

# NSET Profile



## National Society for Earthquake Technology-Nepal (NSET)

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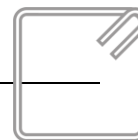
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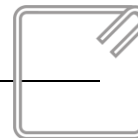
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## 1 OVERVIEW

The National Society for Earthquake Technology – Nepal (NSET) is a multidisciplinary professional society that registered with the Government of Nepal as a Non-Government Organization in 1994. NSET is a non-profit organization whose main focus is on Earthquake Risk Management (ERM). Membership of the Society comprises professional engineers, architects, scientists and other individuals seriously interested in earthquake phenomena or in the reduction of the effects of earthquakes.

The NSET Management Committee consists of five elected members, two nominated members and the immediate past president - a total of eight members. The elected members elect the President and the General Secretary. The Management Committee, under the guidance of the President, monitors NSET's programs and provides policy level guidance.

## 2 OUR VISION

Our vision is "Earthquake Safe Communities in Nepal by 2020".

## 3 OUR MISSION

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

## 4 OUR OBJECTIVES

NSET has a three-pronged strategic objective:

- 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 these purposes.
- 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.

## 5 OUR PEOPLE AND OFFICE

### 5.1 NSET Management Committee

The NSET Management Committee consists of six elected and two nominated members, who together manage the Society. While the President provides the overall direction and guidance, the General Secretary runs the day-to-day activities, for which he is given the executive authority. The General Secretary is also given the responsibilities of Executive Director. The Management Committee consists of:

- Mr. Shiva B. Pradhanang                      President

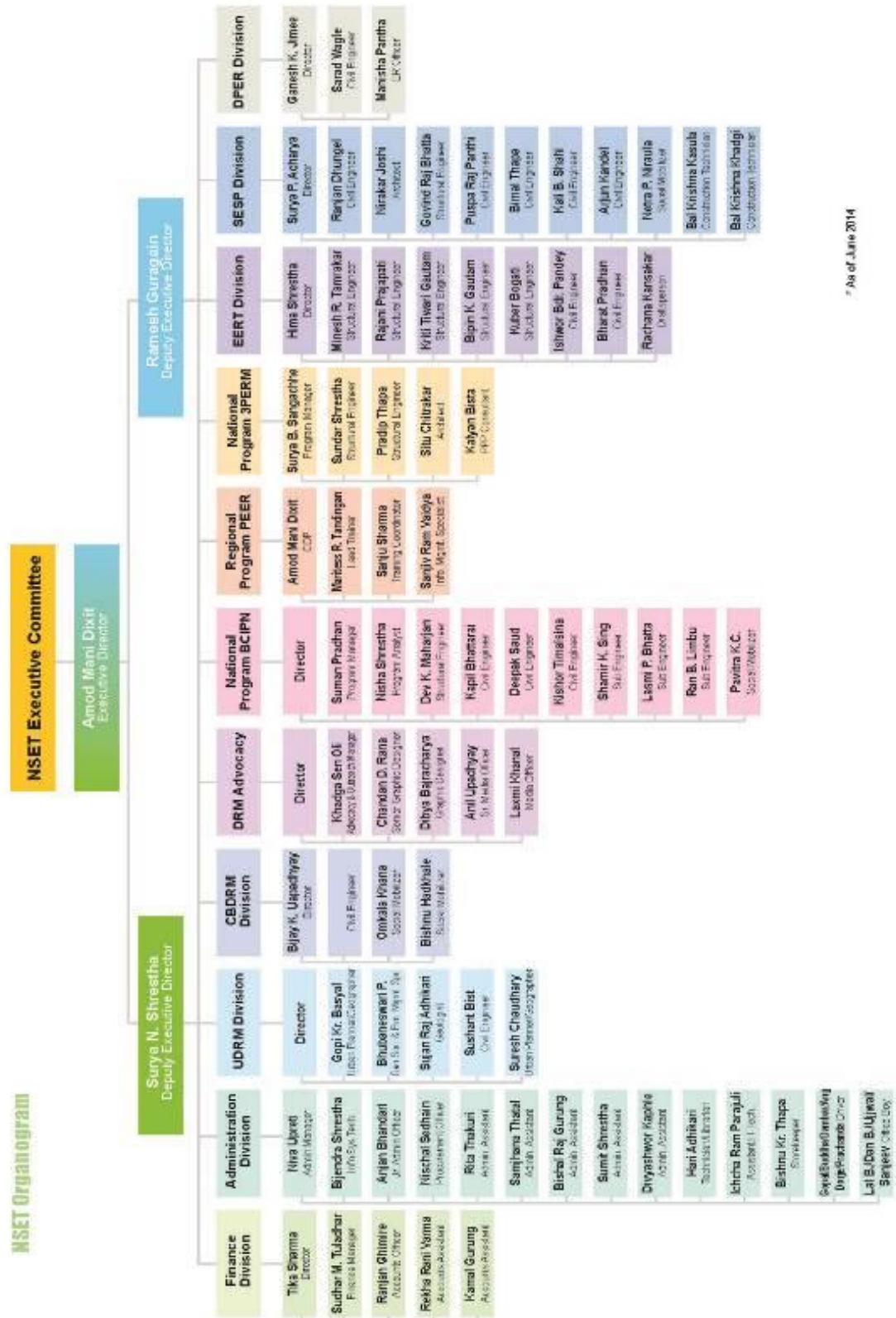
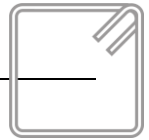


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| • Mr. Amod Mani Dixit         | General Secretary |
| • Mr. Yogeshwor K. Parajuli   | Treasurer         |
| • Mr. Varun Prasad Shrestha   | Executive Member  |
| • Mr. Shreeram Singh Basnet   | Executive Member  |
| • Mr. Surya Narayan Shrestha  | Executive Member  |
| • Mr. Manohar Lal Rajbhandari | Executive Member  |
| • Mr. Tika Sharma             | Executive Member  |

## 5.2 NSET Divisions/Programs

NSET has nearly 100 staff members working in its Divisions and Programs. Our Divisions/Programs are:

- President/Executive Director's/Deputy Executive Director's Office
- Administration
- Finance
- Community Based Disaster Risk Management (CBDRM) Office
- Urban Disaster Risk Management (UDRM) / Geographical Information System (GIS) Office
- Earthquake Engineering, Research and Training (EERT) Office
- School Earthquake Safety Program (SESP) Office
- DRM Advocacy (DRM) Office
- Disaster Preparedness & Emergency Response (DPER) and Program for Enhancement of Emergency Response (PEER) Office
- Public Private Partnerships for Earthquake Risk Management (3PERM) Office
- Building Code Implementation in municipalities of Nepal (BCIPN) Office

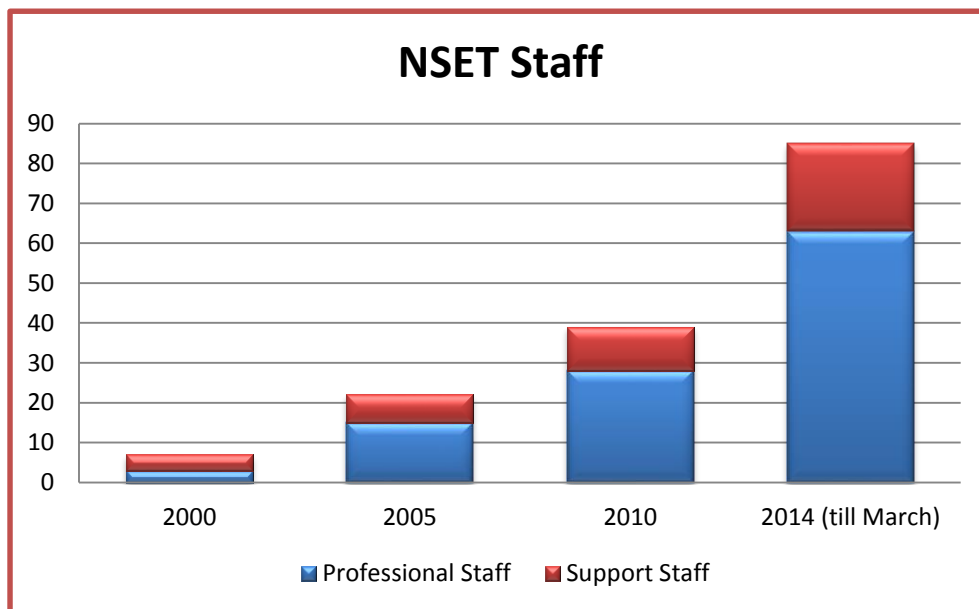




### 5.3 NSET – as it grows

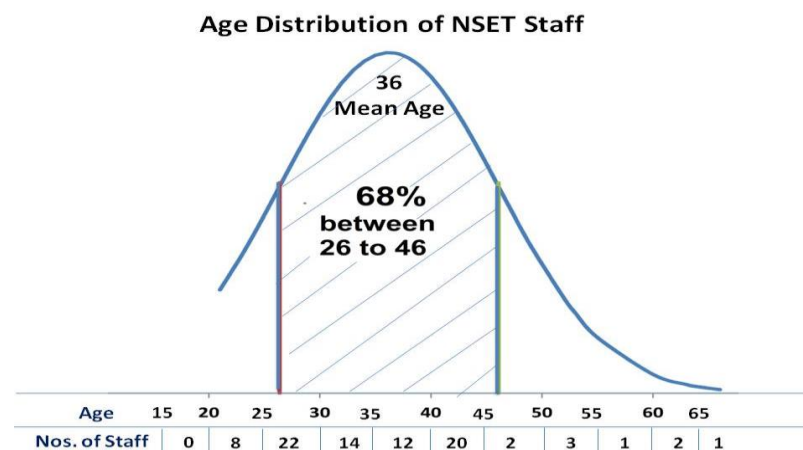
With growing awareness on issues related to earthquake risks, there has been increasing responsibility and demand onto NSET to provide technical support to individuals, institutions and communities. NSET, hence, has been growing in terms of staff size, coverage area and number of programs.

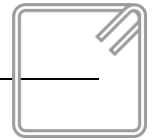
NSET has 85 full time staff as of March 2014 record. The trend seems going somehow steep but for sure it is not precipitous. Staff recruitment and development processes are very much professional and standardized based on need, demand and sustainability perspectives as well as future prospects.



### 5.4 Agewise distribution of NSET Staff

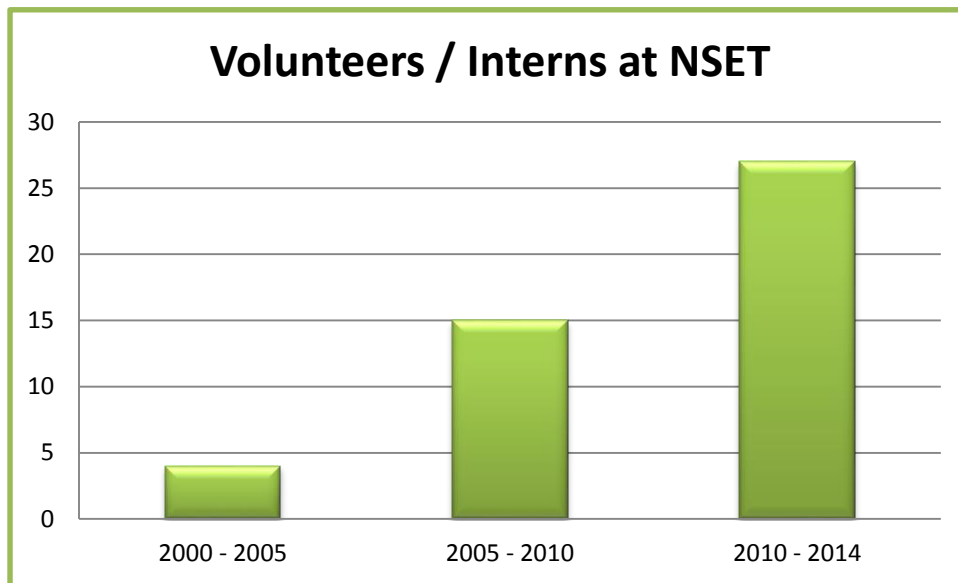
A quick assessment of variability in age of NSET Staff revealed that more than two-third work force is at their youth phase. Mean age of working staff is 36 years.





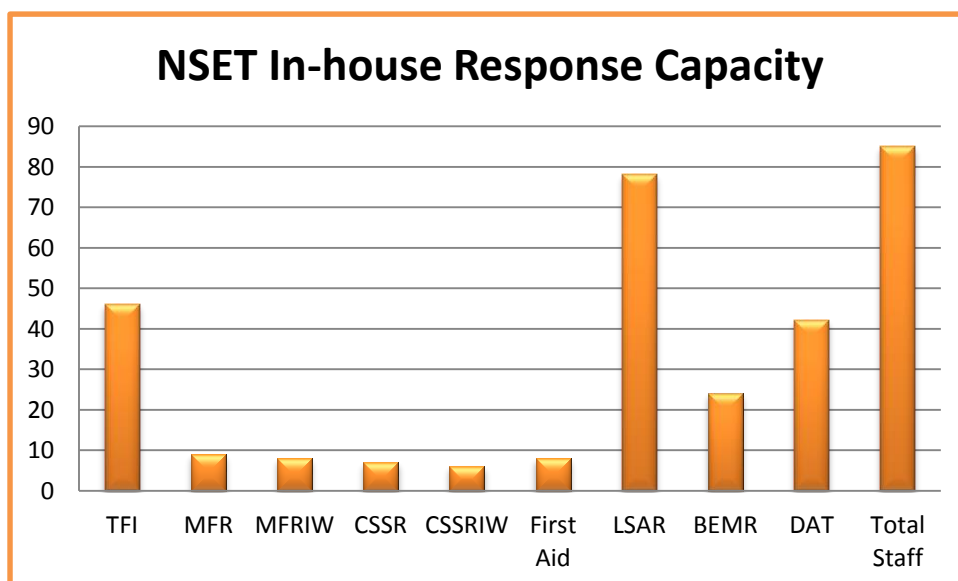
### 5.5 Volunteers / Interns at NSET

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

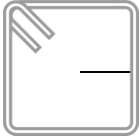


### 5.6 NSET In-house trained Human Resource on Response

The number of staff has been growing in NSET to fulfil the increasing demand.



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

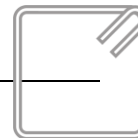


## 5.7 Our facilities

The office is fully equipped with the computers (all in LAN), printers, photocopier and all other required office machines. A state of the art power generator with 65 KVA capacities provides power back up for ensuring cut-off of power surges and uninterrupted work in case of power failure. An Internet server with optic fiber cable link (with radio link & V-sat link back up) to the ISP provides the necessary infrastructure for the operation and management of its website. The office has floor area exceeding 5000 sq. ft, and the premises security is managed by the Group 4 Flak security service for 24 hours.



