

SaferSociety

NSET's efforts to make
communities Earthquake Safer
Annual Report 2009-2010



National Society for Earthquake Technology-Nepal (NSET)

June 2010



Safer Society

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Earthquake Safer

ANNUAL REPORT 2009-2010
(Covering June 2009- May 2010)

National Society for Earthquake
Technology-Nepal (NSET)

Cover Photo: Disaster Preparedness
Should Start from an Early Age

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Message from the **President**

I am glad that NSET has brought out this annual report. This report documents our institutional efforts during the past one year in making Nepal earthquake resistant. The aim is to share the knowledge and experiences publicly and to get feedback and guidance for improving our work in the coming years. Publication of the Annual Report for the second consecutive year demonstrates the growing institutional capacity of NSET to implement and document the processes of earthquake risk management in a developing country such as Nepal that has been struggling to come out of political and economic quagmire during the entire past decade. This publication should also allow the public to judge NSET's work vis-a-vis its stated mission and vision statements.

NSET strongly believes that earthquake protection of people can be achieved by enhancing the awareness of communities: helping them to understand the seismic risks and providing simple methods in mitigating them through easy to follow guidelines. We are proud that our work has been accepted by the Nepali people in general and the poorest of the poor in the South Asia region. Our measures have assisted rural communities as well as public institutions in the cities. NSET's approach, methodologies, and innovative initiatives have been recognized in Nepal and in the region.

On behalf of the NSET Board, I would like to thank all the agencies, civic groups and individuals for their untiring support to our mission and reiterate our commitment that NSET will continue to strive towards making our communities safer. Together we definitely can achieve more! Thank you!

Shiva Bahadur Pradhanang
President
National Society for Earthquake Technology – Nepal (NSET)



Statement of the **Executive Director**

National Society for Earthquake Technology – Nepal (NSET) is now celebrating 17th year of its efforts to enhance seismic safety of Nepal and the region. Seventeen years is a long duration for any organization to deliver or to die. NSET continues serving the people and the nation, with ever-increasing support received especially from communities, disaster management groups at wards and villages, local and central government institutions, schools and health centres, national and international organizations, and private citizenry. This support and trust on our work is the sole source of our motivation and dedication to do what we have been doing in the past 17 years.

This publication provides a glimpse of what and how NSET has implemented disaster risk management works in Nepal and the region. While reporting on the efforts, we do want to emphasize that much of the work has been done in collaboration with our national and international development partners. We want to express our sincere gratitude to Ministry of Home Affairs (MOHA), Ministry of Physical Planning and Works (MPPW), Ministry of Local Development (MOLD), Kathmandu Metropolitan City (KMC), Lalitpur Sub-Metropolitan City (LSMC) with whom we worked very closely; and also to USAID/OFDA, The World Bank, United Nations Development Programme (UNDP), European Commission Humanitarian Aid Department through DIPECHO Partners in Nepal who supported our efforts on Disaster Risk Management in Nepal. In addition, we are also thankful to NGOs/INGOs, CBOs and various communities in Nepal who continuously encouraged us to work with. We hope for continued partnership in coming years also because the job of making Nepal earthquake safer is not finished yet!

The past year has further strengthened our confidence that disaster risk reduction can be successfully achieved at very high level of benefit-cost ratio even in a weak-economy country that has been suffering since long from economic problems and social unrest. We are proud to state that the outgoing year further demonstrated continued sustainability of several of our initiatives such as School Earthquake Safety Program (SESP), Municipal Earthquake Risk Management Program, Earthquake Safety Day, Mason Training, Earthquake Mobile Clinics, airing of earthquake safety tips over FM radios, nation-wide radio drill on duck, cover and hold, and so on. The past year further consolidated our views that earthquake safety means one more school building made earthquake-resistant as per the Nepali Building Code, one more school having an earthquake preparedness and evacuation plan, one more community with prepositioned light search and rescue equipment, one more community club given the skills in first aid, and one more "mother's group" given orientation on earthquake preparedness and how to make your home safe against disaster.

NSET understands that mere implementation of successful model projects and development of methodologies is not enough. These programs and approaches need to be scaled up in order to achieve the goal of earthquake safety for all. Accordingly, we have redesigned our programs to expand outreach and partnerships with local institution.

I would again like to thank all our international and national partners for the continuous support they have provided in our quest to make societies safer. Last but not the least, I express my gratitude to the 55 NSET staff who have learned how best to serve the country and the people; I continue learning and getting inspiration from them.

Amod Mani Dixit
Executive Director
National Society for Earthquake Technology – Nepal (NSET)



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ABBREVIATIONS

AAN	Action Aid Nepal
ADPC	Asian Disaster Preparedness Centre
ADRC	Asian Disaster Reduction Centre
ADRN	Asian Disaster Reduction and Response Network
AJK	Ajad Jammu and Kashmir
APIP	Action Plan Implementation Project
BCPR	Bureau of Crisis Prevention and Discovery
BDPC	Bangladesh Disaster Preparedness Centre
BPKIHS	B.P. Koirala Institute of Health Sciences
BRI/Japan	Building Research Institute/ Japan
BTRTC	Building Technology Research and Training Centre
CASiFiCA	Case Station and Field Campus
CBDMP	Community Based Disaster Management Program
CBKMP	Capacity Building and Knowledge Management Program
CBOs	Community Based Organization
CDMG	Community Disaster Management Groups
CMM	Core Member Meeting
COGSS	Coalition for Global School Safety
CPRcC	Centre for Policy Research and Consultancy
CSSR	Collapsed Structure Search and Rescue
DEAN	Diploma Engineers Association Nepal
DEMP	Dharan Environmental Mapping Project
DHS	Department of Health Services
DHWG	Disaster Health Working Group
DNet	Development Network (P) Ltd
DPNet	Disaster Preparedness Network Nepal
DPRI	Disaster Prevention Research Institute
DPRP	Disaster Preparedness and Response Plan Framework
DRH	Disaster Reduction Hyper-base
DRM	Disaster Risk Management
DTW	Deep Tube Well
DUDBC	Department of Urban Development and Building Construction
DWSS	Department of Water Supply and Sewerage
EAP	Earthquake Awareness Program
EDCD	Epidemiology and Disease Control Division
EDNet	Education Network
EMP	Environmental Mapping Project

ERA	Earthquake Reconstruction and Rehabilitation Authority
ESD	Earthquake Safety Day
GHI	Geo-hazards International
GSDMA	Gujarat State Disaster Management Authority
GRIPS	Graduate Institute for Policy Studies
HESI	Housing Earthquake Safety Initiative
HFA	Hyogo Framework of Action
HOPE	Hospital Preparedness for Emergencies
HRC	Housing Reconstruction Centers
IAEE	International Association for Earthquake Engineering
ICERM	International Conference on Earthquake Risk Management
ICIMOD	International Centre for Integrated Mountain Development
ICLA	Information Counseling and Legal Assistance
IDNDR	International Decade for Natural Disaster Reduction
IITB	Indian Institute of Technology Bombay
INGO	International Non-government Organization
IRG	International Resources Group
ISDR	International Strategy for Disaster Reduction
ITB	Institute of Technology
ITC	International Institute for Geo-Information Science and Earth Observation
KMC	Kathmandu Metropolitan City
KVEPI	Kathmandu Valley Earthquake Preparedness Initiative
KVERM-APIP	Kathmandu Valley Earthquake Risk Management Action Plan Implementation Project
KVERMP	Kathmandu Valley Earthquake Risk Management Project
LARED	Latin American Network of Social Studies on Disaster Prevention
LSAR	Light Search and Rescue
LSMC	Lalitpur Sub Metropolitan City
LWF	Lutheran World Federation
MERMP	Municipal Earthquake Risk Management Program
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MFR	Medical First Responder
MIW	Master Instructors'92 Workshop
ML	Local Magnitude
MOLD	Ministry of Local Development
MPPW	Ministry of Physical Planning and Works
NCDM	Nepal Centre for Disaster Management
NEC	Nepal Engineering College

NEFEJ	Nepal Forum For Environmental Journalists
NERMP	Nepal Earthquake Risk Management Project
NGMET	Nepal Gujarat Mason Exchange and Training Program
NGOs	Non-government organizations
NIED	National Research Institute for Earth Science and Disaster Prevention
NRCS	Nepal Red Cross Society
NSDRM	National Strategy for Disaster Risk Management
NWFP	North West Frontier Province
NWSC	Nepal Water Supply Corporation
OFDA	Office of Foreign Disaster Assistance
PEER	Program for Enhancement of Emergency Response
PNY	Patanka Navajeevan Yojana
PO	Partnering Organizations
PPERS	Project for Pre-positioning of Emergency Rescue Stores
RADIUS	Risk Assessment Tools for Diagnosis of Urban Areas Against Seismic Disaster
RUDO	Regional Urban Development Office
SEEDS	Sustainable Environment and Ecological Development Society
SESP	School Earthquake Safety Program
SIDE	Support for International Disaster Education
Tell Net	International Live Lessons Transfer Network
TFI	Training for Instructors
TOT	Training of Trainers
TSER	Training Support for Earthquake Resistant Reconstruction
TVERMP	Thimpu Valley Earthquake Risk Management Program
UMN	United Mission to Nepal
UNCRD	United Nations Centre for Regional Development
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States International Development Agency
USD	US Dollar
VCA	Vulnerability Capacity Assessment
VDC	Village Development Committee
WCDR	World Conference in Disaster Reduction
WCEE	World Congress on Earthquake Engineering
WDMC	Ward level Disaster Management Committee
WHO	World Health Organization
WSSI	World Seismic Safety Initiative



NSET – A Brief **INTRODUCTION**

Bhookampa Pravidhi Rashtriya Samaj Nepal or the National Society for Earthquake Technology–Nepal (NSET) is a multidisciplinary professional society 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 others seriously interested in earthquake phenomena or in the reduction of the effects of earthquakes.

NSET was founded by a meeting of professionals on June 18, 1993. Bringing “substantial change in the application of technology to the many facets of earthquake disaster management for saving the life of the people” has been the guiding philosophy of NSET ever since. NSET was registered at the District Administration Office, Kathmandu on April 28, 1994 and at the Social Welfare Council on August 10, 1998. 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 the NSET programs and provides policy level guidance.

Vision

Earthquake Safe Communities in Nepal by 2020

Mission

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

Goal

To foster the advancement of science and practice of earthquake engineering and technology for mitigating the earthquake risk and increasing the seismic safety, to enhance professionalism, professional engineering

and scientific ethics and to further the objectives of the International Association for Earthquake Engineering as applicable to Nepal.

Strategic 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 the purpose.
- To advocate for favorable and supportive policies, legal mechanisms, increased investments and a unified and effective national earthquake response mechanism and a system of incentives and disincentives to enable communities to become earthquake safe.
- To build a strong, well resourced and credible institution that will be the national focal point for earthquake risk management actions, a facilitator and coordinator in the network of earthquake disaster management, and a source of all available information on the subject.

Objectives

NSET's Charter approved by the District Administration Office of Kathmandu on April 28, 1994 lists the following objectives:

- To raise public awareness in order to reduce loss of lives and damages caused by earthquakes;
- To contribute towards the development and use of science and technology related to earthquakes;
- To play an active role in safeguarding the country against earthquakes and to reduce earthquake risk by developing and implementing scientific measures;
- To encourage professionalism and scientific ethics in the sector; and
- To further the objectives and policies of the International Association for Earthquake Engineering as applicable to Nepal; and

- To provide emergency assistance to communities impacted by an earthquake.

Indicative List of Activities

NSET's Statute has been amended twice since registration but its main focus remains unchanged. It also has an indicative list of activities of the organization, which are summarized as follows:

- Establish coordination between different Nepali government and non-governmental agencies working in the area of seismic safety, provide assistance to and seek help from such agencies, represent Nepal in the national/international arena on earthquake technology;
- Develop cooperation with other professional national/international societies and work in close association and coordination towards seismic safety, improving professional standards, discipline and ethics;
- Facilitate studies, undertake research 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;
- Organize scientific meetings, seminars and training programs;
- Develop international linkages with similar agencies for facilitating an effective flow of information and serve as a node in the international network for seismic safety
- Provide advice and assistance to national educational institutions in the development and upgrading of curricula;
- Provide advice and assistance to the national disaster reduction institutions for developing, upgrading and implementing earthquake risk reduction programs;
- Provide advice and assistance to governmental, non-governmental and other agencies on matters related to earthquake safety, among others.

