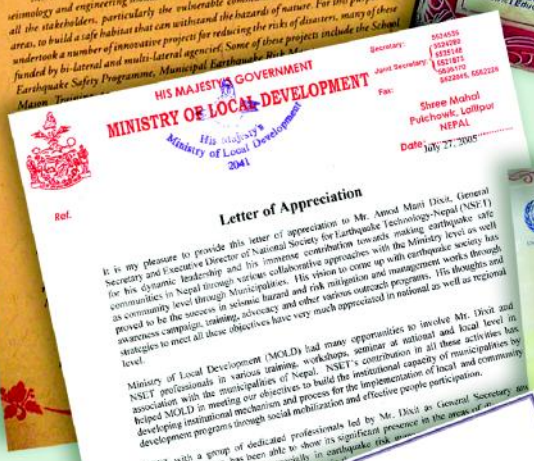
National Society for Earthquake Technology - Nepal (NSET)

for their invaluable support in capacity building for earthquake-resistant constru
at the critical time following the earthquake of 8 October 2005.

Haoliang Xu
a.i. Resident Repre
UNDP, Paki

Sardar [illegible] Anwar Khan

9 March 2006, Muzaffarabad, AJK



HIS MAJESTY'S GOVERNMENT
MINISTRY OF LOCAL DEVELOPMENT
His Majesty's Ministry of Local Development
2041

Secretary: 5534535
Joint Secretary: 5524789, 5535146
Fax: 5521871, 5535170, 5522855, 5542226

Shree Mahal
Pulchowk, Lalitpur
NEPAL

Ref.

Date: July 27, 2005

Letter of Appreciation

It is my pleasure to provide this letter of appreciation to Mr. Amod Mani Dixit, General Secretary and Executive Director of National Society for Earthquake Technology-Nepal (NSET) for his dynamic leadership and his immense contribution towards making earthquake safe communities in Nepal through various collaborative approaches with the Ministry level as well as community level through Municipalities. His vision to come up with earthquake safety has proved to be the success in seismic hazard and risk mitigation and management works through awareness campaign, training, advocacy and other various outreach programs. His thoughts and strategies to meet all these objectives have very much appreciated in national as well as regional level.

Ministry of Local Development (MOLD) had many opportunities to involve Mr. Dixit and NSET professionals in various training, workshops, seminar at national and local level in association with the municipalities of Nepal. NSET's contribution in all these activities has helped MOLD in meeting our objectives to build the institutional capacity of municipalities by developing institutional mechanism and process for the implementation of local and community development programs through social mobilization and effective people participation.

NSET with a group of dedicated professionals led by Mr. Dixit as General Secretary and Executive Director, has been able to show its significant presence in the areas of [illegible] mitigation and management especially in earthquake risk [illegible] NSET in organizing Earthquake Safety Day [illegible] earthquake awareness [illegible]

2001
United Nations
Isasakawa Award for Disaster Reduction

Certificate of Merit

Presented to

The National Society of Earthquake Technology (NSET)
Kathmandu, Nepal

In appreciation for its outstanding contribution to disaster reduction, thereby furthering the goals of the International Strategy for Disaster Reduct

Kenzo Oshima
Mr. Kenzo Oshima
Under-Secretary-General for Humanit

, 10 October 2001

नेपाल राजकीय विज्ञान तथा प्रविधि प्रज्ञा-प्रतिष्ठान

प्रज्ञा-प्रतिष्ठान विज्ञान तथा प्रविधि प्रवर्द्धन पुरस्कार

नेपाल राजकीय विज्ञान तथा प्रविधि प्रज्ञा-प्रतिष्ठानबाट कानूनीरुपले [illegible]
श्री ५ महाराजाधिराज वीरेन्द्रबाट अधिराज्यारोहणको प्रथम प्रातःसभा २०४२ को घोषणाबमोजिम
तथा प्रविधिको विकास क्षेत्रमा योगदान पुऱ्याउने नेपालीहरूका परिवारलाई तथा संस्थालाई स्थापित गरिएको

प्रज्ञा-प्रतिष्ठान विज्ञान तथा प्रविधि प्रवर्द्धन पुरस्कार

२०५१ सालको लागि

श्री आमोद मणि दीक्षित

लाई

भूकम्पीय जोखिमको मूल्याङ्कन गर्ने कार्य पहिलेको निर्माण तथा क्षति न्यूनीकरणमा
जनचेतना अभिवृद्धि गर्ने लगायत प्रदान गरिएको ।

उहालाई देश सेवामा नमसिने गरी गर्नु अन्य वैज्ञानिक प्राविधिक सोध कार्यहरूका सफलता प्राप्त हुँदै साथसाथै
एवं यस पुरस्कारसँगै अन्य वैज्ञानिक तथा प्राविधिज्ञहरूलाई समेत यही उत्प्रेरणा भई विज्ञान प्रविधि क्षेत्रमा
[illegible] योगदान गर्न पुरस्कार प्रदान गरिएको भन्ने प्रज्ञा - प्रतिष्ठान हार्दिक कामना गर्दछ ।