NSET's premises in Bhainsepati, Lalitpur



## 7 MAJOR ACTIVITIES OF THE SOCIETY

- Establish contacts between different government and non-governmental agencies in Nepal, who are working in the field of seismic safety, provide assistance to them and seek help from such agencies in integrated planning.
- Develop co-operation with other professional national/international societies and work in close association and coordination towards improving seismic safety, improving professional standards, discipline and ethics.
- Facilitate studies, undertake researches and actions in earthquake technology including geology, geophysics, seismology, earthquake engineering, architecture, civil engineering, urban planning, water resources engineering, earthquake hazard preparedness and disaster management etc.,
- Publish NSET Newsletter, memos and other publicity materials and distribute them with an aim to bring to the knowledge of the members of the society and other professionals the earthquake technology available worldwide,
- Organize scientific meetings, seminars, training programs etc.,
- Develop international linkages with similar non-governmental agencies for an effective flow of information and serve as a nodal point in the international network for seismic safety,
- Represent Nepal, subject to the approval by Nepal Government, in the national/international arena regarding earthquake technology,
- Provide advice and assistance to the national educational institutions in the development and upgrading of the curricula to cover earthquake/ disaster preparedness and response,
- Work in coordination with other national disaster reduction institutions in the development, upgrading and implementation of earthquake hazard reduction programs for the country,
- Provide advice and assistance to the governmental, non-governmental and other agencies in matters of earthquake safety and planning
- Raise funds for undertaking various activities for the achievement of the Society's objectives,
- Undertake other activities, compatible with the Society's objectives as and when required

## 8 CURRENT AND COMPLETED PROJECTS/ PROGRAMS

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

This program is started on February 2014 to June 2015 in cooperation with United Nation for Children Education Fund (UNICEF) and National Society for Earthquake Technology-Nepal (NSET) is implementing the program called “Enhancing Children Safety and Community Resilience through Intergration of Disaster Risk Reduction and Climate Change Adaption (DRR & CCA) in Education Sector. The objectives of the programs are a) Developm institutionalize and implement comprehensive school safety framework; Integrate DRR and CCA into education plans at district and school level; and c) Increase knowledge and skills of children, parents, teachers and education stakeholders on DRR/CCA. This program has been covering National/Regional Level: Comprehensive School Safety From and 500 schools from Saptari, Achham, Dhanusha, Bajura and Humla.



## 8.2 Building Code Implementation in Municipalities of Nepal (BCIPN)

This program is started on October 1, 2012 to September 30, 2015 with the funding support received from USAID/OFDA and National Society for Earthquake Technology-Nepal (NSET) is implementing the Building Code implementation Program (BCIPN) in 24 municipalities of Nepal. The main goal of the program is to enhance earthquake resilience of communities of Nepal through compliance to and enforcement of the National Building Code.

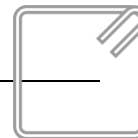
BCIPN focuses on assisting the municipal governments in Nepal in enhancing their capacities to develop and administer the building permits and control system for ensuring improved seismic performance of all new building constructions. This entails, on one hand, helping the municipalities to develop an effective mechanism for building code implementation, and on the other hand, enhancing public awareness, and technical knowledge of the residents, municipal officials, and technical professionals on aspects of earthquake risk management including earthquake-resistant design and construction. This is proposed to be achieved by conducting a series of training programs for technical personnel including the contractors and masons, municipal engineers and by conducting earthquake orientation and other awareness activities.

## 8.3 Disaster Preparedness for Safer Schools in Bangladesh (DPSS)

This program is started on August 1, 2012 to January 1, 2014 with the funding support received from American Redcross. The main goal of the program is to: “Reduce impact of disasters by building safer and resilient schools and communities” and the objectives of the program are a) Improve disaster safety of public schools through increased hazard awareness; improved disaster management skills among school children, teachers and parents; and by establishing proper disaster preparedness and response systems and b) Increase disaster awareness of communities through disaster awareness and training programs and campaigns using schools as entry point.

National Society for Earthquake Technology-Nepal (NSET) and International Federation of Red Cross and Red Crescent Societies (IFRC) are the main implementing partners of the program in Bangladesh. Bangladesh Red Crescent Society (BDRCS) and relevant Government organizations at different levels are the implementing partners at national level. Schools, local NGOs, professional societies, foundations, and community have been considered to be the partners at the local levels.

**Disaster Preparedness for Safer Schools in Bangladesh** is a component of regional program proposed to be implemented in few countries of Asia namely, Nepal, Bangladesh and China. The initial stage of the program was implemented in Nepal during 2009 to 2010. The first phase of the program implemented in Nepal was highly successful in terms of raising disaster awareness and mobilizing Red Cross district chapters, schools and the communities for disaster preparedness in the schools and communities. Disaster awareness from schools to household by children and household to community through parents became a prime element. Proposed program is the extension of the same program with inclusion of experiences and lessons learned from Nepal.



#### **8.4 Resilience and Disaster Risk Reduction (DRR) Capacity Building programme for the Earthquake Recovery and Disaster Risk Reduction project in eastern Nepal.**

This program is started on 1 August, 2012 to 31 March, 2013 with the funding support received from DFID under the ERDRR project. The project is operating in four districts (Bhojpur, Khotan, Sankhuwasbha and Terhathum) in Eastern Nepal. This program is focuses on training to engineers, sub-engineers, assistant sub-engineers, masons and other skilled construction workers. The major objectives of this program are to provide Disaster Risk Reduction Capacity Building training and to provide guidance to community to prepare District Disaster Preparedness and Response Plans. NSET has an involvement in Training delivery and supervision of following training programs: 1) Basic Technical Training, 2) Training for Instructors, 3) Master Mason Training 4) Mason training Supervision, Community Based Disaster Risk Reduction, 5) Sensitisation on DRR to Districts, and DPRP review, CBNDRR for social mobilize and TFI for School based disaster preparedness.

#### **8.5 Developing Video Toolkit for Earthquake Safe Building Practices in Nepal**

This program is started on 1 August, 2012 to March 31, 2013 with the funding support received from UNDP Nepal under the CBNDRMP. The objective of the programs are to support in the awareness raising/demand creation among existing and prospective house owners regarding earthquake building construction practices following NBC provisions, and Dissemination of useful tips to the mid level technicians/masons in the field of construction business and simplification of the provision of codes and its implementation in a more easy to understand language. The toolkit will cover process of all the key activities in a simple residential building right from the foundation to roofing works including the structural and non-structural safety of the buildings. The toolkit will be prepared in a serial order as per the activities in the building construction. Each serial will be of time duration of 15-20 minutes covering one episode for one construction activity e.g. one episode for foundation work. In this way there will be a series of episodes of the documentaries maximum of which will be up to twelve episodes that will describe key activities in the building construction in RCC framed structure as well as load bearing brick masonry construction.

#### **8.6 Promoting Public Private Partnership on Earthquake Risk Management (3PERM)**

This program is started on October 1, 2011 to September 30, 2014 with the funding support received from Office of the Foreign Disaster Assistance (OFDA) of the USAID. The key objective of the program is to "Increase disaster awareness and promote public private partnership (PPP) for earthquake risk management in Nepal". The main activities are a) to conduct Massive Awareness Campaign on Earthquake Risk Management through Radio programs, Television Programs, Print media, Publications, E-Bulletin, Display Boards, Door-to-door Campaign, Street drama and other demonstrations, Production and distribution of short thematic Video films and Development and Distribution of NSET presentations on Earthquake Preparedness, b) Enhancement of Public Private Partnership for Earthquake Risk Reduction through One-on-one meeting with the top twenty private sector business in Nepal, 10 numbers of Consultative meetings with Corporate Sector, Associations of Business and Industries, Media Houses, Consultant and developers, Professional Societies and groups representing general public such as group of house-wives, religious leaders, Invited Lectures in Rotary Clubs, Design Development and Implementation of DRR programs jointly by NSET and Rotary Clubs, c) Feasibility study of a model "Urban Regeneration" in the city core area of Kathmandu.

The main focus of the program will be in Kathmandu Valley and other urban areas of Nepal. These include the Kathmandu Metropolitan City, Four Sub-Metropolitan Cities, 53



Municipalities and 135 Small Towns with rapid urbanization and building up of earthquake vulnerabilities. This program aimed to make aware 5 million population of Nepal on earthquake risk faced, and in aspects of earthquake safety, will encourage 20,000 population of the target area of the pilot urban regeneration program, at least 10 top business houses will start profitable business pertaining to earthquake risk reduction activities.

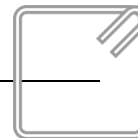
### **8.7 Technical Services for Strengthening Risk Sensitive Land Use Planning and Implementation (RSLUP) in Nepal.**

This Project is funded by UNDP - Nepal. The primary aim of the Project is to provide technical support for the integration of Risk Sensitive Land Use Planning in local development processes and building by-laws in selected municipalities in the Kathmandu Valley through consultations, dialogues, advocacy and planning activities. The National Society for Earthquake Technology-Nepal (NSET) and the Earthquake and Megacities Initiative (EMI) has entered into a partnership agreement for providing the services. Qualified professionals and experts from both the organizations will serve as key Professionals.

The following specific activities will be done under the project a) collect baseline information and data on land use planning in Kathmandu Valley which will be useful for risk sensitive land use planning (RSLUP), b) conduct orientation to the relevant stakeholders of Kathmandu Valley on RSLUP and organize consultation workshops, c) prepare training courses for different target groups on RSLUP and conduct training courses, d) develop advocacy tools and awareness materials on RSLUP, e) review and validate the draft RSLUP developed in the past for Kathmandu Metropolitan City (KMC) through consultation meetings and workshops, f) develop consolidated RSLUP Framework including identification of Key stakeholders, their roles and responsibilities and a broad work plan for entire Kathmandu Valley.

### **8.8 Technical Services for Strengthening Implementation of National Building Codes (NBC) in Nepal**

This project is funded by UNDP – Nepal. The main objective of the project is to "Support Quality and Implementation of Nepal National Building Code (NBC)". Major activities envisioned for this project are (1) Support Ministry of Physical Planning and Works (MPPW) and pilot municipalities to prepare replication strategy for conducted activities for public awareness raising employed by UNDP and other organizations in recent projects. (2) Develop a public private partnership strategy (with building material suppliers, manufacturers, banks, insurance industry etc) for awareness raising on EQ safe practices, and for development of quality control assurance plan/mechanism for building materials production and supply. (3) Support MPPW to formulate action plan and to activate the Nat'l Committee to upgrade and implement NBC. (4) Organize consultation and sensitization meetings with Ministry of Local Development (MoLD), MPPW and risk prone municipalities in Kathmandu valley (KV) to establish a mechanism for enforcing NBCs, review regulatory systems and develop a draft implementation guideline/strategy to integrate NBCs into building permit system at municipality level. (5) Support to Department of Urban Development and Building Construction (DUDBC) to update, finalize and endorse manuals and training course curricula that are developed under ERDP through at least 4 training courses (2 for masons and 2 for engineers), implement and monitor application of the manual and training courses and update and finalize the tools based on feedback. (6) Enhance capabilities of five risk prone select municipalities for replication and promotion of seismic safe construction practices/implementation of NBC in partnership with other municipalities with support of National Volunteer Services. (7) Organize consultations for enabling engineering universities



and poly techniques to include multi hazards risk reduction and NBCs issues in their regular, mandatory course curriculum.

The project objective is quite broad and its influence constituency encompasses a wide variety of actors from a resident to those involved in the construction of the building and producer/suppliers of construction materials and quality insurers to the permit-giving officials and agencies and the policy formulators and the related ministries.

### **8.9 Institutional Capacity Building of DoE/RED/DEOs/RCs on Earthquake Preparedness Program in Schools under the School Earthquake Safety Program (SESP)**

This project has successfully trained 24 persons as master trainers on earthquake preparedness from three districts of Kathmandu valley, who will be capable of conducting training to teachers, developed set of standard training materials (5 Days TOT Manual) which will guide the resource persons to carry out further trainings in resource centre level and a set of 3 days training manual has also been prepared to help the trained teacher to implement the earthquake preparedness activities in the Schools. The TOT covered present earthquake risk of Nepal and Schools vulnerability, need of Education in Emergencies, Emergency preparedness planning in School, training management and proposed curricula for teachers training and earthquake drill procedure and it was conducted in close cooperation and coordination with GON, Department of Education, RED-CR, NCED, UNICEF, District Education office of Kathmandu, Lalitpur and Bhaktapur.

### **8.10 Nepal Earthquake Risk Management Program II (NERMP 2)**

This project started on April 8, 2011 with the funding support from Office of the Foreign Disaster Assistance (OFDA) of the USAID. Improved earthquake disaster resilience of Nepal is the goal of the program. To reduce earthquake risk of Nepal through awareness-raising, capacity building, preparedness, mitigation, and institutionalization initiatives, and to Institutionalize Earthquake Risk Management Practice in Nepal are the specific objectives of the program. NERMP is the logical continuation of a long term efforts of NSET in reducing earthquake risk in Kathmandu Valley and Nepal, which OFDA / USAID has been supporting since 1997.

### **8.11 Disaster Preparedness for Safer Schools in Nepal 2**

Several activities such as institutional capacity building, development of trained human resources, net-working among local stakeholders, awareness raising, mitigation measures, and economic vulnerability reduction will remain integral parts of this project. This project will be based on the learning from the Disaster Preparedness for Safer School in Nepal that was implemented jointly by NRCS and NSET with the funding support and guidance from American Red Cross. Key approaches, modalities and lessons learned from DPSS 1 will be applied during the project activities. To make disaster preparedness a school priority, focus will be given to share the school safer concept at the district, regional and national levels. The program is conceptualized for scaling up and consolidating the experiences and lessons of previous efforts.

### **8.12 Program for Enhancement of Emergency Response Stage III (PEER-3):**

This is a continues (PEER Stage II) regional training program managed by NSET with a purpose to strengthen and institutionalize capacities in emergency and disaster response in six participating Asian countries viz. Bangladesh, Indonesia, India, Nepal, Pakistan and the Philippines from April 2009. Developing regional instructors for Medical First Responder



(MFR), Collapsed Structure Search and Rescue (CSSR) and Training for Instructor (TFI) is a primary objective of PEER. The program is funded by the U.S. Office of Foreign Disaster Assistance (OFDA). The program, started in April 2009, will run till March 2014.

### **8.13 Earthquake Preparedness Program in Schools of Kathmandu Valley**

Main purpose of the program is to enhance the capacity of school teachers and students on emergency preparedness at schools through raising awareness among students, teachers and staff members of the selected schools on the earthquake risk; need and measures to mitigate the risk; and importance of preparedness activities. It is also expected that the students, teachers along with the staff members will be instrumental in raising awareness and implementing preparedness activities in their respective families and their community.

### **8.14 Community Based Disaster Risk Management in Nepal (CBDRM-N)**

Community Based Disaster Risk Management in Nepal (CBDRM-N) is one of the many interventions that NSET has been undertaking at the community level. This project aims at institutional development, capacity building and sustainable activities in disaster risk reduction at the community level. The 15 month project has six major objectives related to empowering the grassroots community including women, children, and people with disabilities, under privileged and marginalized population. The Objectives will be achieved through special focus to process oriented actions to facilitate the technology transfer at the community level. The activities include awareness and education, training programs, drill and model structural and non structural mitigation to community light search and rescue exercises. It plans to work in three communities in Kathmandu Valley with active participation of concerned local government. The program is being supported by the Lutheran World Relief.

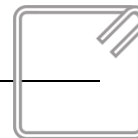
### **8.15 Preparation of Mason Training Guideline and Mason Training Manual on Earthquake Resistant Construction of Buildings**

The programme includes capacity building through training, sensitizing people and giving awareness as well as establishing linkages with partners at different levels to maximize efforts to be prepared for and respond to disasters more effectively. The objective of the training programme is to increase awareness and build the capacity at the local level on earthquake resistant construction the main goal is to reduce the impact of potential earthquakes on seismically vulnerable communities in Nepal.

NSET has in the process of developing the training Guideline for mason, Training Manual for Mason on Earthquake Resistant Construction of Buildings and training manual for Nepal National Building Code (NBC) on Earthquake Resistant Design of Buildings/Nepal National Building Code and its Implementation Strategy.