NSET – Affiliations

NSET is the member of the International Association for Earthquake Engineering (IAEE). Since 1993, it has also been a member of the World Seismic Safety Initiative (WSSI) and is represented in a number of disaster reduction networks worldwide. It is a founder member of the following organizations:

- Asian Disaster Reduction and Response Network (ADRRN) (also a Board member)
- Coalition for Global School Safety (COGSS)
- International Live Lessons Transfer Network (TeLLNet), and
- Disaster Preparedness Network Nepal (DPNet) (also a Board member)

Box 1: Founder Members of NSET

Shiva Bahadur Pradhanang	President
Amod Mani Dixit	General Secretary
Jyoti Prasad Pradhan	Member
Madhav Raj Pandey	Member
Ms. Shanti Malla	Member
Mukunda Prakash Singh Pradhan	Member
Mahesh Nakarmi	Member
Yogeshwor Krishna Parajuli	Member
Shree Ram Singh Basnet	Member

Box 2: NSET Management Committee

Shiva B. Pradhanang	President
Amod Mani Dixit	General Secretary
Yogeshwor K. Parajuli	Treasurer
Mukunda Pradhan	Member
Shreeram Singh Basnet	Member
Varun Prasad Shrestha	Member
Tika Sharma	Member

Awards

In 2001, NSET was awarded the United Nations Sasakawa Award for Disaster Reduction, an appreciation for its outstanding contribution to disaster reduction and (for) furthering the goals of the International Strategy for Disaster Reduction (ISDR). The Sasakawa Award is given by the UN every year on the International Day for Disaster Reduction – the second Wednesday of October. In 2004, NSET's well-known "Shake Table" was awarded the Tech Museum Awards 2004 under the Microsoft Education Award Category. The award was set up to honor individuals and organizations that are using technology to address the 15 "most urgent" challenges facing humanity and the environment as identified by the United Nations.



Certificate of Merit – Sasakawa Award



Receiving the Tech Museum Award

Achievements

- Mr Amod Mani Dixit, Executive Director of NSET has been proposed/selected as a member of the Scientific Board of GEM Foundation, The Global Earth-quake Model Project. Due to his extensive relevant experience in this field and especially in less developed countries, Mr. Amod Dixit was chosen as an ideal candidate for this position.

The "GEM Foundation" has been established at the EU Centre Foundation, in Pavia, Italy. The main purpose of the GEM Foundation is to establish an independent, uniform standard for calculating and communicating earthquake hazard and risk, and also to be a critical instrument to support decisions and actions to reduce earthquake losses worldwide.

The Scientific Board (SB) is the core body of GEM made up of six international experts selected by the Governing Board, with proven expertise on GEM Foundation-related scientific fields (hazard, vulnerability, risk, and socioeconomic losses), experience on running large collaborative efforts, wide-ranging international connections, demonstrated capacity to secure significant contributions of data and work.

- Mr. Amod Mani Dixit has been appointed as the member of the Results Management Council of GFDRR- Global Facility for Disaster Reduction & Recovery for the period 2010 – 2011. GFDRR is a partnership of the ISDR system to support the implementation of the Hyogo Framework for Action (HFA). The GFDRR is managed by the World Bank on behalf of the participating donor partners and other partnering stakeholders. The Results Management Council of GFDRR provides technical oversight to all GFDRR operations, its relevance, quality and impact.

Disaster Mitigation Award - 2009

Mr. Amod Mani Dixit honored with prestigious Disaster Mitigation Award-2009

Mr. Amod Mani Dixit, Executive Director of National Society for Earthquake Technology -Nepal (NSET) has been honored with prestigious Disaster Mitigation Award - 2009 by National Institute of Disaster Management (NIDM), an undertaking of Ministry of Home Affairs, Government of India. NIDM mentioned officially that Mr. Dixit has been selected for this award in view of his outstanding contributions for education, training and awareness for earthquake risk mitigation in South Asian Region. Mr. Dixit got honored with this award in a very august presence of distinguished personalities including Gen. N.C.Vij, Vice-chairman of National Disaster Management Authority (NDMA), India; Ms. Margareta Wahlstorm, UN Assistant Secretary General and Special representative for Disaster Risk Reduction and Mr. G.K. Pillai, Union Home Secretary;

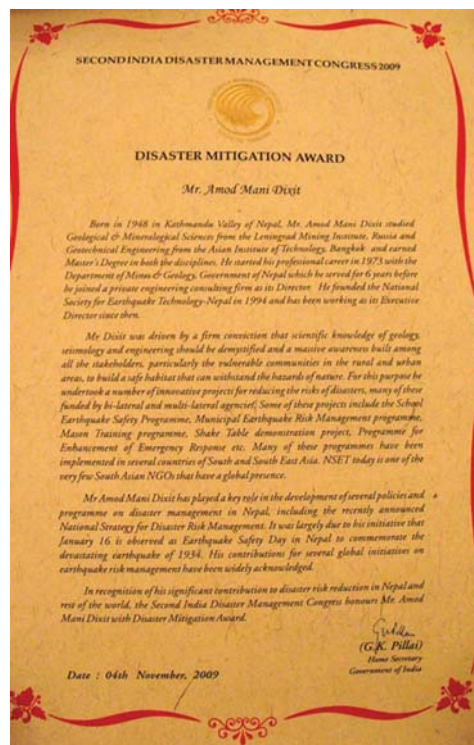
in a very auspicious occasion of inaugural session of Second India Disaster Management Congress, on Wednesday 4th Nov, 2009 at Vigyan Bhawan, New Delhi. The congress was held during 4-6 Nov, 2009, a total of 26 Technical Sessions organized in around 13 Thematic Clusters. Organizers officially mention that The Second India Disaster Management Congress had brought together 1500 scientists, scholars and practitioners working on different aspects of disaster risk reduction and management across the world.

NIDM had instituted Disaster Mitigation Award, which was given to two distinguished persons during the First India Disaster Management Congress in November 2006, Dr. A.S. Arya, Professor Emeritus, IIT Roorkee from India and Professor Muhammad Yunus, the Noble Laureate and the Founder of Grameen Bank from Bangladesh for their outstanding contributions for reducing disaster risk in South Asia.

Mr. Amod Mani Dixit has been actively engaged in natural hazards and Disaster Risk Reduction since 1978. He is the founding General Secretary of National Society for Earthquake Technology - Nepal (NSET), an institution dedicated for earthquake safety in Nepal and in the region. NSET was established in 1993 with the vision to make "Earthquake Safe Communities in Nepal by 2020", and has been extensively contributing on various facets of disaster risk reduction and specifically on earthquake safety. A broad spectrum of NSET activities aligns perfectly with its institutional vision. Mr. Dixit had been actively engaged in Post-earthquake studies by international team in Gujarat earthquake 2001. NSET then involved massively in the processes of technology transfer, knowledge management and earthquake-resistant reconstruction works in Gujarat. Mr. Dixit has led the numerous projects on earthquake mitigation, preparedness, response and reconstruction in Asian countries like Pakistan, India, Bhutan, Bangladesh, Philippines, Indonesia, Tazakistan, Iran, Japan and others.

What Mr. Dixit is well known for in this region is his approach to work on DRR shifting its some of basic paradigms from reactive to pro-active, technically injected to people owned (or led) and also being stick to & attempt for the true facts and situations how hard it would be. He has been actively involved in founding and promoting different institutional mechanisms and ideas in the region like Asian Disaster Reduction and Response Network (ADRRN), Integrated Disaster Risk Management (IDRiM), Case Station-Field Campus (CASI FiCA), Disaster Reduction Hyperbase (DRH).

This award to a Nepali professional has encouraged to furthering disaster risk reduction initiatives within Nepal and also in the region.



Receiving Disaster Mitigation Award 2009



THE PAST ONE YEAR (JUNE 2009 - MAY 2010)

There has been an increasing trend of loss of life, economy, and physical infrastructures due to Natural disasters. Be it 1934 earthquake or floods of different times, landslides, fire etc, from these, Nepal had to suffer a huge damage to life and property. Various organizations are implementing different programs to be safe and save lives from these kinds of hazards. Keeping in mind that earthquake risk reduction can be achieved only with the coordinated effort from all the sectors, NSET was established. Established in 1994 this organization in collaboration with Nepal government, Local Government, national and international organizations has been conducting different awareness programs on earthquake safety since then.

The past one year duration of 2009-2010 was a comprehensive and a remarkable year for NSET. With support and collaboration of different organizations NSET has been conducting various activities in order to generate capable resources to be safe and save lives from earthquakes, likewise it has also been conducting various earthquake resistant construction technology training for the masons, mobile earthquakes clinics etc.

Most of the houses in Nepal are built without consultation with experts. They are highly vulnerable to earthquakes. Most of the casualties in the past earthquakes have occurred due to collapse of non-engineered masonry buildings (buildings constructed using brick masonry). Such non-engineered masonry buildings are widely available in Nepal and the region. Knowing the seismic risk of such widely available masonry buildings in Nepal and the region and to identify possible improvement measures, and to spread awareness on such types of buildings, a Pull Down Test of an existing building was performed in Nepal. NSET provided the technical assistance needed for the pull down exercise. The purpose of the test is to investigate and compare seismic resilience of retrofitted and non retrofitted buildings.

NSET has been continuously lobbying for the inclusion of "Right to Disaster Safety" in the 'Fundamental Rights' section of the new constitution of Nepal (which is under drafting and finalization). NSET prepared a draft on "Right to Disaster Safety" and circulated the draft together with several other documents (NSET

publication and powerpoint presentation on seismic hazard, risk, vulnerabilities and earthquake risk reduction initiatives of NSET (under NERMP, PEER, SESP, MERMP etc) among the members of the Environment and Natural Resources Committee of Constitution Assembly (CA). Senior management officials of NSET made visits to the Office of Chair of Constitution Committee and several CA members with the purpose of advocacy and awareness on the needs of DRR in Nepal. A copy of the draft was also discussed and handed over to OCHA-Nepal and UNDP-Nepal.

In order to raise awareness on earthquakes NSET with support from World Bank has been implementing School Earthquake Safety Program in Lamjung and Nawalparasi.

The first National Strategy for Disaster Risk Management in Nepal (NSDRMN) was endorsed by the cabinet in October 2009. Under the leadership of the Ministry of Home Affairs, this document was prepared with financial support of the European Commission's Humanitarian Aid Department and UNDP. National Society for Earthquake Technology (NSET) provided technical support to develop this document.

In view of outstanding contributions for education, training and awareness for earthquake risk mitigation in South Asian Region Mr. Amod Mani Dixit, Executive Director of National Society for Earthquake Technology -Nepal (NSET) has been honored with prestigious Disaster Mitigation Award - 2009 by National Institute of Disaster Management (NIDM), an undertaking of Ministry of Home Affairs, Government of India.

NSET has been implementing its Program for Enhancement of Emergency Response in 6 different Asian countries. NSET has always believed in exchange of knowledge and technology gained in country and outside at different times. this organization had already sent its trained masons to transfer the technology with the Gujrati masons and help them construct earthquake resistant buildings.

By undertaking various activities towards earthquake risk reduction, NSET has left its individual mark but the single effort of NSET is not enough, each and every sectors responsibility is today's necessity



Regular Ongoing Program of NSET NEPAL EARTHQUAKE RISK MANAGEMENT PROJECT (NERMP)



Background

NERMP is a logical continuation of the earthquake risk management efforts in Nepal that was started in 1997, and continued since 2001 as the Kathmandu Valley Earthquake Risk Management Action Plan Implementation Project (KVERMAPIP) implemented by NSET with core grant from Office of the Foreign Disaster Assistance (OFDA) of the USAID.

NSET has been implementing NERMP since October 2005 with the funding support from OFDA/USAID. The project helps NSET to continue the Earthquake Risk Management (ERM) efforts in Nepal and to implement selected activities in selected communities in Nepal. It also allows NSET to provide technical support to the efforts of other agencies wishing to invest in ERM in different parts of Nepal.

Goals and Objectives

Improving earthquake safety of Nepal through earthquake vulnerability reduction and preparedness initiatives is the goal of the program.