MINISTRY OF FOOD AND DISASTER MANAGEMENT
GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

Awards this

Certificate of Appre

to

National Society for Earthquake Te
Program for Enhancement of Emerg

For their invaluable support in conducting basic courses on MFR
Instructors in these disciplines in Bang

[illegible]thury Kamal Ibne Yusuf, MP
Minister

Dhaka, July 2005

His Majesty's Government
National Planning Commission
Singha Durbar
Kathmandu, Nepal

Hari K. Upadhyaya
Member

Ref.:-

Tel: 5544502 (R), 4228845 (O)
Fax: 977-01-4228800 (O), 977-01-5526654 (R)
Email: hkupadhyaya@npcsecret.gov.np (O), hkup@wlink.com.np (R)

Date: 28th July, 2004

TO WHOM IT MAY CONCERN

I am pleased to introduce National Society For Earthquake Technology-Nepal (NSET), a non-
for-profit non-governmental organization (NGO) actively engaged in the areas of earthquake
risk management in Nepal and the region.

Initiated by a group of dedicated people led by Mr. Amod Dixit, NSET was established about
a decade ago, when the concept of disaster risk management was still emerging and efforts
were started in shifting focus from post-disaster relief and rescue to disaster preparedness,
vulnerability reduction, and effective emergency response, and identifying the role of NGOs
and community-based initiatives for effective risk management and awareness raising.

NSET has been able to show a meaningful presence in the areas of its operation. Some of its
commendable programs include school earthquake safety program, earthquake awareness
program such as the annual Earthquake Safety Day, and the simple awareness raising tool
the "Shake Table". Over the years, the scope of its services has widened and so has its
geographical coverage in Nepal and in the region. Its services range from community-based
disaster preparedness to assessment of structural and non-structural
vulnerability and identification of mitigation measures.

NSET has made towards making Nepal safer against
in the future.

Certificate of Recognition

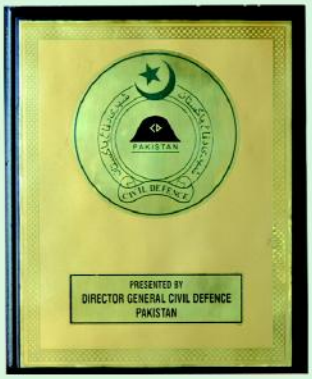
We are pleased to present
this Certificate

To

National Society for Earthquake Technology, Nepal

For outstanding contribution in conceptualization and delivering of training in
ilding Technology and assisting ERRA in implementation of its overall

Appreciations, Endorsments and Testimonials



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
AJK	Ajad Jammu and Kashmir
APiP	Action Plan Implementation project
BCPR	Bureau of Crisis Prevention and discovery
BCIPN	Building Code Implementation in Municipalities
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
CASIFICA	Case Station and Field Campus
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
COGSS	Coalition for Global School Safety
CPREC	Centre for Policy Research and Consultancy
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
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

ERRA	Earthquake Reconstruction and Rehabilitation Authority
EPRP	Earthquake Preparedness and Response Plan
ESD	Earthquake Safety Day
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 Network
HESI	Housing Earthquake Safety Initiative
HFA	Hyogo Framework of Action
HOPE	Hospital Preparedness for Emergencies
HRC	Housing Reconstruction Centers
IAEE	International Association for Earthquake Engineering
ICERM	International Conference on Earthquake Risk Management
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
KVEPI	Kathmandu Valley Earthquake Preparedness Initiative
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
MERMP	Municipal Earthquake Risk Management program
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MFR	Medical First Responder
MIW	Master Instructors' Workshop
ML	Local Magnitude
MOIC	Ministry of Information and Communication
MOLd	Ministry of 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
NGMEt	Nepal Gujarat Mason Exchange and Training Program
NGOS	Non-government Organizations
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
NWFP	North West Frontier Province
NWSC	Nepal water Supply Corporation
OFDA	Office of Foreign Disaster Assistance
PEER	Program for Enhancement of Emergency Response
PNY	Patanka Navajeevan Yojana
PO	Partnering organizations
PPERS	Project for Pre-positioning of Emergency Rescue Stores
RADIUS	Risk Assessment tools for diagnosis of Urban Areas Against Seismic disaster
RAP	Rural Access Program
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
Tell Net	International Live Lessons Transfer Network
TFI	Training for Instructors
TOT	Training of Trainers
TSERR	Training Support for Earthquake Resistant Reconstruction
TVERMP	Thimpu Valley Earthquake Risk Management Program
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 Publications

National Society for Earthquake Technology-Nepal (NSET)

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