### **8.16 Preparation of Recovery Principles and Guidelines**

It is well known that recovery is a crucial issue for major disasters like Earthquakes and others. The people affected by natural disasters have to be treated carefully to recover from the adverse situations and all possible steps should be taken to alleviate human suffering arising out of calamity. There should be well planned processes, emergency response mechanisms to normalize the living conditions. People especially children, woman, old aged and disabled people who are most vulnerable during disaster should be taken care and treated first. External aid can slow recovery if not provided in a way that supports the local population's own survival mechanisms. Therefore, proper recovery planning beforehand is necessary to cope with the situations. But in Nepal there is lack of such planning which could



be observed during disasters like floods and fires in eastern and western Terai districts. Government and Local bodies are focused on immediate relief and rescue rather than the emergency response and early recovery planning beforehand which could have saved more lives and reduce the impact of disasters.

NSET has been planning to prepare Recovery Principles and Guidelines suitable to Nepalese context based on internationally adopted guidelines that will be the base and standard reference guideline to develop contingency planning for the major disasters like earthquake and to develop emergency response planning in National and local level. Furthermore, initiation will be taken for the incorporation of Recovery Principles and Guidelines into the national development planning process.

#### **8.17 Preparation of Training Manual on Earthquake Resistant Design of Buildings/Nepal National Building Code and its Implementation Strategy**

Most of the municipalities in Nepal including above mentioned municipalities are situated in highly vulnerable zone from a seismological perspective. The collapse of engineered and non-engineered building during earthquakes is the main contributor to the loss of lives and injuries to the people and economic losses. In Nepal, more than 80 percent of the total building is being built without proper structural safety considerations. In this context, effective enforcement of building codes and control system could be the major steps to reduce the loss of life and properties.

Building codes generally do not specify good practice, but simply a level of resistance to forces to be attained based on the best known data. Despite the tragic loss of life and property caused by the earthquake, it provides an opportunity to learn how to be better prepared for larger earthquakes and how to mitigate the damaging effects of future earthquakes. The National building code was established in Nepal in 1994 and was enacted in 2003. But the implementation is limited to a few municipalities only.

#### **8.18 Disaster Preparedness for Safer Schools (DPSS) in Nepal Stage I**

Reduce impact of Disasters by creating safer and resilient schools and communities is the main goal of the program. Disaster Preparedness for Safer School in Asia is a regional program is being implemented in Nepal as pilot project. The program includes development and adaptation of training curricula on school disaster preparedness, delivery of training courses, preparation and implementation of school earthquake preparedness plans, disaster preparedness drills, community awareness and establishment of links of community and school preparedness plans. NSET is jointly implementing this project with Nepal Red Cross Society.

#### **8.19 Comparative Risk Assessment in Humla District**

In the framework of ECHO funded DIPECHO V program in South East Asia and under the project granted to Mission East "Increased resilience to natural disasters for remote and vulnerable mountain communities in Humla District, Karnali Zone, Nepal" Client will subcontract contractor to conduct a comparative rapid risk screening among 33 villages within 7 VDC of Humla District. The goal is to identify villages or clusters of villages at higher risk of being affected by natural disasters, where to conduct further Community Based-Disaster Risk Management (CB-DRM) activities as stated in the DIPECHO proposal.



## **8.20 Comprehensive Risk Mapping in Trijuga, Udayapur**

The principal objective is to undertake a comprehensive multi-hazard risk mapping and develop appropriate DRR action plan for Ward No. 2 & 5 of Triyuga Municipality, Udaypur District by combining GIS and participatory vulnerability methods to arrive at the analysis of total risk of the target area and generating appropriate action plan to address those risks.

## **8.21 Developing A Strategy for Improving the Seismic Safety of Schools in Nepal**

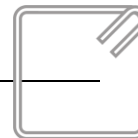
The overall objective of this project is to develop a strategic framework for improving the seismic safety of schools in Nepal and for related public awareness raising and capacity building. Some key components of the program are: Developing and implementing a pilot program to identify physical structural-seismic retrofitting needs of schools, and replicable, specific retrofitting measures to scale up and improve school safety across the country; Developing a replicable agenda and program for mainstreaming DRR at the school level through awareness raising and related capacity building; Developing a pilot program for training of the local construction industry in seismic retrofitting techniques; Developing an integrated strategic framework for improving the seismic safety of schools across the country, through a scaling up of the different pilot programs. The program is being supported by the World Bank.

## **8.22 Risk Mapping and Shelter Response Planning Program**

The project aims at application of simplified RADIUS methodology to the cities of Kathmandu (Nepal) and Maputo (Mozambique) for effective pre-disaster and post-disaster shelter planning. This application would include the testing and calibration of this methodology in these two locations; development of a guide, strategy for addressing shelter needs in risk analysis and contingency planning by ESC members and other shelter stakeholders. This guide will introduce general issues in shelter planning, in relation to risk mapping and contingency planning, as well as use of the RADIUS tool to facilitate this planning; The lessons learned from the pilot applications will be utilized to design guidance for using this methodology in high risk countries around the world. A guide and training modules will be developed to facilitate the quick and effective large-scale implementation of this methodology. Some key activities to be performed in this program are: Use of a calibrated and widely accepted methodology for the development of Shelter Response Strategic Plans for earthquakes; Development of Shelter Response Strategic Plans for Kathmandu and Maputo Cities; Training to officers both at local and international level in the application of RADIUS tool; Development of a long-term strategy that would allow the methodology to be replicated elsewhere in the world to prepare Shelter Response Strategic Plans; Increase awareness and knowledge of existent risk among government and humanitarian professionals through the documented application of RADIUS methodology. The program is being coordinated by UNDP/BCPR with financial support from UN-Habitat.

## **8.23 Municipal Disaster Risk Reduction Program in Nepal (MDRIP)**

MDRIP covered Illam and Panauti Municipalities of Jhapa and Kavre Districts respectively as pilot areas to implement the program and gradually to cover all 58 municipalities of Nepal. The project has two-pronged strategy; a) to strengthen the municipal capacities by institutionalization of the process of disaster risk reduction and consolidation of the build-up capacities by follow-up activities; b) start the process of disaster risk reduction. It is envisioned that the project will help replication of the successful experiences and lessons learned so as to achieve a uniform and enhanced level of DRM capabilities in other municipalities in Nepal. Some activities to be performed in this program are: Earthquake Risk



Assessment of the municipalities; Municipal Disaster Risk Reduction and Response Master Plan preparation; Implementation of Disaster Risk Reduction Initiatives; Capacity building of municipal authorities and professionals on earthquake resistant design and supervision, mason training and community awareness on earthquake resistant construction technology. The program is being coordinated by UNDP/GRIP with financial support from UNPOS/Geneva.

#### **8.24 Nepal Earthquake Risk Management Program (NERMP):**

This project started on Oct 1, 2005 with the funding support from Office of the Foreign Disaster Assistance (OFDA) of the USAID. Improving earthquake safety of Nepal through earthquake vulnerability reduction and preparedness initiatives is the goal of the program. Improving seismic safety of public and private schools, critical facilities, residences and public infrastructures as well as institutionalizing earthquake risk management practice in Nepal are the specific objectives of the program. NERMP is the logical continuation of a long term efforts of NSET in reducing earthquake risk in Kathmandu Valley and Nepal, which OFDA / USAID has been supporting since 1997.

#### **8.25 Program for Enhancement of Emergency Response (PEER):**

This is a regional training program managed by NSET in partnership with International Resources Group, the Center for International Emergency, Disaster and Refugees Studies of John Hopkins University, and Safety Solutions Inc. with a purpose to strengthen and institutionalize capacities in emergency and disaster response in six participating Asian countries viz. Bangladesh, Indonesia, India, Nepal, Pakistan and the Philippines. Pakistan has been added as sixth participating country to PEER from October 2006. Developing a regional cadre of instructors for Medical First Responder (MFR), Collapsed Structure Search and Rescue (CSSR) and the Hospital Preparedness for Emergencies (HOPE) and Training for Instructor (TFI) is a primary objective of PEER. The program is funded by the U.S. Office of Foreign Disaster Assistance (OFDA). The program, started in April 2003, will run till March 2008.

#### **8.26 Disaster Risk Inventory/Information Management System:**

In continuation of the efforts to institutionalize Disaster Information management system, and to further the achievements of the previous DesInventar project in 2003, UNDP has provided financial support to NSET to carry on second phase of DesInventar where it has been proposed that DesInventar system is to be institutionalized into a simple disaster risk information system/disaster inventory management system in the official administration at the ground level. For this, the system is being piloted in two districts of Nepal. The objectives of this pilot phase are to organize experience sharing platforms for finalizing the methodology and classification of the roles of different stakeholders in the collection, validation, compilation and analysis of the relevant disaster data; to develop an institutional framework to record all natural disaster events irrespective of their scale at the VDC/Municipality level of the piloted districts; to build the required capacities of the mandated institutions and personnel to implement the activities and to prepare mid-term and final reports that highlight the methodology, lessons learnt and, especially assess the possibility of applicability and adaptation of the DesInventar methodology at a nation wide scale.

#### **8.27 Thimpu Valley Earthquake Risk Management Project**

A contractual agreement between Standards & Quality Control Authority, Ministry of Works and Human Settlement, Royal Government of Bhutan and NSET has been made for NSET to provide short-term technical advice for the follow-up to the Thimpu Valley Earthquake Risk Management Program in Thimpu, Bhutan. NSET will conduct structural and non-structural



seismic vulnerability assessment of buildings, identify retrofitting options, develop the standard guidelines, and provide training to engineers as part of the project.

### **8.28 Earthquake Vulnerability Reduction and Preparedness Program (EVRP) in Muzaffarabad and Mansehra Municipalities -Pakistan**

NSET is working with United Nations Development Program (UNDP) Pakistan for providing technical support to National Disaster Management Authority (NDMA) of the Islamic Republic of Pakistan under the project “Earthquake Vulnerability Reduction and Preparedness Program in Muzaffarabad and Mansehra Municipalities” since November 2007.

The project aims at building institutional structures, policies, and systems to integrate earthquake vulnerability reduction in the two municipalities. The project employs a multi-pronged strategy which combines technical knowledge with hands on practical experiences in earthquake vulnerability reduction and preparedness, which cuts across other themes such as capacity building, establishing a knowledge-base for informed decision making, human resource development, practical demonstration for education, awareness, training, and dissemination of learning and experiences locally, nationally and regionally. The project is built around a partnership approach where it brings together a range of different stakeholders like technical agencies, academic and research institutions, local governments, line agencies and civil society, while placing vulnerable communities in the middle, so as to demonstrate participation, partnership and use of local wisdom to promote context specific solutions to challenges posed to sustainable development, through a blend of structural and non-structural components of earthquake vulnerability reduction.

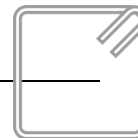
### **8.29 Comprehensive Disaster Management Program – Bangladesh**

The Comprehensive Disaster management Program (CDMP) of the Government of Bangladesh (GoB) is being implemented by the Ministry of Food and Disaster Management (MoFDM) and is supported by UNDP, DFID-B and the EC. CDMP is designed to strengthen the Bangladesh Disaster Management System and more specifically to achieve a paradigm shift from reactive response to a proactive risk reduction culture.

National Society for Earthquake Technology (NSET) in partnership with Asian Disaster Preparedness Centre (ADPC) together with Oyo International Corporation (OIC)-Japan, Asian Institute of technology (AIT)-Thailand and Bangladesh Disaster Preparedness Centre (BDPC) has been engaged under the CDMP project to provide technical services for the execution of;

- Seismic hazard and vulnerability mapping of Dhaka, Chittagong, and Sylhet city corporation areas
- Training, advocacy and awareness with regards to Earthquake and tsunami hazard
- Contingency Planning for Dhaka, Chittagong and Sylhet city corporation areas

The objectives of the assignment under the three projects are ; to develop seismic hazard and corresponding vulnerability maps for the critical structures as well as the building stocks of Dhaka, Chittagong and Sylhet city corporations including their area and further extensions ; to develop a comprehensive geo-hazard risk reduction ; to develop trainings, drills, advocacy and awareness in different cross-section of the people from government officials to community level in Dhaka, Chittagong and Sylhet City Corporation including their area under future expansions respectively.



### **8.30 Preliminary Research on Earthquake Safety of Stone Masonry Buildings**

NSET with support from Building Research Institute (BRI) is conducting a research on Earthquake Safety of Stone Masonry Buildings. The main research objectives are: Collection of findings on properties and performance of different stone masonry houses/elements; Identification of typical stone masonry houses in Nepal and the region; Collection and analysis of existing guidelines, ongoing researches, references and information dissemination materials; Identification of research direction and needs to conduct further research.

### **8.31 Awareness Raising and Capacity Building for Earthquake Risk Reduction**

Department of Urban Development and Building Construction (DUDBC) and NSET has agreed to collaborate for the implementation of awareness raising and capacity building programs for earthquake risk reduction in 75 districts of Nepal with the objective to a) accomplish the programs of DUDBC in a professional manner with highest quality of work b)utilize the significant experience of NSET in conceptualizing and managing earthquake risk reduction efforts to implement the DUDBC planned activities and c) institutionalize the earthquake risk mitigation concepts, knowledge and practices into the regular functioning of DUDBC initiative and make risk reduction a national priority.

Some key activities to performed are: Conduction of training for DUDBC engineers, mason, contractor, municipal engineers; Conduction of training on Building Vulnerability Assessment and Damage Assessment; Development of Retrofit design; Implementation and development of retrofit norms; Development of recommended system, associated checklists and guidelines for building code implementation and monitoring Organization of annual earthquake safety day; Review and publication of existing building code and other related documents

### **8.32 Case Station and Field Campus (CASIFICA)**

NSET and Disaster Prevention Research Institute (DPRI) of Kyoto University, Japan had signed a Memorandum of Understanding for the establishment of Case Station and Field Campus (CASIFICA at Tsukuba, Japan on March 1, 2006. The goal of CASIFICA is to conduct action research in the field of disaster mitigation and disaster preparedness in five countries including Nepal and extend the cooperation for similar collaborative work at regional and international levels. The objectives of program are two-fold: Help institutionalize disaster risk education based on national/regional necessities and demands on academic education and researches, Provide academic assistance to the initiatives on disaster risk management by government, non-government or financial institutions and private sector by starting NGO-College collaboration on joint researches and implementation

The projects to be included in CSFC would be projects implemented by NSET or by a joint endeavor of NSET and Kathmandu University (KU) or those implemented by NSET and KU in partnership with other government or non-government organizations. The projects can be basically categorized as: Project for critical assessment if the impact of earthquake risk management works being done by NSET in the past decade in Nepal, Project for critical assessment of a program such as the School Earthquake Safety Program (SESP), and the Project for critical assessment of the progression of disasters risk management works in a particular geographical or administrative area of Nepal.



### **8.33 Up-streaming Community Based Approaches for Promoting Safer Building Construction in Lorestan, Iran**

An Institutional Contract between UNDP/Iran and NSET was made to implement the program in Iran. The overall objective was for up-streaming community based approaches for promoting safer building construction specifically a) to discuss on community-based approaches for promoting safer building construction and explore potentials of the use of such approaches in Iran, b) to select/localize/customize different available tools and developing new tools for promoting safer building construction through mobilizing community and capacity development of end users, c) to discuss on possible modes of implementation and the role of different stakeholders, and d) to identify the related policies for supporting these activities and to suggest for favorable policy if felt necessary by the stakeholders.

### **8.34 Program for Strengthening Capacities for Disaster Risk Management in Iran**

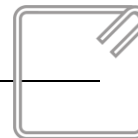
NSET has provided technical assistance to Asian Disaster Preparedness Center (ADPC)/Thailand to implement the UNDP-Government of Iran Joint National Program for Strengthening Capacities for Disaster Risk Management, a five year program. The goal of the program is the reduction of disaster vulnerability and prevention of loss of lives and damages to properties human settlements, infrastructure, and critical facilities in the Islamic Republic of Iran.