The specific objectives of the program are:

- To improve seismic safety of public and private schools, critical facilities, residences and public infrastructures
- To institutionalize earthquake risk management practice in Nepal

Activities

The program objectives are met by the following activities:

- Improve earthquake safety of schools – by implementing the School Earthquake Safety Program (SESP),
- Help institutions to improve seismic safety of critical facilities
- Improve seismic performance of new constructions in Kathmandu Valley
- Assist in enhancing structural and non-structural safety of public institutions





- Provide technical assistance to the municipalities for implementing seismic building code, conduct training programs for masons, technicians, engineers, business community, and conduct free and mobile earthquake clinics for the house owners.
- Increase earthquake awareness - Help organize Earthquake Safety Day (ESD), Jointly conduct community Radio Programs on Earthquake Safety
- Assist Municipalities in Improving Disaster Preparedness
- Institutional Capacity Development of NSET

Expected Results/ Outputs

- Improved seismic safety of public and private school system of Kathmandu Valley
- Improved Seismic Safety of Hospitals and Water Supply System of Kathmandu Valley
- Improved seismic performance of residential and public buildings of Kathmandu Valley
- Emergency Response and Disaster Preparedness Plan developed and made operational in the critical facilities systems
- Improved Earthquake Preparedness in five municipalities in Kathmandu Valley
- Improved knowledge, skills and practices in earthquake - resistant construction including enhancement of municipal capacity of building inspection and certification process
- Significantly raised level of awareness on earthquake safety
- Enhanced Community-based Emergency Response Capacity







Regular Ongoing Program of NSET SCHOOL EARTHQUAKE SAFETY PROGRAM (SESP)

Introduction/Background

The School Earthquake Safety Program (SESP) is one of the priority initiatives under the Kathmandu Valley Earthquake Risk Management Project (1997-2001). The program evolved from a simple school retrofit to a comprehensive program of earthquake safety involving the entire community. This case study developed the rationale for focusing on schools and the comprehensive process of developing and implementing SESP in the Kathmandu Valley. SESP includes a survey and vulnerability assessment of public school buildings; retrofitting and reconstruction of schools; local masons' training on earthquake resistant construction; a participatory community-based approach to earthquake mitigation; awareness raising and education on earthquake safety for teachers, school children and parents; empowerment of communities and general improvement of safety and livelihood; and institutionalizing SESP in local government.

Objectives

The main goal of the program is to gradually ensure that school children in seismic regions go to earthquake-safer schools and that local communities

build their capacities to cope with earthquake disasters. To achieve this goal, the SESP program has the set following principal objectives:

- To assess the structural and non structural vulnerability of public school buildings
- To identify and implement measures to reduce the identified vulnerabilities
- To raise awareness of earthquake risks and preparedness
- Help schools develop and implement School Earthquake Preparedness Plan

Program Activities

- Survey and vulnerability assessment of school buildings
- Identify and implement structural and non-structural interventions for Earthquake Vulnerability reduction
- Training to students, teachers, parents and community members on Earthquake Safety
- Provide on-the-job training classes to masons
- Develop Earthquake Preparedness and response Plan for schools and conduct Drill
- Encourage exchange of students from Nepalese schools and schools abroad
- Encourage students to establish and run Earthquake Safety Club in the schools

Table 1: Activity Summary 2009 – 2010

SN	Activity	Target People						Remarks
			M	F	Total	Below 16	Above 60	
1	Orientation on Earthquake Safety	Teacher	69	12	81	N/A	2	
2	Orientation on Earthquake Safety	Student	433	351	784	784	N/A	
3	Orientation on Earthquake Safety	Community People	169	49	218	1	4	
4	Community awareness meeting on Earthquake Safety	Community People	241	65	306	2	16	
		Teacher	41	19	60	N/A	N/A	
5	On the job Teacher Training	Mason	60	0	60	N/A	N/A	
6	Intensive Mason Training	Teacher	35	18	53	N/A	N/A	
7	Intensive Teacher Training	Mason	109	5	114	N/A	N/A	
8	On the job Mason Training				Total	1676		

Recent Activities Implemented

School Earthquake Safety Program under NERMP

Nepal Earthquake Risk Management Program is a regular program of NSET funded by USAID/OFDA in order to reduce earthquake risk through education, training, technology dissemination and support for the construction of demonstration projects in Nepal. Under this program NSET is supporting different schools for retrofitting and reconstruction of vulnerable schools and also providing training to students, teachers, community people, parents and masons on earthquake safety.

Developing a Strategy for Improving Seismic Safety of Schools in Nepal

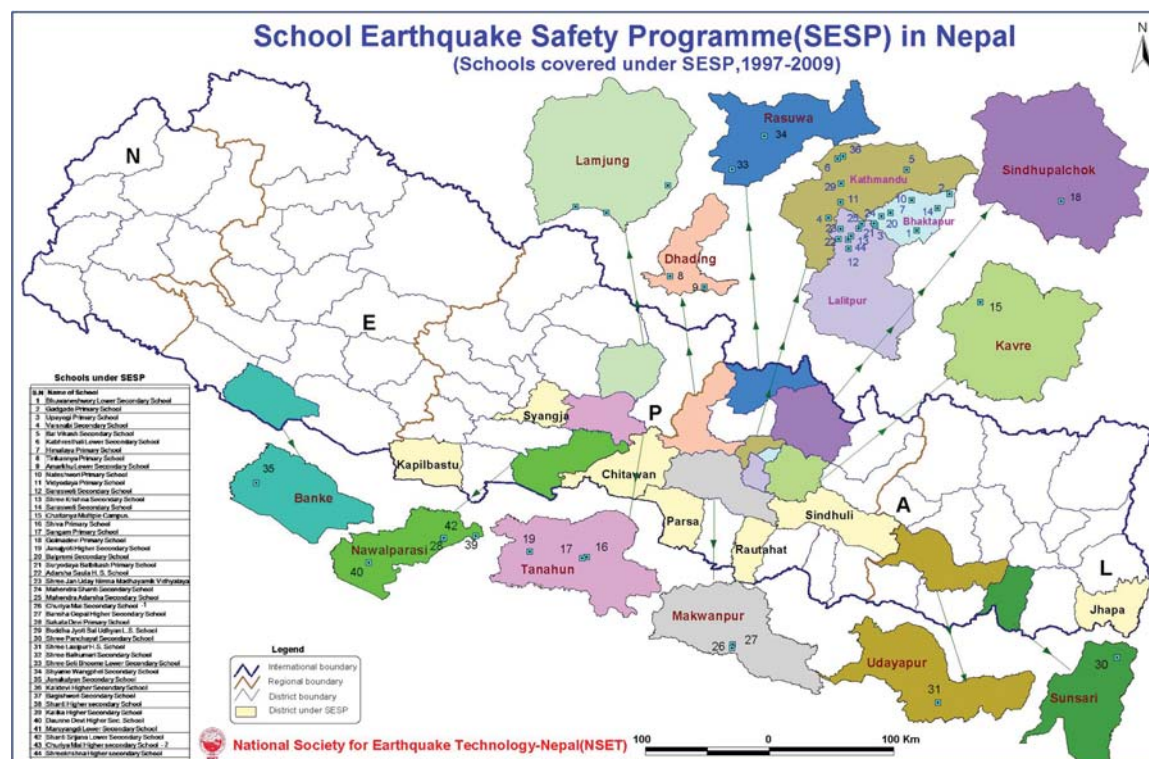
NSET, through the support from GFDRR/ The World Bank in association with the Department of Education has been preparing Draft National Strategy on Improving Seismic Safety of Schools in Nepal. The program runs upto October 2010 starting from August 2008. For preparing the National strategy, pilot programs at two Districts namely Nawalparasi and Lamjung is being implemented. In order to implement pilot demonstration programs, series of workshops, trainings and retrofitting of some of the selected school buildings have been completed. The main components of the program are:

- Develop draft Strategy for improving seismic safety of schools in Nepal
- Implement pilot project at two districts of Nepal(Lamjung and Nawalparasi)

- Resource center level workshops for head masters at both of the districts
- Survey of public school buildings of two districts
- Assess earthquake vulnerability and damage grade of school buildings at different level of shaking
- Implement seismic safety improvement activities (retrofit/ reconstruct) in 6 schools 3 school of each district)
- Training to teachers, students, parents and masons
- Community DRR activities
- Preparing emergency preparedness/ response plans of schools and conducting drills
- Develop draft school curricula incorporating disaster safety for grade 8 to 9

Disaster Risk Reduction through School Project: Supported by DFID through Action Aid Nepal

NSET has been providing technical assistance to various schools under School Earthquake Safety Program through joint program of different Institutions. One such joint endeavor is with Action Aid Nepal for the implementation of "Disaster Risk Reduction through School Project (DRRSP)". Four districts, Kathmandu, Makwanpur, Rasuwa and Banke have been selected for the implementation of pilot project. The project components include earthquake resistant construction of eight school buildings, training & capacity building of local masons, teachers, students and community of the selected four districts. The main purpose of this program is to make safe schools in disaster prone



areas thus enabling them as a focal point for disaster risk reduction activities so that communities around the schools also become aware and prepared for disaster risk as well as vulnerability reduction actions. As a national partner of Action Aid International in this project, NSET is being supported and facilitated by the local partners in those districts.

Impact of the program:

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. Thus the process of replication (replicating the construction

“In order to raise awareness of students on earthquake preparedness, School earthquake preparedness drills are being conducted regularly. Such activities in school will certainly help students to gain knowledge on earthquake safety” says Principal Kamal Subedi, Kalika Higher Secondary School, Gaindakot, Nawalparasi.

methods employed in school building to construct their private houses) would multiply in future to set a new technological culture in construction.

Lessons Learnt:

- Schools are the best point of entry for propagating disaster risk reduction at community level
- School Earthquake Safety Program (SESP) is a complete program

- SESP is a platform to produce/develop appropriate technology
- Management model in SESP can be used in any community development work as a model for community-based initiative. Transparency plays vital role in community based programs
- Best indicator of success of technology transfer is replication of the process
- Training program for mason is an essential part for a successful School Earthquake Safety Program.
- Retrofitting is an affordable solution for Nepalese Schools

Future Plan/Goals / Activities

- Develop National Scenario on School damage and casualties in Nepal from earthquake of different intensities.
- Student exchange program-Student Summit on Earthquake safety.
- Continuation of SESP

Challenge

- Coverage limited to few schools as compared to vast numbers of schools in Nepal
- Increasing demand from schools in implementing SESP in schools.
- Due to limited budget and lack of resources in Schools, it is difficult to complete the planned work on time.
- Many Schools are still constructing buildings without incorporating earthquake safety measures so there is need of up scaling.
- School holidays and frequent closure are causing difficulty for schools to finish their courses in time and are unable to give enough time for disaster safety activities despite of keeping it in priority.



Retrofitting work undergoing at Buddha Jyoti Bal Udhyan LSS, Balaju under SESP/DRRSP of Action Aid Nepal

Buddha Jyoti Lower Secondary School is located in Balaju, Kathmandu. It is a lower secondary school with a total of 310 students. The building structure is 2 storied load bearing brick masonry in cement mortar. With the funding support from ACTIONAID Nepal under the Disaster Risk Reduction through School Project (DRRSP) the existing building is being retrofitted and a new additional floor is to be constructed.

On the job mason training was provided to the masons involved and the community members on 6 March 2009. There were altogether 17 participants. On 17 September 2009 an Orientation program on earthquake safety was organized for teachers, students, community people and the masons involved in the school construction. There were altogether 37 people attending the orientation program.

Shree Seti Bhoome Lower Secondary School is situated in Ramche, Rasuwa. It is a lower secondary school with 157 students. The school building will be a new construction of 4 rooms, two storey load bearing structure in brick masonry in cement mortar. The school building is being constructed with the funding support from ACTIONAID under the DRRSP Project.

On 24 March 2009, Mason training and Community meeting was organized for the masons and community people of Ramche.

On 31 May 2009 a Community orientation on earthquake safety was organized at the school premise. A total of 36 participants including members from the Disaster Management Committee, School Management Committee and Community people attended the orientation program.

Likewise on the same day Students and Teachers Training on Earthquake Preparedness was also organized which was participated by 18 participants.