### **8.35 Community Based Disaster Management Program in Kathmandu Valley**

NSET has implemented Community Based Disaster Management Program in Kathmandu valley with financial support from Oxfam GB Nepal. The main goal of the project was to enhance the disaster safety of selected communities through awareness campaigns, trainings and institutionalization of the process in the local governance system for the sustainability of such initiatives. The specific objectives of the program were; a) Capacity building of communities and their institutions to design and implement disaster risk reduction and preparedness activities, b) Capacity building of municipal wards authorities and officials on disaster risk reduction, preparedness and effective response and c) Institutionalize the Disaster Risk Management (DRM) initiative at various levels of local governance (Ward level and Municipality Level).

### **8.36 National Strategy for Disaster Risk Management in Nepal (NSDRM):**

NSET has provided technical assistance to UNDP in assisting the Government of Nepal in preparing the National Strategy for Disaster Risk Management (NSDRM) in Nepal based on Hyogo Framework of Action (HFA) with financial support from European Commission through its Humanitarian Aid department. The project has prepared draft strategy documents for eight specified sectors: Agriculture and Food Security, Health, Education, Shelter, Infrastructure and Physical Planning, Livelihood, Water and Sanitation, Information, Coordination and Logistics, and Search and Rescue, Damage/Need Assessment and will also address cross cutting issues such as Human Rights and Protection, Gender and Social Inclusion, Staff Safety and Security and Decentralization and Local Self Governance. All these collectively have constituted the consolidated National Disaster Strategy on DRM. The strategy is expected to provide the road map for all sectors to prepare sector specific programs for DRM and formulate the necessary policy decisions for facilitating mainstreaming DRM into the development process.



### **8.37 Disaster Preparedness and Response Plan for Safe Drinking Water in the Kathmandu Valley, Lalitpur Sub-Metropolitan City (DPRP):**

The project had two components, notably a) development of an outline of a Comprehensive Framework of Disaster Preparedness and Response Plan for the Lalitpur Sub-Metropolitan City (LSMC), emphasizing the linkages between the different critical facilities and emergency response services, and b) development and implementation of pre-positioning of water supply at identified potential evacuation site ensuring a minimum supply of safe water after a scenario earthquake resulting in IX MMI intensity of shaking. Seismic vulnerability assessment of existing and identified water wells, identification and implementation of possible structural and non-structural interventions, and encouraging wider ownership of the experiences gained, lessons learned were the main activities that are being carried out with wide consultations and participation of all stakeholders. The project put forward recommendations for further enhancing disaster preparedness and its institutionalization in LSMC. The project was implemented by UNICEF with financial support from EU-DIPECHO in close collaboration with concerned central and municipal government. NSET was commissioned to provide technical assistance.

### **8.38 Community-Based Disaster Management Project (CBDMP):**

NSET has implemented Community-Based Disaster Management Project in six districts (Tanahun, Syangja, Chitwan, Makwanpur, Sarlahi and Sindhuli) of Nepal since May 2006 under the CBDRM program of UNDP/Nepal. This project has enhance the security of men and women vulnerable to natural disasters and protect common property and community resources in selected disaster prone districts through appropriate capacity building measures at community, district and central levels and supporting and replicating community-based disaster mitigation initiatives that preferably enhance livelihood opportunities.

### **8.39 Earthquake Safety Construction Skill Training for Masons and Construction Technicians in Bhardrapur, Gaur, Bhaktapur, Maddhapur Thimi, Kirtipur Municipality and Kathmandu Metropolitan**

NSET has provided technical assistance to the Lutheran World Federation (LWF), Nepal under the LWF DIPECHO-CPDRR component, in implementing the Earthquake Safety Construction Skill Training for Masons and Construction Technicians in Bhardrapur, Gaur, Bhaktapur, Maddhapur Thimi, Kirtipur Municipality and Kathmandu Metropolitan. Enhancing knowledge and skills of masons and construction workers of specified municipal areas on the earthquake-resistant construction technology was the main objective of the proposed project. Other additional objectives of the project were a) Capacity enhancement of municipal construction technicians for incorporating earthquake-resistant construction technology, disseminating the technology and in implementing earthquake risk management activities, b) Dissemination of earthquake resistant construction technology including the retrofitting technology for existing buildings to the key role players of the building construction process, and c) Include municipal authorities in the training process and help them to initiate the process of promoting safer building construction practices. Upon completion of the proposed training programs 70 masons and construction technicians in Bhadrapur Municipality of Jhapa, 70 in Gaur Municipality of Rautahat and 350 in Kathmandu Valley (total 490) have been trained on earthquake-resistant construction technology.



#### **8.40 School Earthquake Preparedness Program in Jhapa, Rautahat and Kathmandu Valley**

NSET has provided technical assistance to the Lutheran World Federation (LWF), Nepal under the LWF DIPECHO-CPDRR component, in implementing the School Earthquake Preparedness Program in Jhapa and Rautahat Districts and in Kathmandu Valley. Keeping in view of current need of earthquake preparedness at schools, this project has met five major objectives ; notably a) publication of School Teachers' Training Manual for earthquake preparedness, b) awareness raising and capacity building of school teachers on earthquake risk and earthquake preparedness, c) develop trained school teachers for conducting training programs on earthquake preparedness through Training of Trainers (TOT) programs, d) assist school teachers to prepare and implement earthquake preparedness plan for their schools and e) awareness raising of common people through programs conducted by the trained school teachers and students.

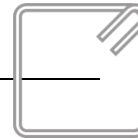
#### **8.41 Collaborative Research and Development on Network of Research Institutes in Earthquake Prone Countries**

NSET and National Graduate Institute for Policy Studies (GRIPS) of Japan made two separate research agreements a) to conduct a field survey and analyze the result to better understand the earthquake risk perception among people and identify factors to affect actions for housing safety as a part of Collaborative Research and Development on Network of Research Institutes in Earthquake Prone Countries, and b) to collect information on disaster education of ordinary people at community people, mainly through internet and publications.

As per the agreement on joint research, study survey of total 800 households around the community of Kathmandu-2 was completed. As discussed and agreed with GRIPS, NSET had selected the households in Ward #13 and #17 of Kathmandu Metropolitan City (KMC) for field survey. Disaster Management Committee (DMC) of Ward # 17 has been effectively working for last three years on disaster preparedness activities. Community of Ward # 13 of KMC was selected because of one of the highly populated areas of KMC. The field survey was extremely successful to understand the earthquake risk perception among community people.

#### **8.42 Capacity Building and Knowledge Management: Institutionalization of Earthquake Preparedness in School of Earthquake Affected Areas of Pakistan (CBKMP) :**

With funding support from UN-ISDR, NSET has implemented the project in close collaboration with Focus Humanitarian Assistance Pakistan (FOCUS). The overall goal of the project was to contribute to building resilience of communities to disasters through capacity building of teachers and students in earthquake affected areas in Pakistan. The specific objectives were three-fold a) to introduce the knowledge and skills on earthquake-resistant construction of new and seismic retrofitting of existing school buildings in Gilgit and Muzaffarabad of the Northern Areas and AJK respectively by undertaking pilot demonstration programs in each areas and conducting appropriate training for masons and school operators, b) to enhance earthquake awareness among the school system and institutionalize disaster preparedness and response planning, especially on seismic risks (on actions and measures to be taken before, during and after earthquakes, and development of safe school program, including check lists, evacuation drills, and so on c) to undertake a comparative research of lessons-learned and best practices in the aftermath of earthquake rehabilitation and reconstruction process in India, Iran, Turkey and Pakistan.



#### **8.43 Technical Support for Earthquake Resistant Housing Reconstruction in Pakistan:**

With financial support from OFDA of USAID, NSET has provided technical support to Earthquake Reconstruction and Rehabilitation Authority (ERRA) of Pakistan working in close co-ordination with UN-HABITAT since February 2006. The responsibility included policy support in developing strategies for Earthquake Reconstruction and Capacity Building for Earthquake-resistant reconstruction, and technical support in capacity building including development of training curricula and training of partnering organization and their Master Trainers, Mobile Teams for reconstruction as well as monitoring of the training activities throughout the earthquake-affected areas of the October 2005 South Asian Earthquake in Pakistan. Training of Engineers in earthquake-resistant design, refreshers training to engineers, training of masons and development of earthquake awareness materials, provision of assistance in the development of an operation manual for urban housing reconstruction; support implementation of a public awareness campaign etc., were some other tasks that were undertaken.

#### **8.44 Shake Table Demonstration in Banda Aceh**

NSET provided technical assistance to the World Bank/Indonesia in association with Building Research Institute (BRI) of Japan to conduct a shake table demonstration of model buildings in Banda Aceh, Indonesia in July 2006 in order raise awareness on earthquake resistant construction practices and promotion of safer houses in Aceh. The Shake Table Demonstration was a part of the training to the housing facilitator of the World Bank in Banda Aceh, Indonesia. The program period was for a month for making the model buildings and conducting the shaking table demonstration.

#### **8.45 Shake Table Demonstration of PP Band Technique in Pakistan:**

NSET provided technical assistance to JICA/Pakistan in association with Tokyo University to conduct a shake table demonstration of model buildings with PP Band technology in Muzaffarabad and Bagh (earthquake affected areas) of Pakistan. The objective of the program was to raise awareness of earthquake resistant construction technology to the large number of people in Pakistan and disseminate information on new PP Band technology in building construction and train the technicians on this new technology in Pakistan as well as see the possibility to bring this new construction technique to Nepal. The program period was for two months (Feb –Mar 2006) for making the model buildings and conducting the shaking table demonstration.

#### **8.46 Capacity Building for Reconstruction of Earthquake-Affected Areas of Pakistan (Bagh and Muzaffarabad):**

UNDP/Pakistan sought technical assistance from NSET to demonstrate people-centered, cost-effective, environment-friendly rubble removal and emergency housing strategy that facilitate incorporation of earthquake-resistance in transitional as well as permanent reconstruction of the building, and will ensure sustainable livelihoods and habitats for the earthquake-affected communities. An indicative output of the program is capacity building, support to the affected rural communities for emergency shelter construction and reconstruction of earthquake resilient housing units during the Early Recovery period following the October Earthquake in Pakistan.



#### **8.47 Kathmandu Valley Earthquake Risk Management Action Plan Implementation Project (APIP):**

The activities suggested in the Kathmandu Valley Earthquake Risk Management Action Plan were implemented in this project. NSET has implemented this project since 2000 with the funding support from Office of the Foreign Disaster Assistance (OFDA) of the USAID. Improving seismic safety of Kathmandu Valley was the broader objective of the project and improving seismic safety of public schools, residences and public infrastructures as well as institutionalizing earthquake risk management in Kathmandu were the specific objectives. Implementing the School Earthquake Safety Program (SESP), assisting in enhancing structural and non-structural safety of public institutions, providing technical assistance to the municipalities for implementing seismic building code, conducting training programs for masons, technicians, engineers, business community, and conducting free and mobile earthquake clinics for the house owners were some of the key activities of the project.

#### **8.48 Kathmandu Valley Earthquake Preparedness Initiative (KVEPI):**

Kathmandu Valley Earthquake Preparedness Initiative (KVEPI) was implemented in 10 locations of Kathmandu Valley as a joint program of Nepal Red Cross Society (NRCS), American Red Cross and NSET. This program used a combined approach of building capacity of NRCS volunteers, pre-positioning critical emergency supplies and rescue equipment, training people in basic first aid and rescue techniques, and helping the general public to identify and advocate for safer building practices. Primary goal of the initiative was to help communities develop preparedness capabilities and to reduce potential sufferings from earthquake disasters.

#### **8.49 Disaster Inventory/ Information Management System in Nepal (DIMS):**

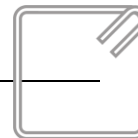
This was an effort to establish a systematic data base of natural disaster events in Nepal, and was carried out with the financial support from UNDP, Nepal. The project consisted in collection, computer-entry, and analysis of natural disaster data during the period of past 33 years (1971-2003). A standard data collection format was developed and used to capture the data from different sources and entered into the software "DesInventar", a methodological tool developed by Latin American Network of Social Studies on Disaster Prevention (LARED).

#### **8.50 Seismic Vulnerability Assessment of Major Hospitals of Nepal:**

For the first time in the region, NSET conducted during 2000-2003 a seismic vulnerability assessment of all major hospitals of Nepal in collaboration with Ministry of Health and World Health Organization (WHO). Structural and non-structural vulnerability of 14 major hospitals of Nepal have been assessed and mitigation and intervention options were identified and planned for implementation. Guided by the region-level interest in to assessment methodology, NSET published "Guidelines for Seismic Vulnerability Assessment of Hospitals" jointly with the World Health Programme (WHO).

#### **8.51 Seismic Vulnerability Assessment of Drinking Water Supply Network of Kathmandu Valley:**

A study for the assessment of seismic vulnerability of drinking water supply system of Kathmandu was undertaken with support from UNICEF Nepal in 2002. A practical methodology for assessing the seismic vulnerability of the water supply network was developed. Assessment results have been presented in the form of a network system damage



scenario. Optimum routes for the most expedient restoration of the water supply services are identified and possible emergency evacuation points are also suggested in view of the water demand in case of large earthquake event.

#### **8.52 Qualitative Earthquake Vulnerability Assessment of UN House in Thimpu, Bhutan:**

A study for the qualitative earthquake vulnerability assessment of UN House in Thimpu Bhutan was undertaken under the contract agreement with United Nations House in Bhutan October, 2007. This report is based on previous reports on Seismic Assessment and Seismic Retrofitting/Strengthening Design carried out in October 2004. The report has been prepared to provide accurate and authoritative seismic vulnerability assessment of the building in the given circumstances of information provided by the client on the details of the building and limited number of field tests.

#### **8.53 Municipal Earthquake Risk Management Projects (MERMP):**

As a replication process of the successes of the Kathmandu Valley Earthquake Risk Management Project (KVERMP), NSET implemented Municipal Earthquake Risk Management Project (MERMP) in four municipalities of Nepal: Banepa, Vyas, Dharan and Pokhara, during 2002-2003 under the Asian Urban Disaster Mitigation Program (AUDMP) of Asian Disaster Preparedness Center (ADPC) with core funding from OFDA. Project activities consisted of developing earthquake damage scenarios of the cities including building inventory surveys, preparing an action plan for earthquake risk management, construction or retrofitting of school or other public structure as demonstration of feasible mitigation measures, awareness-raising, training, capacity building and institutionalization. The project was a grand success. Therefore, NSET has now plans to work with other municipalities of the country as a regular program and has targeted to cover all-58 municipalities of Nepal within next 5 years.

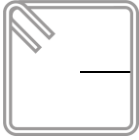
#### **8.54 Earthquake Risk Assessment of Kathmandu using RADIUS Tool (UNESCO-CCT Program):**

The project was implemented by Kathmandu Metropolitan City (KMC) with the technical support from NSET and as a part of the UNESCO Cross Cutting Theme initiative in 2003. In this project, earthquake risk of Kathmandu metropolitan area was assessed using RADIUS tool which assisted KMC authorities to understand the earthquake disaster risk of Kathmandu and helped in developing affordable and effective risk management measures and sound urban growth policies.

#### **8.55 Project for Pre-Positioning of Emergency Rescue Stores (PPERS):**

This project was jointly carried out by NSET and different ward disaster management committees of Kathmandu Valley and was supported by Civil Affairs Group of the British Army. The purpose of PPERS was to provide a reserve of essential tools and equipment to assist in the immediate community level response to a major disaster, such as an earthquake. PPERS is intended to help those 'first responders' on the ground at the local level to enable neighbors to rescue neighbors. Organizational structures such as local level disaster management committees and community emergency response teams are constituted as required to assist in setting up the stores and its effective operation. Such stores are pre-positioned in 8 locations of Kathmandu Valley.

**Apart from these, NSET had also successfully completed the following projects in the past;**



- **Kathmandu Valley Earthquake Risk Management Project (KVERMP):**

The first major project of NSET implemented during 1997 – 2000; published Earthquake Scenario for Kathmandu Valley and prepared the Earthquake Risk Management Action Plan for Kathmandu Valley. The methodology is replicated under the UN project for RADIUS and also in other Nepalese cities.

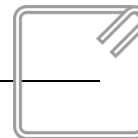
- **Environmental Mapping Projects:**

Environmental Mapping Projects were implemented by NSET in four municipalities with the main objective to prepare a strategy for urban environmental management plan and to generate systematic digital database for the municipalities. The first EMP was initiated in 1998 in Madhyapur Thimi Municipality. Similarly, it was initiated in Kirtipur, Dharan and Banepa Municipality in 1999, 2000 and 2002 respectively. This project was partly funded by Regional Urban Development Office (RUDO)/South Asia, United States Agency for International Development (USAID).

- **Nepal Gujarat Mason Exchange and Training Program (NGMET):**

NSET assisted SEEDS India, New Delhi to implement the Patanka Navajeevan Yojana (PNY) – a post earthquake reconstruction project for GSDMA in the village of Patanka, Patan District, Gujarat, India (2001). The Technical Assistance, called NGMET, involved Nepalese Masons, trained by NSET in earthquake-resistant construction, imparting hands-on training to their Gujarati counterpart masons, in ways of improving construction quality and practice.

- **Solid Waste Management Project** in Dharan Municipality
- NEST provided technical support to JICA in the **Study on Earthquake Disaster Mitigation in the Kathmandu Valley.**



## 9 ON-GOING PROGRAMS

### 9.1 School Earthquake Safety Program (SESP)

The findings of the Kathmandu Valley earthquake vulnerability assessment survey of public schools carried out in 1998 were very alarming. The study showed as much as 60% of the public school buildings being highly vulnerable and risky to use even in normal conditions. This situation urged NSET to implement vulnerability reduction programs in schools, which lead to a pilot program of retrofitting one of the public schools in a rural area of Kathmandu Valley in 1999. Since then SESP has been implemented in more than 20 schools in different parts of the country.

*The objectives of the programs are:*

- Identify and implement measures to reduce the vulnerability through retrofitting of existing buildings or construction of new buildings;
- Raise awareness of earthquake risks and preparedness of teachers students, local and government officials and the local communities; and
- Train local masons on earthquake-resistant building construction technology.

This program is very successful in promoting community participation in all components of program activities and to raise earthquake awareness significantly. The masons trained during the program are now spreading the technology of earthquake-resistant construction in their communities and replicating the technology while constructing new buildings. They are also training other masons.

### 9.2 Public Awareness Program

Almost all activities of NSET consist of public awareness-raising components. Some important stand-alone public awareness programs are:

#### 9.2.1 Earthquake Safety Day:

Nepal observes the Earthquake Safety Day on Magh 2 of Nepali month (either 15 or 16 of January) as commemorating day of the Great Nepal-Bihar Earthquake of 1934 as an annual event organized on a sustainable basis since 1999. This day is observed with a host of activities such as school children essay, art and poetry competitions, national meeting and rally, symposium, earthquake safety exhibitions and the shake table demonstration.

#### 9.2.2 Earthquake Safety Radio Program:

Community radio stations of Kathmandu and Pokhara – Sagarmatha Radio and Annapurna Radio, broadcast weekly half-hour earthquake awareness-raising radio programs.

#### 9.2.3 Earthquake Safety Television Program:

#### 9.2.4 Orientation Lectures:

Series of orientation lectures are provided to various local and international institutions upon their request. The content usually covers basic information about earthquakes situation in Nepal, what to do before, during and after earthquakes etc. Occasionally, earthquake drills are also included.



### **9.2.5 House owners Consultation Program:**

Free consultations in the form of workshops are provided to the potential house owners who are planning to construct new house in Kathmandu Valley. This weekly consultation program focuses on how to construct earthquake resistant buildings and usually the house owners come with their masons, contractors or the technicians to learn about the technology.

### **9.2.6 Mobile Earthquake Clinics:**

NSET has started mobile earthquake clinics in Kathmandu Valley to provide on-site consultation in aspects of earthquake-resistant building construction. A team of earthquake engineer/structural engineer, technician and masons visit different locations/building construction sites in Kathmandu Valley and provide technical advice. The aim is to improve construction of non-engineered buildings.

### **9.2.7 Community Based Disaster Risk Management Program:**

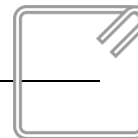
Several communities of Kathmandu Valley have started community based disaster risk management programs in their localities and NSET is providing technical assistance to such communities in implementing earthquake risk management initiatives. Some wards of Kathmandu city have begun the CBDM efforts by forming Ward Level Disaster Management Committees, recruiting community volunteers and providing training and capacity building opportunities for them. Ward No. 34 and Ward 17 of Kathmandu Metropolitan City have put tremendous efforts in making these initiatives sustainable. These CBDM initiatives are also supported by KVEPI and PERS initiatives of NSET and recently launched CBDM project with support from UNDP.

## **10 TRAINING PROGRAMS:**

NSET, as an outcome of the rich experiences gained during last seven years, has developed training courses targeting various stakeholders involved in earthquake risk reduction. These courses include training of masons/contractors, technicians, junior engineers, engineers, schoolteachers and policy/decision makers. A series of training courses is being organized during 2004-2005 as part of the APIP activities, and also in collaboration with the Department of Urban Development and Building Construction (DUDBC), municipalities, professional societies, business community and other partnering institutions.

## **11 NSET'S INVOLVEMENT IN OTHER REGIONAL ACTIVITIES**

- NSET provided consultant service to European Commission in identifying the disaster preparedness program especially on earthquake hazard and risk mitigation in Bangladesh.
- NSET provided consultant service to UN-HABITAT for the implementation of the Community-based Disaster Management Program, Government of Afghanistan in order to develop Guidelines for Earthquake-resistant Buildings and Earthquake Preparedness, conduct Training for Trainers (TOT) for Afghan professionals for Earthquake resistant Building Construction.
- NSET provided consultant service to the Disaster Preparedness and Education Program of Bogazici University (Istanbul, Turkey) and GeoHazards International (USA) under the project Central Asia Region Earthquake Safety Initiative (CAR-ESI) for the conduction of a Training for Trainers program for professionals from Turkey and Central Asia.



- NSET provided technical assistant to MERCY Malaysia to conduct a three day workshop on “Rebuilding A Safer Aceh” held in Banda Aceh, Indonesia. The workshop gathered a group of experts and academia that specialize in earthquake resistant construction of buildings as well as community based disaster management.
- NSET provided consultant service to SEEDS/India to implement Post Tsunami Recovery Project in Andaman Island, India.
- NSET provided technical input and logistics support to hold the Second Core Member Meeting (CMM II) of International Framework for Development of Disaster Reduction Technology List of Implementation Strategies (Disaster Reduction Hyperbase) in Nepal. This project has been initiated in collaboration between the Ministry of Education, Culture, Sports, Science and Technology of Japan and National Research Institute for Earth Science and Disaster Prevention (NEID)/Japan and UNISDR to establish a mechanism to identify, collect and analyse worldwide technologies, tools and effective practices on disaster reduction.
- NSET has actively been involving with International Transfer Live Lessons Network (TeLL-Net), established during the UN-World Conference in Disaster Reduction in January 2005 in Japan, as one of the active members and has been participating in its assembly meetings. NSET intends to carry out Transfer Live Lessons activities through museum exhibitions in its proposed new community learning center building.
- NSET provided technical assistance to JICA/Pakistan in association with Tokyo University to conduct a shake table demonstration of model buildings with PP Band technology in Muzaffarabad and Bagh (earthquake affected areas) of Pakistan.
- NSET associated with UNCRD/Japan in organizing the international workshop on “Keeping Schools Safe from Earthquake” in Kathmandu, Nepal in collaboration with Ministry of Education/Nepal and Kyoto University/Japan.
- NSET is collaborating with DPRI/Japan for the implementation of Case Station and Field Campus (CASIFICA) in Nepal and taking a lead in implementation of CASIFICA in association with the academic institutions. Students from Nepal and Japan are involved in the research programs which aim at consolidating the lessons learned and replicating the lessons in Nepal and in the region for promoting disaster risk reduction and enhancement of response planning and capability development.
- NSET provided technical assistance to The World Bank/Indonesia in association with Building Research Institute (BRI)/Japan to conduct a shake table demonstration of model buildings in Banda Aceh of Indonesia.

## 12 MEMBERSHIP AND PROFESSIONAL AFFILIATION

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. We are the Founder Member and a Board Member of the Asian Disaster Reduction and Response Network (ADRRN), a Founder Member of the Coalition for Global School Safety (COGSS), a Founder Member of the International Live Lessons Transfer Network (TeLLNet), Founder Member of the Disaster Preparedness Network Nepal (DPNet) and a member of a host of other networks as well as national and international technical committees.



## 13 AWARDS

- NSET has been awarded with the 2001 United Nations Sasakawa Award for Disaster Reduction for which it has received a Certificate of Merit in appreciation for its outstanding contribution to disaster reduction, thereby furthering the goals of the International Strategy for Disaster Reduction (ISDR).
- NSET has been honored as one of the Laureates to receive The Tech Museum Awards 2004 under Microsoft Education Award Category for its innovation of 'Shake Table' technology.

*"Shake Table Demonstration" is one of the regular activities under earthquake risk management works of NSET. This low-tech innovation tool has been highly effective in educating the common person about the structural behavior of building during earthquakes and for raising earthquake awareness for safer building construction. The demonstration complement NSET's other efforts on earthquake risk management. The 'Shake Table' demonstration was first performed in January 1999 and it has gradually become very popular in Nepal and the region. Having received requests from the local NGOs working towards earthquake risk management, we have helped communities of Bam (Iran), Gujarat (India), Kabul (Afghanistan), Dushanbe (Tajikistan), Banda Aceh (Indonesia) and Muzarrafabad (Pakistan) to implement shake table demonstration by providing necessary training to the local engineers and masons. Besides, NSET also conducted improvised shake table demonstration with support from UNCRD, as special event in World Conference in Disaster Reduction (WCDR), Kobe, Japan in Jan 2005.*



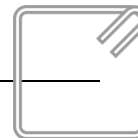
*"Shake Table" is a simple shaking platform with two identical models of traditional buildings, one with earthquake-resistant technology and another without it. The table is shaken mechanically simulating an earthquake. The resulting damage/collapse of the weaker building vividly demonstrates the*

*wisdom of incorporating earthquake resistant technologies to be considered in building construction. The demonstration educates people on the technology and also convinces them on the feasibility of technology options, including their affordability.*

(The Tech Museum Awards honor those who are using technology to address the United Nations' 15 most urgent global challenges facing humanity and the environment.)

## 14 PARTNERS AND SUPPORTERS

### National



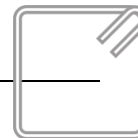
- Armed Police Force
- B.P. Koirala Institute of Health Sciences
- Department of Education
- Department of Mines and Geology
- Department of Urban Development and Building Construction
- Disaster Management Committee of Wards 17, 29 and 34, Kathmandu
- Disaster Preparedness Network (DPNet)
- Diploma Engineers' Association, Nepal
- Hotels Association Nepal
- Institute of Engineering, Tribhuvan University
- Institute of Medicine, Tribhuvan University
- Kathmandu University
- 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
- Nepal Army
- Nepal Police
- Arm Police Force (APF)
- National Forum for Earthquake Safety
- Nepal Forum for Environmental Journalists
- Nepal Bureau of Standards and Metrology
- Nepal Engineering College
- Nepal Engineers Association
- Nepal Geological Society
- Nepal Red Cross Society
- 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 (AIN)
- All India Institute of Hygiene & Public Health (AIHH&PH), India
- Ambullan 118 of Indonesia
- American Red Cross
- Amity Public Safety Academy of Philippines
- Asian Disaster Preparedness Center (ADPC)
- Asian Disaster Reduction Center (ADRC)
- Asian Disaster Reduction and Response Network (ADRRN)
- Asian Seismological Commission
- Badan Koordinasi National of Indonesia
- Badan Search and Rescue National of Indonesia



- Bangladesh Disaster Preparedness Centre
- Bangladesh Red Cross
- Boarder Security Force of Inida
- Building Research Institute of Japan (BRI)
- Central Reserve Police Force , India
- Commissionerate of Health & Medical Services, Gujarat, India
- Disaster Management Bureau of Bangladesh
- DPRI/Kyoto 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
- European University-NICE
- Fire National Training Institute of Philippines
- Fire Service and Civil Defense Directorate of Bangladesh
- Focus Humanitarian Assistance, Pakistan
- GeoHazards International
- Give2Asia
- Global Network of Civil Society Organizations on 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
- 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
- Lutheran World Relief, India
- Maiko High School, Kobe, Japan
- Mercy Malaysia
- Merlin
- Ministry of Food and Disaster Management, Bangladesh
- Ministry of Health and Family Welfare, Bangladesh
- Ministry of Health, Indonesia
- Ministry of Home Affairs, India
- Mission East
- National Disaster Management Authority of Pakistan
- National Disaster Coordinating Council of the Philippines
- National Industrial Security Academy of India
- National 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



- Philippines General Hospital
- Reynolds Geo-Sciences Limited
- Safety Solutions Incorporated
- Save the Children
- Sustainable Environment and Ecological Development Society/India (SEEDS India)
- The International Institute for Geo-Information Science and Earth Observation (ITC)
- United Missions 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
- US Embassy
- USAID Nepal
- World Health Organization
- World Seismic Safety Initiatives (WSSI)

**Annex: 1 (Milestones of Earthquake Risk Reduction Efforts of NSET)**

**Annex: 2 (Memorandum of Understanding - List of Organizations)**

**Annex: 3 (List of NSET Publications)**



## ANNEX 1

### Annex 1: Earthquake Risk Reduction Efforts of NSET

#### 1988

- Udaypur Earthquake
  - 721 deaths
  - 22 districts of eastern Nepal affected
  - Total direct loss of 5 billion rupees
  - Earthquake considered a major concern for the first time in the country

#### 1992

- Start of the National Building Code Development Project (BCDP)
- Future founders of NSET involved
- Nepal observed the International Decade for Natural Disaster Reduction (IDNDR) Day for the first time

#### 1993

- First World Seismic Safety Initiative (WSSI) Workshop in Bangkok
- Future founders of NSET participated
- NSET established
- First National Conference on Disaster Management
- High Level Meeting organized by NSET and WSSI in Kathmandu
- Kathmandu Municipal Mayor participated in Istanbul Workshop on Issues in Urban Risk

#### 1994

- NSET registered as a non-governmental organization with His Majesty's Government of Nepal
- NSET became a member of the IDNDR national committee
- The National Action Plan for Disaster Management prepared
- National Building Code drafted
- BCDP released
  - consolidated earthquake catalogue
  - earthquake hazard maps
- NSET and GeoHazards International conceptualized the Kathmandu Valley Earthquake Risk Management Project (KVERMP)
- First earthquake safety pamphlet published

#### 1995

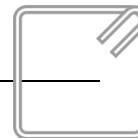
- First training course for journalists on Disaster Journalism