Shyame Wangphel Secondary School is situated in Syaphru, Besi Rasuwa. It is a secondary school with 357 students. A new school building will be constructed with 2 room RCC framed structure. The school building is being constructed with the funding support from ACTIONAID under the DRRSP Project.

On 25 March 2009 an Orientation program on disaster preparedness was organized for the Disaster Management Committee (DMC) members of Ramche, Dhunche Syaphru Besi and teachers of both schools, Shree Seti Bhoome Lower Secondary School and Shyame Wangphel Secondary School.

On 30 May 2009 a Community orientation on earthquake safety was organized at the school premise. A total of 25 participants including members from the Disaster Management Committee, School Management Committee and Community people attended the orientation program.

Likewise on 1 June 2009, Students and Teachers Training on Earthquake Preparedness was organized which was participated by 31 participants.

Churiyamai Secondary School is located in Churiyamai VDC, Shikarpani, Hetauda Makwanpur. It is a secondary school with a total of 713 students. It is a new construction of two blocks with two room block in stone masonry in cement mortar with wooden truss and CGI sheet roof as per the standard design of department of education. The construction was provided funding support by ACTIONAID under the Disaster Risk Reduction through Schools (DRRSP) Project.



Students orientation on Earthquake Safety

On the occasion of Eleventh ESD-2009, newly constructed Earthquake Resistant School Building and the technology was over to the school community of Churiyamai Secondary School at Churiyamai VDC, Shikarpani, Hetauda Makwanpur on April 9, 2009.

The handover program was jointly organized by School Management Committee of Churiyamai Secondary School and School Earthquake Safety Program (SESP) of National Society for Earthquake Technology-Nepal (NSET). This is the 34th school where SESP of NSET is being implemented. The main objective of this program is to establish a culture of earthquake resistant construction by disseminating the technology in the local community. NSET provided technical support to construct the school building as of two blocks with two room block in stone masonry in cement mortar with wooden truss and CGI sheet roof as per the standard design of department of education. Besides, NSET was also actively involved in "On the Job Trainings" for Masons and awareness raising activities for teachers, parents, students and local community.

'Our home, school buildings have to be made earthquake resistant and for that trained human resource, raised public awareness and strong will power is necessary' says Om Prakash Sapkota, President, School Management Committee, Kalika Higer Secondary School.

Janakalyan Secondary School is situated in Bageshwari Nepalgunj, Banke. It is a secondary school with 766 students. It is a new construction with 2 room brick masonry load bearing structure in cement mortar. The school building is being constructed with the funding support from ACTIONAID under the DRRSP Project.

An Orientation on earthquake safety was conducted for the school community of Janakalyan Secondary School and Mahendra Secondary School, Banke. There were altogether 35 participants attending the orientation program. Further school earthquake preparedness plan was also prepared for Janakalyan Secondary School during 2-8 June 2009.

An Orientation program on earthquake safety was organized for the community on 8 July 2009.

Quarterly Review Meeting of AAN & Mason Training was conducted at Janakalyan Secondary School, during 7-9 July 09.

Kalidevi Higher Secondary School is located in Kavresthali, Kathmandu. It is a higher secondary school with a total of 400 students. It is a new construction of 3 storey, 4 room in a storey RCC framed structure as per the standard design of department of education.

On 4 September 2009 an Orientation program on earthquake safety was organized for students and teachers of the school. A total of 73 participants attended the orientation program.

Bagishwori Secondary School is located in Bichaur, Lamjung. Established in 1947, Bagishwori Secondary School has a total of 437 students. It is a new construction of single storey, stone in mud with RCC bands, CGI sheet roof over timber truss. The school building is being constructed under the financial support from GFDRR/ World Bank (block 1- up to truss and block 2- up to lintel level is completed).

On 8 June 2009, orientation on earthquake drill was conducted for the teachers, students and School Management Committee (SMC) members of Bagishwori Secondary School, Bichaur, Lamjung. Altogether there were 89 participants attending the program.

Likewise on 9 June 2009 a total of 113 students of Bagishwori School got oriented on earthquake safety, similarly on 13 June, 13 masons got oriented on earthquake safety.

Shanti Higher Secondary School of Kuncha-2, Lamjung has around 600 students. With support from World Bank, 3 out of 6 buildings of this school have been retrofitted.

On 16 June 2009 orientation program on earthquake safety was conducted for the students and teachers (110 in number) of Shree Shanti Higher Secondary School.



Stone Laying ceremony at Kali Devi Higher Secondary School, Kavresthali, Kathmandu under SESP/NERMP



Construction work of School building of Bagishwori Secondary School, Lamjung is under going under GFDRR/The world Bank

'We all feel more secure and less worried as our new school building is being made earthquake resistant' says Mr. Dhruba Raj Pokhrel, President, SMC of Marsyangdi Lower Secondary School which was established in 2040 BS in Sundarbajar Paundi, Lamjung district.



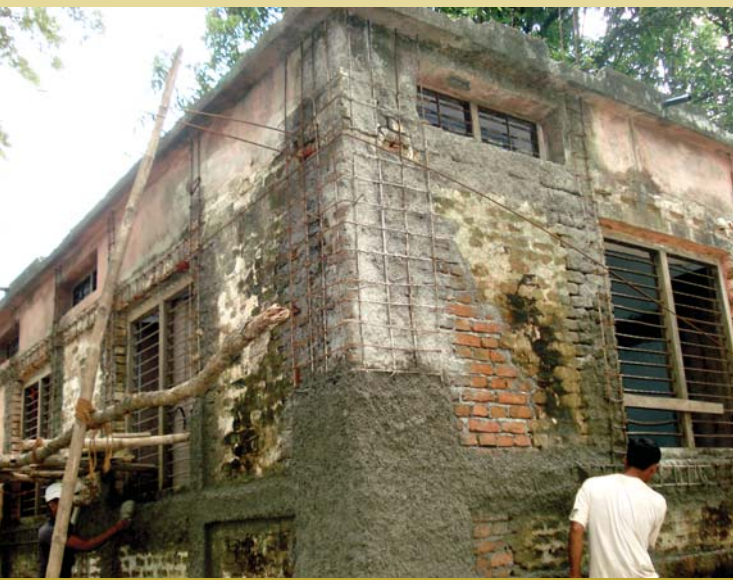
Earthquake Drill at Kalika Higher Secondary School, Nawalparasi under GFDRR/World Bank

Likewise orientation program for the masons involved in the construction of the school and orientation on Earthquake Drill for the teachers of the school was also conducted during the period.

Kalika Higher Secondary School located in Gaidakot, Nawalparasi was Established in 2033 BS and has a total number of 1600 students and 32 teachers. It is a new construction of 4 room, 3 storey reinforced cement concrete building. The school building is being constructed under the financial support from GFDRR/ World Bank

During the period, on the job training on earthquake safety and construction method was conducted for the mason involved in the construction of the school.

And on 16 September 2009, Orientation on earthquake drill was conducted for the teachers, students and School Management Committee (SMC) members of Kalika Higher Secondary School.



Finishing work in progress at Daunne Devi Higher Secondary School, Bardaghat, Nawalparasi under GFDRR/World Bank

Daunne Devi Secondary School is located in Bardaghat, Nawalparasi. Established in 2029 BS, Daunne Devi Secondary School has a total of 1400 students. The school building is being retrofitted (Structural part is completed) under the financial support from GFDRR/ World Bank

Various activities were performed during the period such as;

On the job training on earthquake safety and construction method for mason

Orientation on earthquake drill for teachers, students and SMC members of the school Orientation on earthquake basics and preparedness for teachers, students, SMC members and community

Shanti Shrijana Lower Secondary School located in Jhankre, Nawalparasi was established in 2042 and has a total of 241 students. There will be a new construction of Stonecrete block in cement mortar with RCC band. The school building is being constructed under the financial support from GFDRR/ World Bank. Structural construction work of two room earthquake resistant schools building of the school, is completed and the finishing work is ongoing.

‘We have already started implementing the new technology’ says Kirtiman Limbu, a local mason. ‘The masons have started giving advice to the house owners on earthquake resistant building construction these days’, added Mr. Dhruba Raj Pokhrel, President, SMC of Marshyangdi Lower Secondary School. Local masons of Lamjung who were previously constructing houses in traditional manner have now learned the skill/technology of making schools and houses safe.

Apart from the construction works other activities performed during the period are;

- Orientation on earthquake basics and preparedness for teachers, students, SMC members and community
- Orientation on earthquake drill for teachers, students and SMC members

Marsyangdi Lower Secondary School is located in Paundi, Sundarbazar-8, Lamjung. Established in 2040 BS Marsyangdi Lower Secondary School has a total of 229 students. There will be a new construction of Stonecrete block in cement mortar with RCC bands, CGI sheet roof over timber truss. The school building is being constructed under the financial support from GFDRR/ World Bank. Structural Construction of two room earthquake resistant school building of the School, is completed and finishing work is ongoing

A total of 46 students of Marshyangdi LSS were oriented on earthquake preparedness on 12 November 2009.

On 16 December 2009 an orientation on earthquake safety and earthquake drill was conducted for the teachers and students of Marshyangdi LSS

Similarly Orientation on earthquake safety and construction methods was given for the masons involved in the construction of Marshyangdi LSS, in addition 36 people from the community including the teachers of the school were oriented during the period.



Student performing Earthquake Drill at their school



Teacher Training at Nawalparasi



Construction work of school building of Marsyangdi Lower Secondary School, Lamjung is ongoing under GFDRR/The world Bank





Regular Ongoing Program of NSET **PROGRAM FOR ENHANCEMENT OF EMERGENCY RESPONSE (PEER)**

Background and Objectives:

Program for Enhancement of Emergency Response (PEER) is a regional training program being implemented in selected Asian countries since 2003 with the funding support from USAID/OFDA. The overall goal of this program is to reduce the number of deaths in mass casualty events and increase the survival rates of disaster victims, through enhancing local and regional disaster preparedness and build response capacities of the selected vulnerable countries in the Asian region.

During PEER Stage 2 (2003-2009), two beneficiary countries were added, Bangladesh in 2003; and Pakistan in 2007, following the Kashmir earthquake in 2005. The second phase sought to address the need to build greater ownership and accountability for PEER in the member countries. Nationalization of MFR and CSSR courses was fostered through further adaptation to the national contexts and translation of these into national languages.

NSET is now implementing PEER Stage 3 (2009-2014) aiming to further institutionalize the capacities of countries to implement a sustainable disaster response training program and to further develop qualified instructors, course coordinators and course monitors in MFR and CSSR courses planned for the six PEER countries (Objective 3). PEER Stage 1 (1998-2003) had targeted to focus on establishing partnerships with key stakeholders in the beneficiary countries and had laid the foundation for the program, with the goal of adapting the program's training courses to fit the Asian context. The second phase (2003-2009) sought to address the need to build greater ownership and accountability for PEER in the member countries. Stage 3 centers around a

seamless program advancement, building upon the experiences from Stages 1 and 2.

NSET's vision towards implementation of Objective 3 is to 'Strengthen the capabilities of PEER countries to provide collapsed structure search and rescue and basic and advanced life support during emergencies by further strengthening and institutionalizing the medical first response and collapsed structure search and rescue courses.

In order to fully implement Objective 3, followings are the specific strategies set by NSET:

- Assist PEER countries design their country's strategic roadmap, especially in MFR/CSSR capabilities, that will start with key elements of planning, such as knowing 'how many trained responders/response teams are needed vis-à-vis the country's population and available capacities.'
- Encourage maximum utilization of PEER resources within the country and the region, through sharing of information, human resources and strengthening other networking strategies.
- Continue to guide and assist project countries in their plans, programs for strengthening institutionalization process.
- Need to clarify country's needs for continuous training and instructor development system based on their profile and existing resources.

Program Deliverables:

- Continue conduct of training courses for instructor development;
- Development of more responders through institutionalization process;
- Draft country strategies for emergency response human resources development;
- Strengthen regional networking and strategic planning for overall enhancement in emergency response.