#### 1996

- NSET inducted into the International Association of Earthquake Engineering as national member during the 11th World Conference on Earthquake Engineering (WCEE)
- First training course for school teachers on Earthquake Preparedness

#### 1997

- KVERMP launched as national project under the Asian Urban Disaster Mitigation Program of Asian Disaster Preparedness Center



- NSET moved into its present office premises

### **1998**

- His Majesty's Government of Nepal declared 16 January as national Earthquake Safety Day (ESD)
- Kathmandu Valley Earthquake Scenario published
- NSET and US Army engineers conducted preliminary assessment of structural and functional vulnerability of Bir Hospital, Teku Hospital and Lincoln School
- Seismic vulnerability assessment of 1100 buildings of 643 public schools in Kathmandu Valley completed
- Building Council Act adopted by the Parliament
- Workshop on Health and Medical Implications of Earthquake Disaster was organized for the first time
- Kathmandu Valley Earthquake Risk Management Action Plan finalized
- Set up of the Disaster Management Section in Kathmandu Metropolitan Office

### **1999**

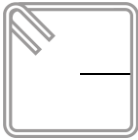
- NSET launched the School Earthquake Safety Program (SESP)
  - Bhuaneshwori Lower Secondary School – the first school to be retrofitted
  - Proved the technical, social, and economic feasibility of retrofitting public buildings
- Prime Minister released the Kathmandu Valley Earthquake Scenario and Risk Management Action Plan
- First earthquake safety exhibition
- Completed the first Environmental Mapping Project in Madhyapur Municipality
- NSET, Ministry of Health, and World Health Organization (WHO) conducted the training course on Mass Casualty Management
- NSET participated in 2nd WSSI Bangkok Workshop, and the closing meetings of IDNDR in Bangkok, Mexico, and Paris

### **2000**

- Start of the Kathmandu Valley Earthquake Risk Management Action Plan Implementation Project
- First WSSI Fellowship awarded to NSET's General Secretary
- 2nd ESD
- Regional Symposium on Experience in Earthquake Risk Management
- SESP in :
  - Vaisnabi Secondary School
  - Upayogi Primary School
  - Gadgade Primary School
- Completed the Kirtipur Environmental Mapping Project
- Set up of a ward-level disaster management committee
- NSET participated in 12th WCEE in New Zealand

### **2001**

- 3rd ESD
- Late His Majesty King Birendra granted audience to NSET and foreign delegates
- NSET received the United Nations Sasakawa Award for Disaster Reduction - Certificate of Merit
- Participated in the WSSI/Earthquake and Megacities Initiatives Inter-disciplinary team to Gujarat following the Gujarat Earthquake



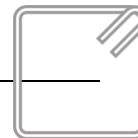
- Launched a half-hour weekly earthquake safety program on a community radio station
- The Nepal-Gujarat Mason Exchange and Training Program implemented with Sustainable Environment and Ecological Development Society and NGOS Kobe
- Emergency Preparedness and Disaster Response Plan for the Health Sector drafted
- Organized the National Training on Urban Disaster Mitigation
- Collaboration with Room to Read on earthquake-resistant construction of two schools in Dhading District
- NSET and UN Center for Regional Development initiated the Kobe-Kathmandu Students Collaboration on School Earthquake Safety
- NSET became a member of the Disaster Health Working Group, Ministry of Health

## **2002**

- Published a manual for designers and builders on Protection of Educational Buildings Against Earthquakes
- Commenced a weekly structural safety program for house owners and builders
- Ministry of Home Affairs completed, in cooperation with the Japanese International Cooperation Agency, the study on Earthquake Disaster Mitigation in the Kathmandu Valley, Kingdom of Nepal
- 4th ESD
- First ever mass casualty drill involving the emergency rescue responders and hospitals
- Seismic vulnerability assessment of 14 hospitals undertaken with Ministry of Health and WHO
- Organized the Asian Seismological Commission 2002
- 4th General Assembly of the Asian Seismological Commission
- Symposium on Seismology, Earthquake Hazard Assessment and Risk Management
- Pre-Symposium Training Course on Earthquake Vulnerability Reduction for Cities
- NSET participated in Regional Workshop on Networking and Collaboration among NGOs of Asian countries in Disaster Reduction and Response
- KVERMP completed, the Municipality Earthquake Risk Management Project conceptualized as the replication and consolidation of KVERMP

## **2003**

- 5th ESD Exhibitions held in Bhaktapur
- Second phase of Program for Enhancement of Emergency Response (PEER) started in March 2003 for 5 countries including Nepal
- Five more schools retrofitted under SESP program
- Pre-Positioned Emergency Rescue Stores (PPERS) established in eight communities in Kathmandu. Local volunteers trained
- Non-structural Vulnerability Assessment of nine hospitals conducted, methodology published
- Half-hour weekly earthquake safety program launched with Annapurna FM Radio of Pokhara
- MERMP implemented in four more municipalities as replication of KVERMP under the AUDMP program
- Laitpur DDC awards land to NSET for building a community learning centre
- DesInventar system introduced in Nepal with assistance of UNDP/BCPR. Inventory of natural disasters of the country for the last 33 years (1971-2003) prepared and analyzed
- RADIUS established in Kathmandu Metropolitan City as a planning tool in cooperation with UNESCO
- NSET experience shared widely in SAARC and other Asian Countries



- Lalitpur Sub Metropolitan City became the first municipality of Nepal to announce mandatory implementation of Nepal National Building Code via building permit process

## **2004**

- NSET awarded Tech Museum Award Microsoft Education Award category for the innovative Shake Table Technology
- Seven papers on earthquake risk management in Nepal presented by 5 NSET professionals to the 13 WCEE in Vancouver, Canada
- Kathmandu Valley Earthquake Preparedness Initiative (KVEPI) started jointly by American Red Cross, Nepal Red Cross Society and NSET as a preparedness and capacity building program in 10 locations of Kathmandu Valley under OFDA support
- National Disaster database of the period 1971 – 2003 was prepared by NSET with the support from UNDP Nepal and BCPR India using “DesInventar” methodology
- For effective ERM efforts in Nepal, NSET signed Memorandum of Understanding (MOU) with :
  - Department of Urban Development and Building Construction (DUDBC)
  - Nepal Red Cross Society
  - Diploma Engineers’ Association, Nepal (DEAN)
  - Nepal Forum of Environmental Journalists (NEFEJ)
  - Tribhuvan University, Teaching Hospital
  - Kathmandu University
- Training courses developed for masons, technicians, engineers, policy/decision makers and schoolteachers. Training programs started.
- “Guideline for Seismic Vulnerability Assessment of Hospitals” published jointly by NSET, WHO and Ministry of Health

## **2005**

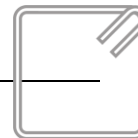
- 7th ESD, Exhibitions held in Patan Durbar Square
- NSET participated in 14th UN- World Conference on Disaster Reduction (WCDR) in Kobe, Japan
- Curriculum for Mason Training (Instructor Manual) published with financial support from ADPC, Bangkok
- Nepal Earthquake Risk Management Program (NERMP) started with the support from OFDA/USAID as a continuation of previous projects
- Capacity Building for Reconstruction of Earthquake-Affected Areas of Pakistan (Bagh and Muzaffarabad) project implemented in Pakistan with support from United Nations Development Programme (UNDP), Pakistan during November 2005-March 2006
- Second Core Member Meeting (CMM II) on “International Framework for Development of Disaster Reduction Technology List on Implementation Strategies - Disaster Reduction Hyperbase” for Asia-Pacific Region organized in Nepal
- Completed Training Programs on “Earthquake Risk Management and Earthquake Resistant Construction (Nov 2004- May 2005)” with support from LWF
- Mason Training Program Conducted in association with Banepa Municipality
- For effective ERM efforts in Nepal, NSET signed Memorandum of Understanding (MOU) with:
  - Nepal Engineering College (to develop curricula for M.Sc level disaster management course and to build collaborative approaches for earthquake and other disaster management activities)
  - Bangladesh Disaster Preparedness Centre (BDPC)
  - Nepal Police, MOHA / Government of Nepal – to implement the PEER program



- Orientation lectures, drill exercises as part of earthquake awareness activities of NSET conducted to many I/NGOs.
- Conduction of seismic vulnerability assessment of various buildings of INGOs, diplomatic missions, public schools, health institutions

## **2006**

- 8th ESD, Exhibitions held in Bhaktapur
- Community Based Disaster Management Program (CBDMP) implemented in six districts with assistance from UNDP/Nepal
- Second phase of DesInventar started with assistance of UNDP for the institutionalization of the DesInventar system
- With the aim of conducting action research interventions in the field of disaster mitigation in Nepal, NSET signed MOU with DPRI/Kyoto University, Japan for the establishment of Case Station and Field Campus (CASIFICA).
- NSET signed MOU with Shree Adarsha Saul Higher Secondary School to implement School Earthquake Safety Program (SESP).
- NSET provided technical assistance to ERAA/Pakistan for the implementation of project on "Training Support for Earthquake Resistant Reconstruction (TSERR)" through UNHABITAT under the auspices from OFDA/USAID.
- NSET provided technical assistance to JICA/Pakistan to conduct Shaking Table Demonstration on PP Band Technology in Pakistan.
- NSET participated in International Conference on Rethinking Capacity Development for Disaster Risk Reduction: Action 2005-2015 in Geneva.
- NSET provided technical assistance to the World Bank/Indonesia in association with BRI/Japan to conduct Shaking Table Demonstration in Banda Aceh/Indonesia.
- NSET provided technical assistance to UNICEF/Nepal to implement a project on "Disaster Preparedness and Response Plan for Safe Drinking Water in the Kathmandu Valley, Lalitpur Sub- Metropolitan City (DPRP)" supported by EC through its Humanitarian Aid department.
- NSET provided technical assistance to UNDP/Nepal to implement a project on "National Strategy on Disaster Risk Management for Nepal (NSDRM)" supported by EC through its Humanitarian Aid department.
- Pakistan has been added as sixth participating country to PEER from October 2006
- NSET provided technical assistance to UN-ISDR to implement "Capacity Building and Knowledge Management: Institutionalization of Earthquake Preparedness in Schools of Earthquake Effected Areas of Pakistan (CBKMP)" from November 2006
- NSET provided technical assistance to LWF to implement 'School Earthquake Preparedness in Jhapa, Rautahat and Kathmandu Valley Program' under LWF-DIPECHO/CPDR component
- International Workshop on "Keeping Schools Safe from Earthquakes" organized in co-ordination with UNCRD/Japan and Ministry of Education/Nepal
- Celebrated Earthquake Memorial Day (Bhadra 5) Program in Dharan
- Facilitated a three day workshop on Disaster Risk Management Master Plan in Coordination with, 3cd Program jointly organized by KMC, EMI, PDC, and NSET
- Facilitated Refreshers Workshop for Trained Masons on "Earthquake Resistant Construction of Buildings" jointly by Lalitpur Sub Metropolitan City, JICA Nepal and Lalitpur Trained Masons Group
- Facilitated Third consultation meeting on Disaster Risk Management Master Plan in Coordination with 3CD Program



- Organized District-level Workshop on: "Preparatory Works for Institutionalization of Disaster Inventory/Information Management System (I-DIMS) in Nepal" in Bharatpur, Chitwan

## 2007

- 9th Earthquake Safety Day (ESD) held at Kathmandu, ESD Exhibitions at Kathmandu Durbar Square
- Community Based Disaster Management Program implemented in Lalitpur District with support from Oxfam GB Nepal
- NSET signed MOU with Mahendra Shanti Madhyamik Vidyalaya, Balkot to implement School Earthquake Safety Program (SESP).
- NSET signed MOU with Mahendra Adarsha Secondary School, Imadol, Lalitpur to implement School Earthquake Safety Program (SESP).
- NSET signed MOU with National Research Institute for Earth Science and Disaster Prevention (NIED), Japan on development of Disaster Reduction Hyper base (DRH). Both institutes have decided to cooperate in order to enhance their contribution capability for disaster reduction and to benefit each other by sharing common information on disaster reduction technology and knowledge.
- NSET signed MOU with National Disaster Management Authority (NDMA), Pakistan on the need to implement PEER program in the best interest of Pakistan and create an environment of mutual cooperation towards its successful implementation.
- NSET signed MOU with Department of Urban Development and Building Construction (DUDBC) for conducting Seismic Vulnerability Assessment DUDBC buildings and train the human resources for the same as well as train the masons on earthquake safe construction.
- NSET signed Project Agreement with Norwegian Refugee Council along with Social Welfare Council, Nepal Bar Association for the 'Information, Counseling and Legal Assistance (ICLA) to Internally Displaced in Nepal and Shelter Program' component in order to promote housing reconstruction through training, capacity building, cash for work and material inputs.
- NSET signed MOU with ActionAid Nepal along with Centre for Policy Research and Consultancy (CPREC), Education Network (EDNet) and Disaster Preparedness Network (DPNet) for their involvement as national partners in Disaster Risk Reduction through School Project.
- NSET with support from National Graduate Institute for Policy Studies (GRIPS) of Japan conducted a field survey and analyzed the result to better understand the earthquake risk perception among people and identified factors to affect actions for housing safety as a part of Collaborative Research and Development on Network of Research Institutes in Earthquake Prone Countries, and collected information on disaster education of ordinary people at community, mainly through internet and publications.
- NSET managed and conducted Shake Table Demonstration at Dhaka, Bangladesh to raise awareness on earthquake safe construction in association with BDPC and with financial support from UNCRD/Japan.
- NSET managed International Conference on Earthquake Risk Management in Pakistan for Earthquake Reconstruction and Rehabilitation Center (ERRA) of Government of Pakistan in association with UN-ISDR, UN-Habitat, USAID, UNDP and European Commission.
- A joint-workshop on "Effective Enforcement and Dissemination of Building Code" was organized by UNCRD/Japan in association with Ministry of Local Development, Department of Urban Development and Building Construction and NSET.
- A joint-workshop on "Collaborative Research and Development (R&D) Project for Disaster Mitigation in Earthquake Prone Areas in Asia: Theme 1 (Seismic Risk

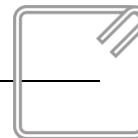


Assessment) and Theme 3 (Effective Dissemination of Safe Building Technologies)” was organized by Building Research Institute (BRI) and National Graduate Institute for Policy Studies (GRIPS) of Japan in cooperation with National Society for Earthquake Technology-Nepal (NSET) and Nepal Engineering College (nec).

- NSET assisted Dharan Municipality in celebrating the Earthquake Awareness Day 2007 in Dharan in memory of 1988 earthquake.
- NSET assisted in conducting Hospital Preparedness Drill at B.P. Koirala Institute of Health Sciences (BPKIHS) Dharan in coordination with ActionAid, Dharan Municipality and BPKIHS.
- NSET provided technical support to Itahari Municipality to conduct mason training program at Itahari.
- NSET provided technical assistance to DUDBC, Kavre Division and Sakha Steel Industries to conduct mason training program, at Dhulikhel, Kavre
- NSET in association with DUDBC, conducted training on Building Damage Assessment to the engineers of DUDBC
- NSET participated in International Conference on School Safety in India organized by SEEDS/India
- NSET participated in WHO consultation workshop on coordinated work for disaster risk reduction and the preparedness of health facilities in urban settings organized by WHO-Kobe Centre
- NSET attended the Global Platform on Disaster Risk Reduction held in Geneva
- NSET participated in Asian Conference on DRR held in Astana, Tajikistan.
- NSET attended the Second Asian Ministerial Conference on Disaster Risk Reduction held in New Delhi, India
- NSET attended the Seminar on the theme of "Community Based Disaster Risk Management" organized by Japan Bank for International Cooperation (JBIC) held in Japan.
- NSET participated in the “Regional Workshop on Building Risk Knowledge: Experience in Risk Assessment from the Region and “Enhancing Applications of Disaster Loss Database” organized by UNDP/Bangkok held in Bangkok, Thailand
- NSET participated in the Asian Science and Technology Forum Tsukuba Seminar on “International Workshop on Information Platform for Disaster Reduction (IPDR Workshop)” held in Tsukuba, Japan
- NSET attended the Asia-Pacific Regional Workshop on School Education and Disaster Risk Reduction” held in Bangkok
- NSET attended the National Seminar on Seismic Microzonation” at EDI held in Ahmedabad, India
- NSET attended the Regional Workshop on Accountability in Humanitarian Practice held in Kuala Lumpur Malaysia

## 2008

- 10<sup>th</sup> Earthquake Safety Day (ESD) held at Kathmandu, ESD Exhibitions at Kathmandu Durbar Square
- NSET conducted training program on Earthquake Resistant Construction of Building under the Community Based Disaster Management Program (CBDMP) on 19-23 November, 2008.
- NSET Professionals visited Sustainable Environment and Ecological Development Society (SEEDS), India office in Delhi under the NSET-SEEDS exchange program to get exposed to and to share experience on the process of the generation and production of Quality publication, media materials and website development.
- NSET attended training program on GIS for Beginners organized by Geological Society, ICMOD, and IOE.



- NSET attended Medical First Responder (MFR) training course organized by Nepal Police Academy and NSET/PEER on 3-15 January 2008.
- NSET attended Collapse Structure Search and Rescue training course organized by Nepal Police Academy and NSET/PEER on 29 May- 6 June, 2008.
- NSET attended Training for Instructor course organized by Nepal Police Academy and NSET/PEER on May, 2008.

## 2009

- 11<sup>th</sup> Earthquake Safety Day (ESD) held at Kathmandu, ESD Exhibitions at Kathmandu Durbar Square

## 2010

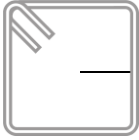
- 12<sup>th</sup> Earthquake Safety Day (ESD) held at Kathmandu, ESD Exhibitions at Kathmandu Durbar Square

## 2011

- 13<sup>th</sup> Earthquake Safety Day (ESD) held at Kathmandu, ESD Exhibitions at Kathmandu Durbar Square.
- NSET attended MFR/TFI/MFRIW course organized by Nepal Police Academy and NSET/PEER.
- NSET organized Earthquake walk (Vulnerability Tour) to OFDA Staffs at Kathmandu.
- NSET Participated on "Emergency Preparedness and Response Capacity" workshop organized by Ministry of Home Affairs and DPNet-Nepal (on behalf of Nepal Risk Reduction Consortium-NRRC).
- NSET organized Earthquake Walk (Vulnerability Tour) to UNDP Country Director.
- NSET organized Earthquake Vulnerability Tour in core city areas of Kathmandu to Administrator of UNDP Nepal and Crown Prince of Norway.
- NSET organized 45 days Mason Training at Eastern Part of Nepal, Taplejung (after Sep 18<sup>th</sup> Earthquake).
- Handover of Seismic Retrofitting Technology - Balmiki Lower Secondary School, Bhaktapur School Building on 27 December.
- NSET organized workshop on Ward level Disaster Preparedness and Response master plan at 18 Ward, KMC.
- Handover of VDC level Disaster Preparedness Response Master Plan for Alapot VDC as a part of , Lutheran World Relief (LWR) supported CBDRM program.

## 2012

- 14<sup>th</sup> Earthquake Safety Day (ESD) held at Jawalakhel, Lalitpur, ESD Exhibitions at Jawalakhel Football Ground.
- National Symposium on "Experiences in Earthquake Disaster Risk Reduction and Response".
- Handover of Seismic Retrofitting Technology – Balkumari Lower Secondary School, Sainbu-6, Bhanjyang, lalitpur on 10<sup>th</sup> January.
- NSET organized a join Seminar with International Center for Urban Safety Engineering (ICUS), World Seismic Safety Initiative (WSSI) on “Earthquake Risk Management in Developing Countries”, Speaker was Dr. Kimiro, MEGURO, Ph.D., Director/Professor, Urban Disaster Mitigation Engineering, ICUS, The University of Tokyo, on 26 January.



- NSET conducted Training on “Earthquake Preparedness and Light Search And Rescue” to Center for Community Development Nepal (CCDN) and Samari Utthan Sewa (SUS) from 31<sup>st</sup> January to 3<sup>rd</sup> February.
- NSET Participated on “Training on Damage, Loss and Needs Assessment” organized by The Global Facility for Disaster Reduction and Recovery (GFDRR) in partnership with Government of Nepal, Ministry of Irrigation, Department of Water Induced Disaster Prevention from 31<sup>st</sup> January to 2<sup>nd</sup> February.
- NSET conducted Training on “Earthquake Resistant Construction and Retrofitting of School Buildings” to DOE Engineers at Kathmandu, Biratnagar and Nepalgunj.
- NSET started joint damage study in the Earthquake Affected area of Gangtok, Sikkim, Funded by ADRRN (Asian Disaster Risk Reduction Network).
- NSET Participated in the ADRRN Annual General Assembly in Phnom Penh, Cambodia.
- NSET participated and assisted to conduct International Video Conference on "Reconstruction of Safer Houses after Earthquakes Disasters" in Nepal, which was organized by Building Research Institute Japan (BRI) and National Graduate Institute for Policy Studies (GRIPS) with support from JICA, UNESCO and World Bank between nine earthquake core countries Japan, New Zealand, Indonesia, Bangladesh, Turkey, Philippines, China, Nepal and Pakistan.
- NSET Participated in the 5th Quarterly Meeting of National Network of Women for Community Resilience (NNWCR) at Nagarkot.
- NSET conducted an interactive program with FNCCI, Government Official, NRCS, NGOs and other stakeholders working in Disaster Risk Reduction at Lamjung district.
- NSET Participated in PEER Review meeting at Islamabad, Pakistan.

## 2013

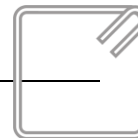
- 15<sup>th</sup> Earthquake Safety Day (ESD) held at Bhaktapur.
- GEM Workshop- GEMSAM and GEMTRAIN
- NSET conducted International Workshop on Seismology and Earthquake Engineering in South and Central Asia.
- NSET conducted LSAR 1001 training to the staff of American Embassy and various organizations.

## 2014

- 16<sup>th</sup> Earthquake Safety Day (ESD) held at Basantapur Dabali with various mass awareness raising activities.
- NSET conducted LSAR 1001 training to the staff NSET and Family members.
- NSET conducted EU-NICE Closure meeting in Nepal
- 17-19 August, 2014 the student summit

## 2015

- 17<sup>th</sup> Earthquake Safety Day (ESD) held at Basantapur Dabali with various mass awareness raising activities.

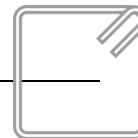


**Annex 2: List of Organizations that have signed MOU with NSET for Cooperation in Earthquake Risk Management and Emergency Response Training Program:**

| S.No | Name of Institution                                                     | Specific Purpose                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|      | Hima Media                                                              | To disseminate the earthquake preparedness related and other disaster risk reduction related materials as much as possible thru Hima media publication.                                                                                                                                                                                                                                                                                                                                        |
|      | New Spotlight                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|      | Bharatpur-Sub-Municipality                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|      | Hetauda Sub- Municipality                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|      | Department of Urban Planning and Building Construction (DUDBC)          | To work together in the areas of raising public awareness on National Building Code (NBC) implementation, Capacity building for the effective implementation of NBC, provide assistance to Local Government agencies on NBC implementation and also capacity building efforts of each of the organizations too                                                                                                                                                                                 |
|      | Hotel Association of Nepal                                              | To provide mutual professional assistance to the ongoing programs of each institution by the other, and to work together to develop new programs for supporting disaster risk awareness capacity enhancement, and to promote public private partnership (PPP) in Disaster Risk Management in Nepal                                                                                                                                                                                             |
|      | Kathmandu Valley Development Authority (KVDA)                           | To provide a framework for cooperation between the parties for facilitating and supporting the process of sustainable and earthquake safe urban development in Kathmandu valley, to facilitate in the area of risk sensitive land use planning; promotion of safer housing construction; safe infrastructure development; and promotion of building code enforcement through awareness training, and sensitization activities in Kathmandu valley                                              |
|      | Nepal Engineering Association (NEA)                                     | To foster greater involvement of professional societies as to help develop wider understanding and collaboration in disaster risk reduction efforts in the country; to develop in programs for supporting disaster risk awareness, capacity enhancement, to promote public private partnership in the area of disaster risk reduction in Nepal and to explore avenues for enhancing professional capacities of engineers, junior engineers and technicians in area of disaster risk reduction. |
|      | Society of Consulting Architectural and Engineering Firms (ScaEF) Nepal | To work together to develop new programs for supporting disaster risk reduction including awareness, capacity enhancement, and promotion of public private partnership for DRM in Nepal                                                                                                                                                                                                                                                                                                        |
|      | Confederation of Nepalese Industries (CNI)                              | To collaborate in areas of DRR including advocacy and education for DRR as well as develop wider understanding and collaboration among private sector businesses for greater involvement in DRR efforts in Nepal                                                                                                                                                                                                                                                                               |
|      | Saakha Group                                                            | To place the earthquake resistant construction related awareness raising hoarding boards in municipalities in Kathmandu valley and other places on cost sharing basis; initiate institutional preparedness for DRR and encourage other private sector on the same.                                                                                                                                                                                                                             |



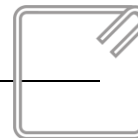
| S.No | Name of Institution                                                                                                                                                                                                                            | Specific Purpose                                                                                                                                                                                                                                                                                                                                                   |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Cosmos Cement Industries Pvt. Ltd.                                                                                                                                                                                                             | To place the earthquake resistant construction related awareness raising hoarding boards in municipalities in Eastern part of Nepal on cost sharing basis; initiate institutional preparedness for DRR and encourage other private sector on the same. To develop earthquake resistant related construction brochures on cost sharing basis and disseminate those. |
|      |                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                    |
|      | Impressions Publishing Pvt. Ltd. (SPACES Magazine)                                                                                                                                                                                             | To disseminate the earthquake preparedness related articles, messages, slogans and other disaster related issues as much as possible in SPACES magazine; participate in the events related to awareness raising, construction technology, and other related exhibitions to be organized by both or partner organizations.                                          |
|      | Danish Flim Maker                                                                                                                                                                                                                              | For Draw it Forward- Creating Awarenesss of Earthquake Preparedness                                                                                                                                                                                                                                                                                                |
|      | GEM Foundation                                                                                                                                                                                                                                 | For identification of collaborative research and areas of mutual research and collaboration                                                                                                                                                                                                                                                                        |
|      | Institute of Earthquake Engineering Research (IEER) Chittagong University of Engineering & Technology (CUET)                                                                                                                                   | To implementation of joint research projects in both institutions which have demonstrated their willingness to work together                                                                                                                                                                                                                                       |
|      | Karlsruhe Institute for Technology KIT                                                                                                                                                                                                         | For integrated Earthquake Risk Assessment Project for the Himalayan Region (IERA-Himal)                                                                                                                                                                                                                                                                            |
|      | The International Center for Urban Safety Engineering, Institute of Industrial Science, The University of Tokyo, Japan                                                                                                                         | To exchange of researchers, conducting joint researches; organizing academic meetings, symposia and workshops; exchange of information and academic materials                                                                                                                                                                                                      |
|      | National Disaster Coordinating Council, Philippines                                                                                                                                                                                            | To implement the PEER program in the best interest of Philippines, and create an environment of mutual cooperation towards successful implementation of MFR, CSSR and TFI courses in the Philippines.                                                                                                                                                              |
|      | National Disaster Management Authority (NDMA), Pakistan                                                                                                                                                                                        | To implement the PEER program in the best interest of Pakistan, and create an environment of mutual cooperation towards successful implementation of MFR, CSSR and TFI courses in Pakistan                                                                                                                                                                         |
|      | Disaster Management Bureau (MDMR), Bangladesh                                                                                                                                                                                                  | To implement the PEER program in the best interest of Bangladesh, and create an environment of mutual cooperation towards successful implementation of MFR, CSSR and TFI courses in Bangladesh.                                                                                                                                                                    |
|      | Institute of Medicine, Tribhuvan University                                                                                                                                                                                                    | To nationalize and institutionalize HOPE course in Nepal                                                                                                                                                                                                                                                                                                           |
|      | Nepal Police, Ministry of Home Affairs                                                                                                                                                                                                         | To implement the PEER program in the best interest of Nepal, and create an environment of mutual cooperation towards successful implementation of MFR, CSSR and TFI courses.                                                                                                                                                                                       |
|      | Ministry of Home Affairs, Ministry of Local Development, Ministry of Physical Planning and Works, Lalitpur Sub-Metropolitan City, Nepal Water Supply Corporation, Nepal Red Cross Society, District Disaster Relief Committee and UNICEF/Nepal | To facilitate development of a disaster response framework and emergency drinking water facilities in the event of a major earthquake in Kathmandu Valley.                                                                                                                                                                                                         |
|      | Action Aid, Center for Policy Research and Consultancy, Education Network and Disaster Preparedness Network of Nepal                                                                                                                           | To reduce peoples' vulnerabilities to disasters by contributing towards the implementation of the Hyogo Framework the project "Disaster Risk Reduction through School".                                                                                                                                                                                            |
|      | National Research Institute for Earth Science and Disaster Prevention (NIED)                                                                                                                                                                   | To enhance the institution's contribution capability for disaster reduction to benefit each other by sharing common information on disaster reduction technology and knowledge in order to cooperate in the development of Disaster Reduction Hyperbase.                                                                                                           |



| S.No | Name of Institution                                                                       | Specific Purpose                                                                                                                                                                                                                                                                                         |
|------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Bangladesh Disaster Preparedness Center (BDPC)                                            | Enhancing cooperation and collaboration in disaster risk management areas.                                                                                                                                                                                                                               |
|      | Focus Humanitarian Assistance, Pakistan                                                   | Enhancing cooperation and collaboration in SESP program in Pakistan                                                                                                                                                                                                                                      |
|      | Norwegian Refuge Council (NRC), Nepal Bar Association (NBA), Social Welfare Council (SWC) | NRC will work in partnership with NSET and NBA for the Information, Counseling and Legal Assistance (ICLA) and Shelter Program components for IDPs.                                                                                                                                                      |
|      |                                                                                           |                                                                                                                                                                                                                                                                                                          |
| 3    | Department of Education                                                                   | For retrofitting design and supervision of 65 school buildings of Kathmandu Valley                                                                                                                                                                                                                       |
| 4    | UNDP, Nepal                                                                               | To cooperate in the implementation of Kathmandu Valley Earthquake Risk Management Project.                                                                                                                                                                                                               |
| 5    | United Mission to Nepal (UMN)                                                             | To cooperate in the implementation of Kathmandu Valley Earthquake Risk Management Project.                                                                                                                                                                                                               |
| 6    | Room to Read                                                                              | To assist communities to construct earthquake resistant public schools                                                                                                                                                                                                                                   |
| 7    | Bhivuti Man Singh, Architect                                                              | Architecture design/drawings of NSET's proposed Community Learning Center Building                                                                                                                                                                                                                       |
| 8    | Nepal Forum For Environmental Journalists (NEFEJ)                                         | To work on collaborative approaches for environmental protection, urban management, awareness raising through dissemination of information, training, workshop, seminar and community radio broadcasting.                                                                                                |
|      | Lalitpur Sub-Metropolitan City, ICIMOD, ITC/Netherlands                                   | To develop the methodology for the implementation of seismic risk assessment for Lalitpur area within Kathmandu valley of Midland Mountain range of Himalaya and to support LSMC in the development of GIS and its application.                                                                          |
|      | Kathmandu University                                                                      | To pool information, expertise and human resources in the fields of disaster risk reduction and emergency response capacity enhancement                                                                                                                                                                  |
|      | Department of Urban Development and Building Construction (DUDBC)                         | To work on collaborative approaches for raising awareness on earthquake resistant building construction practices in accordance to National Building Code, developing human resources, making efforts to implement building code at local level, organizing training, workshop and seminar for the same. |
|      | Diploma Engineers Association Nepal (DEAN)                                                | To reduce earthquake risk through awareness raising program as well as organizing training, workshops/seminars, research and development.                                                                                                                                                                |
|      | Nepal Red Cross Society (NRCS)                                                            | To work together in the field of disaster reduction and earthquake risk management, awareness raising through dissemination of information, training, workshop, seminar, and various other collaborative approaches.                                                                                     |
|      | Central Department of Geology, Tribhuvan University                                       | To pool information, expertise and human resources in the fields of disaster risk reduction and emergency response capacity enhancement                                                                                                                                                                  |
|      | Kathmandu Metropolitan City (KMC)                                                         | To pool information, expertise and human resources in the fields of disaster risk reduction and emergency response capacity enhancement.                                                                                                                                                                 |
|      | Nepal Engineering College (NEC)                                                           | To work together to develop curricula for M.Sc level disaster management course and to build collaborative approaches for earthquake and other disaster management activities.                                                                                                                           |
|      | DPRI/Kyoto University                                                                     | Establishment of Case Station and Field Campus                                                                                                                                                                                                                                                           |
|      | Bangladesh Disaster Preparedness Center (BDPC)                                            | Enhancing cooperation and collaboration in disaster risk management areas.                                                                                                                                                                                                                               |