Training Courses and Related Activities under Objective 3:

Main Courses	- Medical First Responder (MFR) Course - Collapsed Structure Search and Rescue (CSSR) Course
Instructor Development Courses	- Training for Instructors (TFI) - MFR Instructors' Workshop (MFRIW) - CSSR Instructors' Workshop (CSSRIW) - Master Instructors' Workshop (MIW)
Subsidiary Activities / Courses	- Course Design and Development - Course Adaptation Workshop - MFR and CSSR Refresher courses - Meetings, workshops

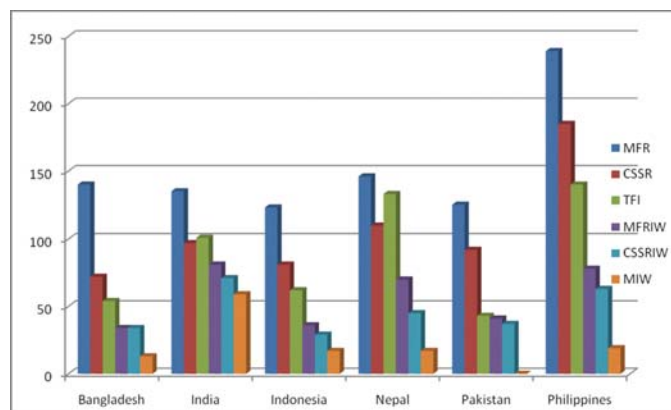
Expected Outcomes:

As a long term goal, NSET envisages that when successfully executed, the strategies shall lead to increase the capacity of national institutions in terms of human resources and management capacity to implement and sustain MFR and CSSR courses, including related streams on instructor development and refresher courses. Along this line, the country's strategic roadmap should also help establish a system for continued development of trained emergency responders and instructors with set standards and national certification process, ultimately producing an increased number of trained responders and instructors in all PEER countries. In addition, establishment of a database management system in all PEER countries will be realized, that will serve as an important tool in planning and analysis of accomplishments and further requirements; and decision making, such as deployment of responders in times of emergencies or disasters.

Achievements from June 2009 to May 2010
During the initial phase of PEER Stage 3, NSET, in collaboration with country partners, organized and completed the nine various program events, as follows:

- 5 Country Planning Meetings (Bangladesh, Indonesia, Philippines, Nepal, India); and
- 4 MFR courses (1 in Philippines, 2 in Bangladesh and 1 in Nepal)
- NSET participated in the PEER Regional Planning Meeting in Bangkok – July 2009

PEER (MFR and CSSR streams) Graduates from PEER Stage 1 to PEER Stage 3 (as of May 31, 2010):



	Bangladesh	India	Indonesia	Nepal	Pakistan	Philippines
MFR	140	135	123	146	125	239
CSSR	72	97	81	110	92	185
TFI	54	101	62	133	43	140
MFRIW	34	81	36	70	41	78
CSSRIW	34	71	29	45	37	63
MIW	13	59	17	17	0	19

MFR	Medical First Responder course
CSSR	Collapsed Structure Search and Rescue course
TFI	Training for Instructors
MFRIW	MFR Instructors Workshop
CSSRIW	CSSR Instructors Workshop
MIW	Master Instructors Workshop

Impact:

The success of the program can be best described through PEER countries' acknowledgement of the benefits gained from the program. The demand for all PEER courses grew tremendously and there was better response in actual disasters by PEER graduates, indicated by countries as positive outcomes. There is also an apparent better national understanding on participation and contribution to ongoing global initiatives on disaster risk reduction and response collaboration.

One of the recent disasters with PEER graduates responding on the ground was the Padang

earthquake in Indonesia (September 2009). Ambulan 118 CSSR team acknowledged the knowledge and skills learnt from CSSR Course as they were successful to have rescued three trapped victims alive.



Ambulan 118's CSSR team in Padang earthquake search and rescue operations, September 2009, West Sumatra.

Box 3: In India, one of the PEER-trained graduates shared his experience on the Mumbai terror attack and Bihar flood response as:

"The knowledge gained by me in PEER program and by Mumbai Fire Brigade personnel has boldly helped in activation, mobilization, coordination, assessment, operation, deactivation and debriefing, during both operations. These above said elements required for professional response and command are incorporated in PEER program. The MFR-equipped men and equipment also helped disaster victims in receiving basic life support (BLS) and post-trauma care.

I am grateful to ADPC, NSET, OFDA, USAID and Miami-Dade Fire and Rescue for not only making me able to gain tremendous knowledge but also enable me to spread it, to overcome future challenges in disastrous situations."

PRABHAT SURAJLAL RAHANGDALE

MFR participants perform life saving skills learnt in the course through a group presentation.



The Certificate of Appreciation received by NSET from Nepal Police Academy, February 10, 2010, Kathmandu

The Certificate of Appreciation received by NSET from Nepal Police Academy, February 10, 2010, Kathmandu.

On disaster preparedness side, Nepal Police Academy gave recognition to PEER program, through NSET, for the capacity building of Nepal police personnel in emergency preparedness and response.

Lessons Learnt:

Implementing PEER has its share of successes and challenges. Despite the challenges confronting the program implementation, such as lack of resources, weak or absence of policies and generally low awareness in the beneficiary countries, PEER has been able to demonstrate the importance of defined objectives, vision and strategy and a structured approach can bring about changes in the country's outlook on disaster preparedness, specifically on establishing a system of emergency response capability enhancement. In PEER Stage 3, there is a need to continue approaches practiced so far for continued benefits from the huge investment already done.





PEER implementing organizations – NSET and ADPC, with USAID/OFDA, PEER funding organization; and American Red Cross (for supplemental funding support to CADRE) during the PEER Regional Planning Meeting in Bangkok, July 2009.



NSET and Disaster Management Bureau in Bangladesh signed the Memorandum of Understanding for PEER implementation in Bangladesh, October 2009.



MFR participant demonstrates taking of patient's vital signs during MFR course

Breaching concrete during CSSR course





Regular Ongoing Program of NSET **SIESMIC VULNERABILITY ASSESSMENT OF BUILDINGS**

BACKGROUND

Most of the loss of life in past earthquakes has occurred due to the collapse of buildings. The most recent Bhuj(2001), Bam (2003) and Pakistan (Oct 2005) earthquake can be taken as an eye opening event when most of the building of typologies similar to the ones prevalent in Nepal, suffered catastrophic damage causing large scale life and property loss. So, seismic vulnerability assessment and retrofit of weak buildings is a pressing need against impending future earthquake in Nepal. However this is a different task. Therefore, NSET started the seismic vulnerability assessment services to start the process especially with those who are convinced and who could convince others by taking a lead in such assessment and subsequent retrofitting.

'Seismic Vulnerability Assessment of Office Buildings and Residences' is an ongoing program of NSET under which residential and office buildings of various national and international organizations located in Kathmandu are assessed for their seismic vulnerability. Since there are not many institutions or consulting firms having experience and knowledge in such assessment and vulnerability reduction works, NSET has been carrying out such works and trying to transfer the knowledge and technology to the concerned institutions and consultancies in Nepal.

OBJECTIVES

The main objectives of the proposed task are to assess the seismic safety of existing buildings (Qualitatively and Quantitatively)

Some specific objectives are as follows:

- To assess seismic vulnerability (structural and non- structural) of buildings.
- To suggest the appropriate strengthening measures to improve earthquake performance of the building structures.
- To identify relatively safe and unsafe places
- To create earthquake awareness in institutions and families

ACTIVITIES / METHODOLOGY

The assessment is carried out in two phases:

First Phase

- Assess structural and non-structural earthquake vulnerability of the proposed buildings by qualitative method
- Identification of relatively safe and unsafe places inside the building
- Identification of best fit retrofitting option if retrofitting is required

Second Phase

- Detail design of retrofitting by quantitative method (Structural Analysis)
- Cost estimate for retrofitting work

PROJECT OUTPUTS

There is an increasing and high level of demand for providing expert services on assessing seismic vulnerability and implementing vulnerability reduction measures from various national and international organizations and even from the individuals.

Till date NSET has carried out assessment of more than 32 residential and office buildings of institutions which include buildings of American Embassy in Nepal, Nepal Red Cross Society, Save the Children, and International Committee of Red Cross in Kathmandu. Most of the assessed buildings were engineered buildings and still they suffer damage



grade 3 or more whereas 90% of the buildings in the valley are non-engineered ones that may further suffer severe damage.

Similar assessment was done for 26 masonry buildings of the British Embassy in Tehran, Iran in 2004. Recently NSET assisted UN Habitat to undertake similar assessment for buildings to be rented out by UN agencies in Muzaffarabad of the Pakistan administered Kashmir.

Currently, NSET is assessing the seismic vulnerability of blood banks operated by the Nepal Red Cross Society.

DIFFICULTIES ENCOUNTERED AND LESSONS LEARNT

Clients who opt for building assessment work are mostly those who take the building on rent. Generally, the first phase of assessment is enough for them to decide if the building is safe to occupy. If the building assessment process does not produce satisfactory result they simply leave the building and look for another safe building rather than implementing strengthening measures. As the first phase of building assessment work is based on available drawings and visual inspection, there is always a doubt if the actual construction is as per the drawing provided by the client. Anyways, many of the institutions don't have as-built drawings which add further difficulty in visual assessment without any destructive tests to which most are reluctant.

Followings are the Seismic Vulnerability Assessment works done during this period:

- During this period of one year, both qualitative and quantitative seismic vulnerability assessment and retrofit design of two residence building possessed by staff of British Embassy and one of American Embassy in Nepal was carried out along with implementation of seismic strengthening of one of the residences to be occupied by American Embassy staff in May 2009.
- Seismic vulnerability assessment of residential building of Mr. Surya Narayan Suwal was completed under the Mondialogo Engineering Award.
- Qualitative as well as quantitative seismic vulnerability assessment of residential building possessed by PSI Nepal was carried out along with its retrofit design.
- Seismic and Geo-Technical Assessment of Kalika Higher Secondary School, Jirikhimti- Terhathum was carried out during 8-12 Sept 2009.
- Construction supervision of retrofitting works in two staff residences of British Embassy in



Lazimpat, Kathmandu is being carried out. British Embassy has started the retrofitting of these two buildings as an initiation of structural mitigation with the aim of strengthening remaining buildings in stage wise manner.

- Detail qualitative structural and non-structural assessment of all the facility buildings of Bheri Zonal Hospital at Nepalgunj has been conducted. Detail structural assessment and retrofit design of Nutritional Rehabilitation Home was completed as per the agreement with Action Aid International Nepal. Recommendation was made for structural and Non-structural mitigation priority wise based on availability of fund and functional importance of hospital building.
- Survey and study of non-engineered brick masonry building construction practice in Nepal was done as per the agreement with National Graduate Institute for Policy Studies (GRIPS), Tokyo, Japan. The study was carried for new buildings under construction and the results are based on the detail survey of five selected construction sites in Kathmandu Valley.





Regular Ongoing Program of NSET **PUBLIC AWARENESS PROGRAM**

National Society for Earthquake Technology-Nepal (NSET) believes that raising earthquake awareness is a major component for bridging the knowledge gap. Awareness helps to eradicate myths and fallacies and communities can be convinced of the impending seismic risk and how to reduce harm. NSET has developed innovative ideas to make people aware. The programs aiming to raise awareness are:

Earthquake Safety Day

Nepal observes the Earthquake Safety Day on Magh 2 of Nepali month (either 15 or 16 of January) to commemorate the Great Nepal-Bihar Earthquake of 1934. Many public information activities are organized on ESD.

Radio/TV Programs

NSET has established partnerships with a number of FM radio stations to spread awareness about the risks associated with earthquakes. The programs target homeowners and convince them on the possibility and affordability of making their homes earthquake-resistant. NSET provides expert knowledge to the programs by deliberating on aspects of earthquake risk and its mitigation.

NSET's radio programming began on Radio Sagarmatha, a community FM Radio Station in Kathmandu. It supports another program on the Do's and Don'ts during earthquakes daily on Capital FM, another Kathmandu station. Outside the Kathmandu Valley, NSET supports a weekly program on Annapurna FM in Pokhara. The central message on all radio programs is 'Be Prepared'.

Similarly, regular NSET program through Nepal Television has remained instrumental on promoting earthquake safety in Nepal. The "Bhookampa Vishesh (Earthquake Special)" segment of a weekly program

"JANACHASO (Public Concern)" being aired nationwide on every Saturday in the morning is the platform to exchange and disseminate knowledge, ideas and information to Nepalese communities exclusively focused on earthquake preparedness. Likewise, NSET manages different activity based interactive programs, LIVE broadcasts of special events as well as visual PSAs through different television channels throughout the year.