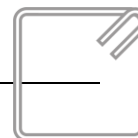
| S.No | Name of Institution                                                                                                                                                                                                                            | Specific Purpose                                                                                                                                                                                                                                         |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Focus Humanitarian Assistance, Pakistan                                                                                                                                                                                                        | Enhancing cooperation and collaboration in SESP program in Pakistan                                                                                                                                                                                      |
|      | Norwegian Refuge Council (NRC), Nepal Bar Association (NBA), Social Welfare Council (SWC)                                                                                                                                                      | NRC will work in partnership with NSET and NBA for the Information, Counseling and Legal Assistance (ICLA) and Shelter Program components for IDPs.                                                                                                      |
|      | Ministry of Home Affairs, Ministry of Local Development, Ministry of Physical Planning and Works, Lalitpur Sub-Metropolitan City, Nepal Water Supply Corporation, Nepal Red Cross Society, District Disaster Relief Committee and UNICEF/Nepal | To facilitate development of a disaster response framework and emergency drinking water facilities in the event of a major earthquake in Kathmandu Valley.                                                                                               |
|      | Action Aid, Center for Policy Research and Consultancy, Education Network and Disaster Preparedness Network of Nepal                                                                                                                           | To reduce peoples' vulnerabilities to disasters by contributing towards the implementation of the Hyogo Framework the project "Disaster Risk Reduction through School".                                                                                  |
|      | National Research Institute for Earth Science and Disaster Prevention (NIED)                                                                                                                                                                   | To enhance the institution's contribution capability for disaster reduction to benefit each other by sharing common information on disaster reduction technology and knowledge in order to cooperate in the development of Disaster Reduction Hyperbase. |
|      | Bhuaneshwori Lower Secondary School , Nangkhel, Bhaktapur                                                                                                                                                                                      | To retrofit the existing school building and to build the earthquake resistant new building.                                                                                                                                                             |
|      | Gadgaide Primary School, Nagarkot, Bhaktapur                                                                                                                                                                                                   | To retrofit the existing school building                                                                                                                                                                                                                 |
|      | Upayogi Primary, School, Sirutar, Bhaktapur                                                                                                                                                                                                    | To retrofit the existing school building                                                                                                                                                                                                                 |
|      | Vaisnabi Secondary School ,Kritipur                                                                                                                                                                                                            | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Bal Vikash Secondary School, Alapot, Kathmandu                                                                                                                                                                                                 | To retrofit the existing school building                                                                                                                                                                                                                 |
|      | Kabhresthali Lower Secondary School, Kavresthali, Kathmandu                                                                                                                                                                                    | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Himalaya Primary School, Thimi , Bhaktapur                                                                                                                                                                                                     | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Tinkannya Primary School, Katrak, Dhading                                                                                                                                                                                                      | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Amarkhu Lower Secondary School, Bhumisthan , Dhading                                                                                                                                                                                           | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Nateshwori Primary School, Chhaling, Bhaktapur                                                                                                                                                                                                 | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Vidyodaya Primary School, Jhochan Kathmandu, KMC-23                                                                                                                                                                                            | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Saraswoti Secondary School, Thencho, Lalitpur                                                                                                                                                                                                  | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Shree Krishna Secondary School, Dhapakhel, Lalitpur                                                                                                                                                                                            | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Saraswoti Secondary School, Thakalmath, Bhaktapur                                                                                                                                                                                              | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Chaitnya Multiple Campus, Banepa                                                                                                                                                                                                               | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Shiva Primary School, Viyas, Tanahun                                                                                                                                                                                                           | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Sangam Primary School, Viyas, Tanahun                                                                                                                                                                                                          | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Bal Premi Secondary School, Thimi, Bhaktapur                                                                                                                                                                                                   | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Golmadevi Primary School, Sindupalchowk                                                                                                                                                                                                        | To construct new earthquake resistant school building                                                                                                                                                                                                    |
|      | Janajyoti Secondary School, Bhimad Tanahun                                                                                                                                                                                                     | To construct new earthquake resistant school building                                                                                                                                                                                                    |



| S.No | Name of Institution                                                                                                                           | Specific Purpose                                                                                                                                                                                |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | Janasewa Primary School, Viyas Tanahun                                                                                                        | To construct new earthquake resistant school building                                                                                                                                           |
|      | Suryodaya Bal Bikash Primary School, Imadol, Lalitpur                                                                                         | To construct new earthquake resistant school building                                                                                                                                           |
|      | Adarsha Saul School, Bhaisepati, Lalitpur                                                                                                     | To construct new earthquake resistant school building                                                                                                                                           |
|      | Shree Jana Udaya Nimna Madhyamik Vidyalaya, Bhaisepati, Lalitpur                                                                              | To retrofit the existing school building                                                                                                                                                        |
|      | Mahendra Shanti High School, Balkot, Bhaktapur                                                                                                | To retrofit the existing school building                                                                                                                                                        |
|      | Mahendra Adarsha High School, Imadol, Lalitpur                                                                                                | To retrofit the existing school building                                                                                                                                                        |
|      | Bansha Gopal Higher Secondary School, Hetauda-6, Makwanpur                                                                                    | To retrofit the existing school building                                                                                                                                                        |
|      | Churiyamai Secondary School, Churiyamai, Hetauda                                                                                              | To retrofit the existing school building                                                                                                                                                        |
|      | Sakala Devi Primary School, Dibyapuri, Nawalparasi                                                                                            | To retrofit the existing school building                                                                                                                                                        |
|      | Janajyoti Higher Secondary School                                                                                                             | To construct new earthquake resistant school building                                                                                                                                           |
|      | Buddha Jyoti Bal Udhyan L.S. School                                                                                                           | To retrofit the existing school building                                                                                                                                                        |
|      | Shree Panchayat Secondary School                                                                                                              | To retrofit the existing school building                                                                                                                                                        |
|      | Shree Laxipur H.S. School                                                                                                                     | To retrofit the existing school building                                                                                                                                                        |
|      | Shree Balkumari Secondary School                                                                                                              | To construct new earthquake resistant school building                                                                                                                                           |
|      | Shree Seti Bhooma Lower Secondary School                                                                                                      | To construct new earthquake resistant school building                                                                                                                                           |
|      | Shyame Wangphel Secondary School                                                                                                              | To construct new earthquake resistant school building                                                                                                                                           |
|      | Janakalyan Secondary School, Bageshwori VDC, Banke                                                                                            | To construct new earthquake resistant school building                                                                                                                                           |
|      | Kalidevi Higher Secondary School                                                                                                              | To construct new earthquake resistant school building                                                                                                                                           |
|      | Bagishwori Secondary School                                                                                                                   | To construct new earthquake resistant school building                                                                                                                                           |
|      | Shanti Higher secondary School                                                                                                                | To retrofit the existing school building                                                                                                                                                        |
|      | Kalika Higher Secondary School                                                                                                                | To construct new earthquake resistant school building                                                                                                                                           |
|      | Daunne Devi Higher Sec. School                                                                                                                | To retrofit the existing school building                                                                                                                                                        |
|      | Marsyangdi Lower Secondary School                                                                                                             | To construct new earthquake resistant school building                                                                                                                                           |
|      | Shanti Srijana Lower Secondary School                                                                                                         | To construct new earthquake resistant school building                                                                                                                                           |
|      | Churiya Mai Higher secondary School                                                                                                           | To retrofit the existing school building                                                                                                                                                        |
|      | Shreekrishna Higher secondary School                                                                                                          | To construct new earthquake resistant school building                                                                                                                                           |
|      | Institute of Medicine, Tribhuvan University                                                                                                   | To nationalize and institutionalize HOPE course in Nepal                                                                                                                                        |
|      | Nepal Police, Ministry of Home Affairs                                                                                                        | To implement the PEER program in the best interest of Nepal, and create an environment of mutual cooperation towards successful implementation of MFR, CSSR and TFI courses.                    |
|      | Ministry of Health & Family Welfare, Ministry of Food and Disaster Management, National Institute of Preventive & Social Medicine, Bangladesh | To nationalize and institutionalize HOPE course in Bangladesh.                                                                                                                                  |
|      | Disaster Management Bureau (MDMR), Bangladesh                                                                                                 | To implement the PEER program in the best interest of Bangladesh, and create an environment of mutual cooperation towards successful implementation of MFR, CSSR and TFI courses in Bangladesh. |



| S.No | Name of Institution                                                                                                    | Specific Purpose                                                                                                                                                                                      |
|------|------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | National Disaster Coordinating Council, Philippines                                                                    | To implement the PEER program in the best interest of Philippines, and create an environment of mutual cooperation towards successful implementation of MFR, CSSR and TFI courses in the Philippines. |
|      | National Disaster Management Authority (NDMA), Pakistan                                                                | To implement the PEER program in the best interest of Pakistan, and create an environment of mutual cooperation towards successful implementation of MFR, CSSR and TFI courses in Pakistan            |
|      | The International Center for Urban Safety Engineering, Institute of Industrial Science, The University of Tokyo, Japan | To exchange of researchers, conducting joint researches; organizing academic meetings, symposia and workshops; exchange of information and academic materials                                         |
|      | Nepal Engineer's Association                                                                                           |                                                                                                                                                                                                       |



### Annex 3: National Society for Earthquake Technology- Nepal (NSET)

#### List of NSET Publications

| S. N.                       | Name Of the Publication Published by NSET                                                                                               |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Books and Guidelines</b> |                                                                                                                                         |
| 1                           | A Manual for Designers and Builders                                                                                                     |
| 2                           | The Kathmandu Valley Earthquake Risk Management Action Plan                                                                             |
| 3                           | Earthquake Scenario of Kathmandu Valley (English)                                                                                       |
| 4                           | Earthquake Scenario of Kathmandu Valley (Nepali)                                                                                        |
| 5                           | Non-Structural Vulnerability Assessment of Hospitals in Nepal                                                                           |
| 6                           | Earthquake Preparedness Hand Book                                                                                                       |
| 7                           | Bhaicha (Illustrated story on Earthquakes)                                                                                              |
| 8                           | Guidelines for Seismic Vulnerability Assessment of Hospitals                                                                            |
| 9                           | Guidelines for incorporation Earthquake Safety Measures in Repair and Maintenance of Buildings with Historical/Archeological Importance |
| 10                          | Abstract Book (ASC 2002)                                                                                                                |
| 11                          | Proceedings of Asian Seismological Commission (ASC 2002)                                                                                |
| 12                          | Earthquake Resistant Construction of Buildings Curriculum for Mason Training (Guidelines for Training Instructors)                      |
| 13                          | National Building Code 203 (In Nepali)                                                                                                  |
| 14                          | Parale Kunyu ko Aago Child                                                                                                              |
| 15                          | Parale Kunyu ko Aago Adult                                                                                                              |
| 16                          | What to do during an Earthquake (In Nepali)                                                                                             |
| 17                          | Earthquakes (30 Frequently Asked Questions and Answers by NSET) –In Nepali                                                              |
| 18                          | School Earthquake Preparedness: A TOT Manual for Teachers Training                                                                      |
| 19                          | Retrofitting of Common Frame Structural (Pillar System) House                                                                           |
| 20                          | "What are the tricks for Constructing Earthquake-Resistant Buildings?"                                                                  |
| 21                          | Grandmother's Story on Earthquake (Bhuichalo Bare Hajur Aama ko Katha)                                                                  |
| 22                          | Booklet on Earthquake Resistant Building Construction for Potential Houseowners                                                         |
| 23                          | Safer Society (NSET's Decade-Long efforts to make communities earthquake-safe and Annual Report 2008)                                   |
| 24                          | NSET' s Project Information Kit                                                                                                         |
| 25                          | Handbook for students and teacher Earthquake Preparedness Drills                                                                        |
| 26                          | Safer Society 2013                                                                                                                      |
| 27                          | Emergency Dairy                                                                                                                         |
| 28                          | Safer Society 2014                                                                                                                      |
| 29                          | A handbook for Disaster Preparedness and Drills in Schools                                                                              |
| 30                          | Instructors' Manual for Training Course on Earthquake Preparedness in School                                                            |
| 31                          | Training Manual for Earthquake Preparedness in Schools                                                                                  |
| 32                          | Disaster preparedness and Response Plan for Kathmandu District                                                                          |
| <b>Posters and Fliers</b>   |                                                                                                                                         |
| 1                           | Risk Land                                                                                                                               |



|    |                                                                           |
|----|---------------------------------------------------------------------------|
| 2  | NSET Timeline (Boucher)                                                   |
| 3  | Annual NSET Nepali Calendar                                               |
| 4  | Earthquake-induced Cracks in building (size 20" X 30")                    |
| 5  | EQ. Safety thru community-based initiative (size 17" X 22")               |
| 6  | Modified Mercalli Intensity Scale (Size 20" X 30")                        |
| 7  | Poster: Earthquake Risk Reduction of Non Structural Items                 |
| 8  | Citizens Responsibilities During Mass Casualty Management                 |
| 9  | ESD- 2005 Poster                                                          |
| 10 | ESD- 2006 Poster                                                          |
| 11 | ESD- 2007 Poster                                                          |
| 12 | ESD- 2008 Poster                                                          |
| 13 | ESD- 2009 Poster                                                          |
| 14 | ESD- 2010 Poster                                                          |
| 15 | ESD- 2011 Poster                                                          |
| 16 | SESP Poster-2010                                                          |
| 17 | ESD- 2012 Poster                                                          |
| 18 | ESD- 2013 Poster                                                          |
| 19 | ESD- 2014 Poster                                                          |
| 20 | ESD- 2015 Poster                                                          |
| 21 | NSET Newsletters                                                          |
| 22 | Fliers- Household Kit, Earthquake Preparedness Go Bag                     |
| 23 | Fliers (Pillar, Stone, Brick Masonry, Earthquake Safety and Retrofitting) |