FOR TIPS ON EARTHQUAKE RISK MITIGATION TUNE IN TO...

Radio Sagarmatha (FM 102.4) at 7.30 PM, Tuesday
Radio Annapurna (FM 91.8) at 7.30 AM, Wednesday
Capital FM (FM 92.4) at 8.00 AM, Every Morning

WATCH ...

Nepal Television every Saturday 8:25 am
"Bhukampa Bishesh" section on Janachaso Program

Shake Table Demonstration Program

NSET's Shake Table Demonstration Program helps take research directly to vulnerable communities, while also helps adapt the research technology with the local situation. The Shake Table demonstrations help show and convince people in a simple and cost-effective way how their residences can be secured to reduce damage during earthquakes.

Consultations for home owners

NSET organizes free consultations for home owners and potential house owners in Kathmandu Valley. This weekly consultation program focuses on how to construct buildings that are earthquake resistant, and discusses the main vulnerabilities in the house plans and how to avoid those.

Orientation lectures

NSET organizes orientation lectures on earthquake safety upon request. The content usually covers basic information about earthquakes and the situation in Nepal, what to do before, during and after earthquakes, etc. Occasionally, the lectures also include earthquake drills.

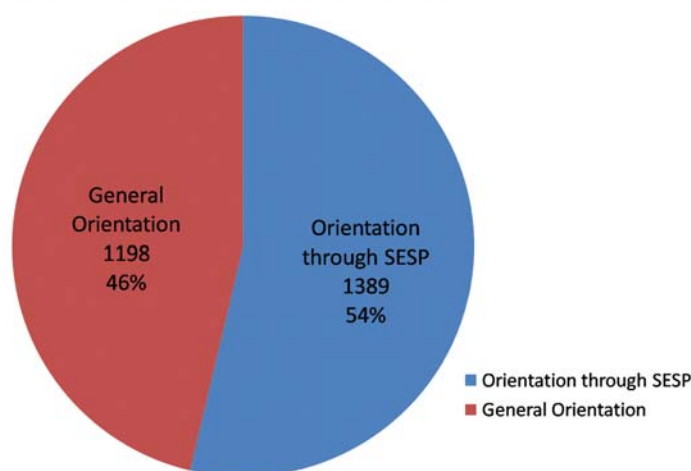
NSET has been assisting many institutions to help enhance their earthquake preparedness by conducting earthquake orientation and training programs for their staff. Following orientation programs were conducted during the period:

Table 2: List of Earthquake Preparedness Orientation Programs

S. No.	Program Name	Date, Venue	No. of Participants
1.	Community Orientation on Earthquake Preparedness for the House-Wives of Tuladhar Samiti, KMC 18	3 Jan, 2009 Bhurung khel, KMC-18	98
2.	Orientation program on earthquake preparedness for the staff of Embassy of Finland	19 Feb 2009, Embassy of Finland	37
3.	Orientation to DMC Members on Disaster Preparedness	25 March 2009, Dhunche, Rasuwa	17
4.	Orientation program on earthquake preparedness for the representatives of NGOs and INGOs of Nawalparasi	28 March 2009, Kawasoti, Nawalparasi	26
5.	Orientation program on earthquake preparedness for Staff of Association for Craft Producers (ACP) representing from 14 districts	17 April 2009, ACP Meeting hall	250
6.	Orientation program on earthquake preparedness for staff of District Development Committee (DDC) Kathmandu	27 April 2009, City Hall Kathmandu	40
7.	Orientation program on earthquake preparedness for the staff and students of Esthier Benjamin Memorial Foundation	29 May 2009, EBM Office, Godavari, Lalitpur	115
8.	Orientation program on earthquake preparedness for the officials of 6 VDC Dahachowk, Balambu, Badbhanjyang, Thankot and Mahadevsthan, and representatives of political parties, NGOs	24 June 2009, Thankot	30
9.	Orientation program on earthquake preparedness for the officials of 6 VDC of Shesh Narayan, Talku Dude Chaur, Chhaimale, Dakshin Kali, Chalnakhel, Seti devi and representatives of political parties, NGOs	25 June 2009, Shesh Narayan VDC	35
10.	Orientation program on earthquake preparedness for the officials of 6 VDC of Pukhulachhi, Nanglebhare, Lapsiphedi, Suntol, Bajra Yogini, and representatives of political parties, NGOs at Pukhulachhi	26 June 2009, Sankhu VDC	35
11.	Orientation program on earthquake preparedness for the staff and volunteers of Nepal Heritage and Culture Concern	25 July 2009, NHCC, Lalitpur, Ward 8	20
12.	Orientation program on earthquake preparedness and earthquake drill for teachers and students of Kendriya Vidhyalaya, Embassy of India	8 August 2009, Kendriya Vidhyalaya, Lazimpat	80
13.	Orientation program on earthquake preparedness for the staff of Plan Nepal Country Office	21 August 2009, Plan Nepal Country Office	30
14.	Orientation program on earthquake preparedness and earthquake drill for teachers and students of Mount Kailash Boarding School, Kapan, Kathmandu	20 September 2009, Kapan, Kathmandu	85
15.	Orientation program on earthquake preparedness for the Engineering Students of Kantipur Engineering College	30 October 2009, Kantipur Engineering College	25
16.	Orientation program on earthquake preparedness for staff and family members of British Gurkhas	27 January 2010, British Gurkhas Nepal Headquarters, Man Bhaban, Lalitpur	100

17.	Orientation program on earthquake preparedness for officials of US Embassy	US Embassy, Maharajgunj, Kathmandu	40
18.	Orientation program on earthquake preparedness for the staff of PASRA/ GTZ	5 March 2010, PASRA/ GTZ, Pulchowk, Lalitpur.	30
19.	Orientation program on earthquake preparedness for the staff of Lincoln School	15 March 2010, Ravibhawan, Kathmandu	30
20.	Orientation program on earthquake preparedness for the staff of Department for International Development, Nepal (DFID)	18 March 2010, International Development, Nepal (DFID), Ekantakuna, Lalitpur	28
21.	Orientation program on earthquake preparedness for the staff of The New Era Career Development Institute	19 March 2010, The New Era Career Development Institute, Battisputali, Kathmandu.	25
22.	Orientation program on earthquake preparedness for the members of Women's Federation for World Peace	22 March 2010, Women's Federation for World Peace, Naxal, Kathmandu	22

No of people Oriented on Earthquake Safety in 2009



Around 2587 people got oriented on earthquake safety in 2009

Mobile Earthquake Clinics

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

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

Earthquake Vulnerability Tours

Vulnerability Tour is one of the several efforts of NSET towards enhancing level of awareness and also for educating people on the need of investing in earthquake vulnerability reduction initiatives in Nepal. It is a guided tour in a defined route or a defined location to observe different vulnerability factors. The Earthquake Vulnerability Tour is an innovative awareness tool initiated by NSET. The tour aims to point out how vulnerable the city's buildings and critical facilities such as the schools and the fire stations are to earthquakes. This tour will help to know the ground reality of our cities which may help different stakeholders to work together to reduce the level of earthquake risk in Kathmandu Valley. The tour is conducted with an objective to convince common people to the policy/decision makers and the international community on urgency of urban earthquake vulnerability reduction initiatives and to help develop perception of existing seismic vulnerability of building structures, life line structures and their combination.

The participants of the tour are encouraged to take part in the discussion on existing vulnerabilities along the route and their potential remedies. A range of hazards, primary as well as secondary is considered and discussed for the locality. Likewise, all the phases of disaster, from the onset of the event to the problems of rescue and response, rehabilitation, reconstruction and the necessity of introducing mitigation in the reconstruction, are talked about during the tour at appropriate moments. The discussion is mostly informal. The tour in fact allows and encourages the participant to identify the vulnerabilities in a neighborhood, to assess the extent of the problem, and to explore possible measures that needs to be promoted and implemented.

The tour has thus turned out to be an effective disaster risk communication tool. It provides the sentimental environment of probable earthquake scenario, which in turn drew more and more buyin from all sectors in the success of the program. Further the Tour Guidebook was also developed. NSET has organized various such tours for the national and international participants. The entire exercise appeared to make very intense impact on the participants. But still there is a need to develop Volunteers who can develop such tours in their respective communities. Further there should be more informal discussion to get more success and the participants should be encouraged to identify the vulnerabilities in their neighborhood.

Impact of awareness activities

There are several evidences that show the positive

impacts of the awareness programs. Some of outcomes are listed below:

- The government and the other organizations have recognized NSET's efforts shown by their desire to work with NSET.
- There has been an increase in the number of requests for orientation lectures from communities and organizations including VDCs, municipalities, professional groups, business community, international and UN agencies, academic institutions, and NGOs/INGOs.
- There has been an increase in the number of earthquake-related articles in the print and broadcast media. Many of the producers of construction materials (steel, bricks, cement) have begun to refer to the earthquake hazard while marketing their products. This helps spread awareness of earthquakes, even though good products alone don't make buildings safe. Safe buildings require the right combination of good materials, design and workmanship.
- Implementation of the national building code in construction in municipality. Lalitpur Sub-Metropolitan City (LSMC) has incorporated Nepal National Building Code into its building permit process. LSMC is one municipality with which NSET has been working closely.
- The health sector disaster preparedness and emergency response plan considers an earthquake of MMI IX as the worst-case scenario to base the response plan.
- There has been an increase in the number of requests for technical assistance for the construction/retrofitting of public and private schools.

Community Based Disaster Risk Management Program

Several communities of Kathmandu Valley have started community based disaster risk management programs in their localities. NSET provides technical assistance to such groups. Some wards of Kathmandu city have begun the CBDM efforts by forming Ward-level Disaster Management Committees made up of volunteers who are then trained for their roles.

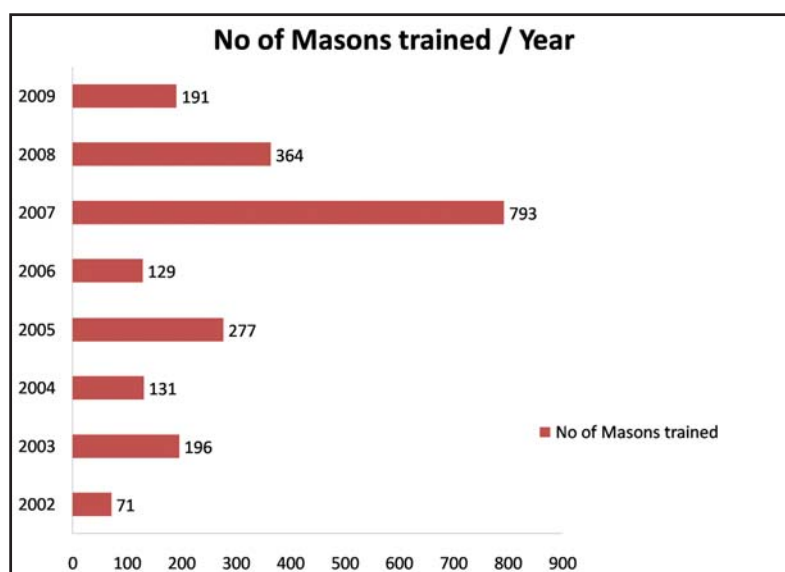
Training programs on earthquake-resistant construction

NSET, as an outcome of the rich experiences gained during more than a decade long experience, has developed training courses targeting various stakeholders involved in earthquake risk reduction for promoting earthquake safer construction works. These courses include Training to Masons/Contractors, Technicians, Junior Engineers, Engineers, Schoolteachers and Policy/Decision

makers. Series of training courses are being organized by NSET separately or in collaboration with different agencies/organizations working for the cause of reducing earthquake risk in Nepal.

Main objective of such training courses have remained to enhancing knowledge and skills of masons and construction workers in different regions and sectors on the earthquake-resistant construction technology. These are more focused on capacity enhancement of construction technicians for incorporating earthquake-resistant construction technology, disseminating the technology and in implementing earthquake risk management activities; dissemination of earthquake resistant construction technology including the retrofitting technology for existing buildings to the key role players of the building construction process; and include concerned authorities in the training process and help them initiate the process of promoting safer building construction practices.

NSET has developed training courses aimed at different stakeholder groups. It has ready to use modules for training masons, contractors, technicians, junior engineers, engineers, school teachers and policy/decision makers. These training programs targeted for different audiences have helped propagate the knowledge and create champions of earthquake technology. Courses for professionals consist of theoretical classes, case studies and experience while those for masons emphasizes in practical experiences such as barbending and reinforcement placement, proper brick laying, construction stitches and bands etc. Some training programs are discussed below:



Engineers/Architect, Junior Engineer training

Objectives

- To familiarize practicing civil engineers and architects with the basic concepts of earthquake-resistant design and construction of residential buildings
- To familiarize them with the Nepal National Building Code and make them aware on need to implement the code
- To familiarize them with the concepts of repair and retrofitting of damaged buildings.

Target Group

Civil engineers Architects, Junior Engineers.

Engineers'/Architects' training:

This is a four-day course for engineers and architects. Intake: 30 participants.

Junior Engineers' training

This is a three-day course. Intake: 30 participants.

Mason training program

Objectives

The main goal is to train practicing masons on basic knowledge of earthquake resistant building construction technology and equip them with required skills.

The objectives are:

- Explain the importance and effectiveness of earthquake resistant elements in buildings.
- Incorporate earthquake resistant elements in new construction.
- Outline available methodologies to incorporate earthquake resistant elements in existing buildings.
- Discuss relevant Building Codes to ensure earthquake safe construction The training courses follow a hierarchical procedure starting from problem identification and end with solving them. Several tests are conducted to support the knowledge in relation to effect of placement of reinforcement rod in beam/slab, quality of work governed by material and workmanship like excess water effect, curing effect, etc.

Followings are the training programs conducted during this period:

Earthquake Resistant Building Construction for Masons Community of Hetauda , 22-28 March 09, Hetauda

NSET conducted" Earthquake Resistant Building Construction Training for Masons Community of Hetauda" at Hetauda, Makwanpur District from 22-28 March, 2009 for five consecutive days. The program was conducted jointly by Women and Children Development Forum (WCDF), and

NSET. Altogether 25 masons participated actively in the training program.

- Earthquake Resistant Building Construction for Masons, 24-28 May 2009 Dhumbarahi, Kathmandu
NSET conducted "Earthquake Resistant Building Construction Training for Masons" at Dhumbarahi, Kathmandu during 24-28 May, 2009 for five consecutive days. The program was conducted jointly by Kathmandu Valley Constructors Association (KVCA), Kathmandu Metropolitan City (KMC) and NSET. Altogether 12 masons from and around Dhumbarahi participated actively in the training program.
- Earthquake Resistant Building Construction for Masons, 7-11 June 2009 Bhaktapur

26 Masons from Bhaktapur District were provided training on Earthquake Resistant Construction of Buildings during 7-11 June 2009. The training was conducted by NSET with support from Department of Urban Development and Building Construction (DUDBC), Division Office Kathmandu and Thimi Municipality.

- Earthquake Resistant Building Construction for Masons, 11-14 June 2009 Janakpur, Dhanusha
NSET in association with DUDBC Division Office, Dhanusha conducted a Training Program for Masons on Earthquake Resistant Construction of Buildings during 11-14 June 2009 at Janakpur. 29 masons from Mahottari, Dhanusha and Sarlahi took part in the 5 day training program.
- Training Course on "Earthquake-Resistant Construction of Buildings for Engineers" 16 - 18 February 2010, Biratnagar Sub- Metropolitan Corporation

A 3-Day Training Course on "Earthquake-Resistant Construction of Buildings for Engineers" was conducted by NSET from 16 - 18 February 2010 in Biratnagar Sub- Metropolitan Corporation, as per the agreement with Nepal Government Citizen Partnership Project (NGCPP). A total of 31 participants from District Development Committee, Morang; District Technical Office, Morang; District Educational Office, Morang; Department of Urban Development & Building Construction, Biratnagar; Biratnagar Sub-Metropolitan Corporation, Local NGOs and consultants of Biratnagar participated in the training. This training course was the first step for assisting such technical professionals in acquiring basic knowledge and information on earthquake-resistant construction technology.

The Nepal Government Citizen Partnership Project (NGCPP) is designed to help the Government of Nepal (GON) immediately re-establish legitimate and effective security and governance to combat the potential for a fractured Nepal. The NGCPP is the USAID/Nepal implemented portion of an overall U.S. Government effort to introduce an integrated package of security, governance, and development assistance targeted at the local level in the Terai region. ARD is the USAID implementing partner for this integrated security program in collaboration with the United States Institute for Peace (USIP) and other donor organizations operating in the Terai.



Masons attending the theoretical sessions during the masons training program



Masons attending the practical sessions during the masons training program



Specific Program of NSET **COMPREHENSIVE DISASTER MANAGEMENT PROGRAM – BANGLADESH**

Introduction

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 and Asian Institute of technology (AIT)-Thailand 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

Objectives

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 strategies

To develop trainings, drills, advocacy and awareness activities 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.

Activities Foreseen

- Development of Seismic Hazard and Vulnerability and Risk Assessment Methodology for earthquake risk Mapping of Dhaka, Chittagong and Sylhet City Corporation areas
- Conduction of vulnerability assessment of engineered and non-engineered buildings in three cities
- Development of fragility functions for different type of buildings
- Conduct risk assessment of the selected cities
- Conduction different trainings including teachers training, engineers training, masons training, government officials and policy makers training etc.
- Preparation of contingency plans at national level, city level, agency level and preparation of guidelines on development of contingency plans for lifelines

Espected Output

- Methodology for seismic vulnerability assessment in case of Bangladesh developed
- Fragility functions for buildings in Bangladesh developed
- Earthquake risk assessment of three cities is conducted

- Training curricula for different types of training are developed, training of trainers (TOT) conducted and a system of continuing such type of trainings are discussed
- A national level, three cities level, eight agency levels and four lifelines agencies earthquake contingency plans are developed

Activities Performed

As a part of the series of trainings and awareness activities planned and implemented, training to planners and decision makers on the process of earthquake risk assessment at city level, use of risk assessment tool/s, develop updating process and mechanism and use of risk maps for earthquake risk reduction and contingency planning for effective emergency response has been organized. Under the Training, Advocacy and Awareness component of the CDMP, NSET and ADPC jointly organized the Training of Trainer (TOT) on earthquake resistant construction for the engineers and junior engineers from ADPC Bangladesh, City Corporation of the Dhaka, Sylhet and Chittagong and different construction company from Dhaka City. 24 participants were participated on this 5 day training held in January 2009.

After completion of this training, four training courses (2 in Dhaka, 1 in Chittagong and 1 in Sylhet), were conducted for masons and bar-benders on earthquake safe construction. The instructors for this training were selected from the participants of the TOT on earthquake resistant construction.

A five days training on Earthquake Risk Assessment and Planning Using HAZUS Tools was conducted in Dhaka for the planners and decision makers under the Training, Advocacy and Awareness component conducted in Dhaka in August 2009. The main aim of the training is to impart knowledge and skills of the participants on the process of earthquake risk assessment at city level, use of selected risk assessment tool/s, develop updating process and mechanism and use of risk maps for earthquake risk reduction and contingency planning. There were around 26 participants at the training from Dhaka, Chittagong and Sylhet cities. The participants represented from different departments of Government line agencies, City Corporation & University.





Specific Program of NSET **THIMPU VALLEY EARTHQUAKE RISK MANAGEMENT PROJECT (TVERMP)**

“NSET Role as Short Term Technical Advisor”

Introduction

A contractual agreement between Standards & Quality Control Authority, Ministry of Works and Human Settlement, Royal Government of Bhutan and NSET was made for NSET to provide short-term technical support for the follow-up to the Thimpu Valley Earthquake Risk Management Program (TVERMP) in Thimpu, Bhutan. NSET conducted 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. National Society for Earthquake Technology - Nepal (NSET) provided Technical Support to Standards & Quality Control Authority (SQCA), Ministry of Works & Human Settlement, Royal Government of Bhutan since April 2007 as per the contract agreement signed between SQCA and NSET.

Objectives

- To conduct detailed seismic evaluation of two buildings (one RCC and one masonry),
- To come up with different retrofitting options with complete drawings
- To implement the retrofitting of one building
- To train the local engineers and artisans and
- To develop Guideline on the seismic evaluation and retrofitting techniques for future reference

Proposed Activities/ Scopes

The specific scopes of the tasks were as bellows:

- Site Visit and detailed inspection of the two buildings.
- Review “as built” drawings (Architectural and Structural) for the two selected buildings.

- Carry out Detailed Evaluation of the two buildings for seismic safety.
- Recommend different retrofitting options with detailed designs, drawings and cost estimates.
- Supervise the implementation of the retrofitting.
- Train the local engineers and artisans during tasks 3, 4 and 5.
- Formulate a guideline for carrying out tasks 3, 4 and 5.
- Advise on the procurement of retrofitting tools and equipment.
- Prepare seismic assessment reports for each of the two buildings with different retrofitting options. The report should include all the data collected from the field survey, findings, and seismic analysis of the buildings and the vulnerability study of the buildings.
- Make a presentation of the seismic assessment to the various stakeholders as and when required during the period of this Agreement.
- The training of the engineers and artisans, as outlined in 7, will also include formal/informal interaction in a classroom atmosphere.

Tasks Performed

Building Assessments and Retrofit Design

With the technical assistance from NSET, Standards and Quality Control Authority (SQCA), Bhutan, has formulated a pilot project on seismic strengthening of reinforced concrete framed building in Thimpu. The first reinforced concrete framed building retrofitted is the three storied residential apartment building owned jointly by two sisters Ms. Laden Pema and Thinley Ohm which is situated in Chang Lam at the western side of the Archery Ground Thimpu.

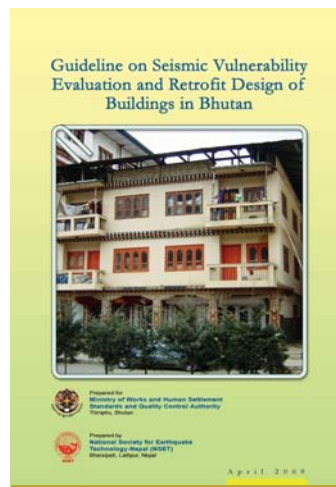


Training

A training on "Building Assessment and Retrofitting" was organized in SQCA training Hall, Thimphu, Bhutan during 11-15 February 2008. There were about 15 number of core engineering participants from different sectors representing government agencies, local NGOs, INGOs and private organizations.

Development of Guideline

Guideline on "Seismic vulnerability Evaluation and Retrofit Design of Buildings in Bhutan" has been developed. This guideline was prepared by in-house NSET professionals based on their over 15 years of experience in assessing hundreds of institutional, private and public, hospital and school buildings. The document provides guidance on seismic evaluation procedure of common building types in Bhutan and the region and includes processes of qualitative as well as more detailed analysis, evaluation and retrofit design of existing buildings



identified as seismically deficient during evaluation process. The guideline was submitted to SQCA in April 2009.

Supervision on seismic retrofitting

Supervision carried on seismic retrofitting of Three Storied Residential Apartment Building of Ms. Laden Pam and Ms Thinley Om at Chang Lam, Thimphu, Bhutan. The actual implementation of the project was initiated by a meeting at SQCA on 13 April 2009. The meeting was attended by SQCA senior officials, an engineer from Bank of Bhutan, the house owner, contractor and construction supervision specialist from NSET. Implementation of the retrofit work started with dismantling and site clearance. Construction supervision specialist from NSET made two separate trips to construction site at Thimphu, Bhutan, one during 11 April-17 May 2009 (37 days) and another during 9-15 October 2009 (7 days) at crucial periods of implementation particularly for this job.



Work in Progress, placing reinforcement bars on
raft, beam, column and shear walls





Specific Program of NSET COMPARATIVE RISK ASSESSMENT (CRA) IN HUMLA DISTRICT

BACKGROUND

Humla District, north-western part of Karnali Zone, is one of the remote districts in Nepal. The district, with Simikot as headquarter holds 40,595 total population (20,962 male and 19,633 female) living in 6,953 households (CBS, 2001). The major ethnic groups in the district are Chhetri (43%), Thakuri (19%) and Sherpa (14%) followed by Brahman, Dalits and others. The population density of this district is 7 persons per sq km and the literacy rate is 26.6% (CBS 2001).

The district is geographically composed of mountains, hills, steep cliffs, narrow river valleys and gorges covering total area of about 5,700 sq. km. The elevation of this district varies from 1200 m. – 7400 m. above mean sea level (AMSL). Due to geographical location and diversity in physical features and lack of awareness, the district frequently suffers from several natural disasters such as avalanche, flood, land slide, fire, hail storm, snow storm and epidemics etc (Table 1). In addition, the district seems prone to earthquakes as many faults pass through and further due to poor construction practices and low level of awareness and preparedness.



View of Humla Village

Table 1: Natural Disasters and their effect in Humla District (1971-2008)

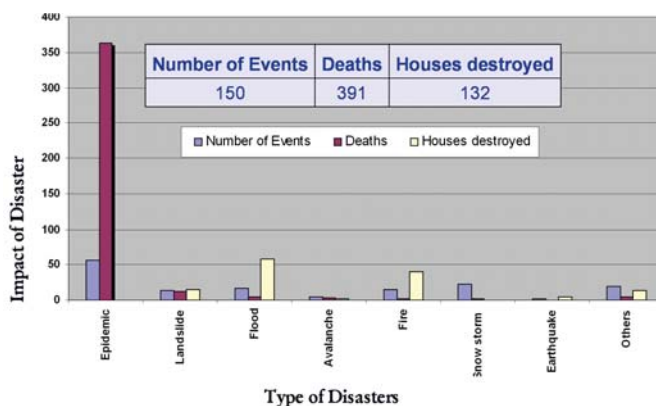
Disaster Type	No. of Evetns	Deaths	Missing	Injuries	Houses destroyed	Houses damaged	Livestock loss
Epidemic	56	363	0	55	0	0	5
Landslide	14	12	11	2	15	7	183
Explosion	1	4		25		0	
Flood	17	4	0	3	58	8	125
Avalanche	4	3	6	4	2	1	0
Fire	15	2	0	0	40	11	5
Snow stoem	22	2	0	0	0	0	425
Others	1	1				0	
Earthquake	2	0	0	0	4	2	0
Famine	3	0	0	0	0	0	0
Halistorm	2	0	0	0	0	0	60
Plague	7	0	0	0	0	0	9009
Storm	1	0	0	0	0	0	0
Structural Collapse	1	0	0	0	11	1	0
Thudersorm	1	0	0	0	0	0	0
Boat Capsize	1		3			0	
Heavy rains	2				2	1	
Total	150	391	20	89	132	31	9758

Source: DesInventar Database, NSET 2008

Map 1: Location of Humla District



Figure 1: Major Natural Disasters and their effect in Humla District (1971-2008)



Source: DesInventar Database, NSET 2008

Humla district is divided in 27 VDCs: Barai, Bargaun, Chhipra, Darma, Dandafaya, Gothi, Hepka, Jaira, Kalika, Khagalgau, Kharpunath, Lali, Limi, Madana, Maila, Melchham, Mimi, Muchu, Raya, Rodikot, Sarkeedeu, Saya, Shree Nagar, Shreemastha, Simikot, Syada and Thehe (Map 1). Generally the VDCs in Nepal have not crisp boundaries; they are separated with the reference of natural boundaries such as rivers, streams, mountain ridges, cliffs, forests and large trees etc. The VDCs are made of several small villages/ settlements. However, if the villages/settlements are large, a VDC may comprise of only one village. The VDCs are further broken down into wards, smallest political unit of Nepal. In case of Humla, the VDC have covered large spatial area but low population density. Out of 27 VDCs of Humla the current study covered only 6 VDCs containing 31 villages.

Objectives of the Study

1. Primary objective
To identify and map the areas/villages more at risk of multiple hazards in selected VDCs of Humla district.
2. Secondary objective
To review in collaboration with Mission East the present risk assessment procedure and model in order to adapt it to Nepalese context

Methodology

Following general methodology were adopted for the assessment:

A. Pre-field

Review with Mission East the risk assessment procedure and model in order to adapt it to Nepalese context

- A presentation on the risk model based on previous national and international

experiences was made by Mission East DRR coordinator. All CRA team members participated the presentation. During the presentation possible changes in the context of Nepal was discussed.

- All the relevant literatures and maps related to Humla were collected and large scale printed maps were prepared for the field.

B. During Field

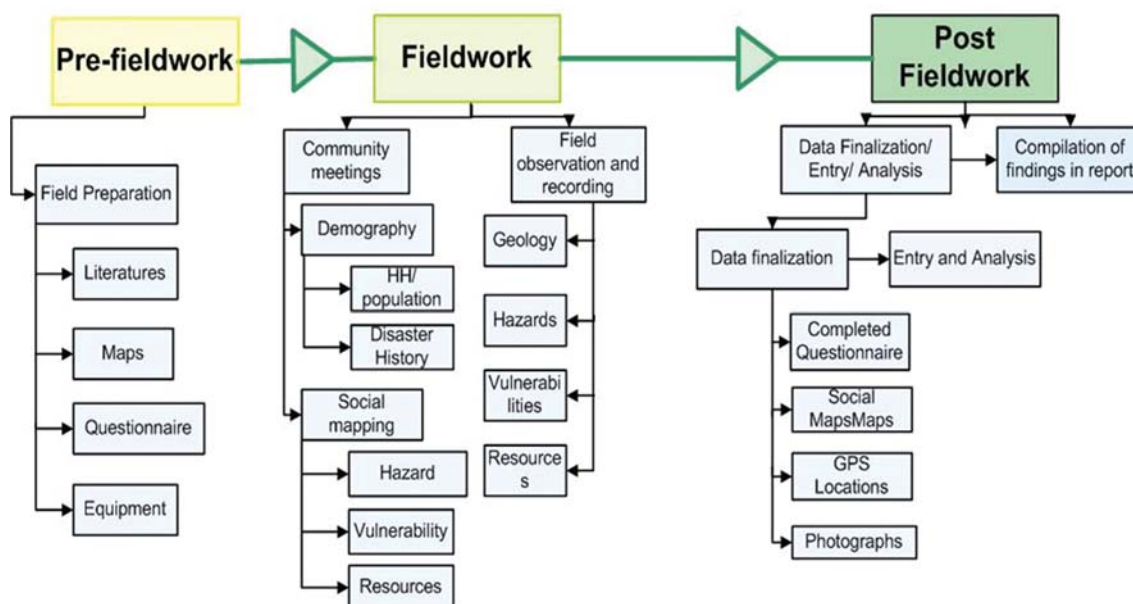
A team composed of Natural Hazard and Risk Assessment Expert, Geologist, Community Motivator and PVA Expert visited the selected villages.

- The field visit team informed Chief District Officer, Humla about the objective and scope of the field visit.
- The team conducted the community meetings in each village and received the information in the form of questionnaire and social maps.
- The geologist and natural hazard and risk expert closely observed the villages and assessed the existing hazard, vulnerability and risk.
- The major resources e.g. schools, healthposts, helipads, police stations and bridges were closely visited and GPS coordinates were recorded.

C. Post Field

- A review meeting was conducted between NSET and Mission East to discuss on preliminary findings and sharing experiences.
- All collected information, including social maps, completed questionnaires; photographs were reviewed and finalized before starting the data entry and analysis.
- After reviewing and finalization of field work, the data was entered into an Excel database designed by Mission East to identify level of vulnerability, hazard and risk for each surveyed villages.
- The social maps prepared during the community meetings were finalized.
- For calculating the earthquake intensities in the villages (earthquake zonation), a widely used tool, RADIUS, was used.
- Digital (GIS) topographical maps of the villages were purchased from Topographic Survey Department and all the GPS coordinates were overlaid for spatial representation of the work.
- All findings were compiled in a complete report and recommendations based on field observation and expertise were made.

Figure 2: Methodological Workflow



Activities Executed

NSET conducted Comparative Risk Assessment (CRA) in Humla District, the north-western part of Karnali Zone of Nepal as per the contract made on 26 August 2009 between NSET and Mission East (ME) Nepal with the main objective to identify and map the areas/villages more at risk of multiple hazards.

Under the project, a team composed of Natural Hazard and Risk Assessment experts, geologists, community motivators and Participatory Vulnerability Assessment (PVA) experts from NSET

visited the selected villages to conduct the community meetings in each village during August-September 2009 and received the information in the form of questionnaire and social maps. The team closely assessed the existing hazards, vulnerabilities and potential risks.

Out of 27 VDCs of Humla, the current study covered only 6 VDCs containing 31 villages to conduct risk assessment to identify the hazards more likely to occur with the biggest impact on the community's or individual's assets. It was observed that the capacity of the local people to cope with disaster risk was very low due to low level of preparedness and ineffectiveness of awareness campaigns. So, an effective awareness campaign (leading towards preparedness) would be the crucial very first step for the disaster risk reduction process in the region. Unless the potential victims are aware, the risk will remain the same even after the implementation of several risk mitigation programs.

For giving continuity to the project, the first of the foreseen series of workshop on "Review of Disaster Management in Humla District" was organized in Simikot by KIRDARC and Mission East with technical assistance from NSET. The major activities of the workshop were:

- Sharing of the Disaster Scenario and existing Disaster Management System in Nepal including the provisions of local level DM in the Local Governance Act, and updated information on the newly endorsed National Strategy on Disaster



- Management by the Government of Nepal.
- Sharing of the findings of Comparative Risk Assessment conducted by NSET in collaboration with Mission East in August 2009.
- Reviewing the existing Disaster Management System in Humla with special focus to current status of Disaster Response, Preparedness and Mitigation Activities in Humla.

Major Findings

After field study, the collected information including the opinions of community people and experts observation during the field visit were combined for the comparative risk assessment of the selected villages.

The information of 31 villages collected during the field survey was entered in a format developed by Mission East Nepal. The format is designed in such a way it generates a fact sheet containing major information of the villages. Finally, based on fact sheet information it quantitatively calculates the level of capacity, vulnerability and hazard etc. Hence considering different aspects, the villages could be prioritized for the further programs of DRR.

The quantitative risk assessment of list of villages calculated by the software is presented in the table 34. The villages based on different aspect, are grouped as very high risk, high risk, medium risk and low risk indicated by red, orange, yellow and green color respectively. However, the villages could be selected for further DRR programs setting different criteria

such as: (1) considering the result calculated by the software itself, (2) considering spatial coverage (by VDCs), (3) considering the impact on resources/infrastructures (4)

Recommendations of the Study

General Recommendations:

- Analyzing the information received from the interviews/interactions, meetings and PVA with the communities in Humla districts, it was concluded that there is a low level of capacity of the local people to cope with disaster risk and it is because of low level of preparedness, due to ineffectiveness of awareness campaigns. So, an effective awareness campaign (leading towards preparedness) would be the crucial very first step for the disaster risk reduction process in the region. Unless the potential victims are aware, the risk will remain the same even after the implementation of several risk mitigation programs. The awareness campaign should be in each sector of society (Institutions, students, teachers, housewives, masons, engineers, clubs and other CBOs etc.).
- Traditional beliefs/misbeliefs should be addressed by the awareness raising and training programs (e.g. traditional methods to stabilizing the boulders at the top of the villages or break them into small pieces: it was observed in Mathillo Kalkhe, Barigaun and Rilma). As these may increase and/or reduce the risk.





- Most of the villages have reported food sufficiency less than 6 months it was more because of natural disasters like flood, landslide, hailstorm and drought and also due to less productivity. So, the DRM activities should be linked with development activities and some activities related to for better agriculture need to be included.
- Almost all villagers have two places to live: one in upper area (during summer) and one in lower area (during winter); the people met during summer in upper areas could not be found in winter in the same places. They will be already shifted to lower areas due to the problem of snowfall. Therefore, such kind of activities/movement should be addressed during the implementation of DRM programs.

Specific Recommendations:

Besides the general recommendations mentioned above, followings are the recommendations for the disaster risk management in the region;

- Select the villages based on the final score arrived from the comparative analysis and other logistic arrangements; some options are given below:
 - Based on quantitative analysis, possible 10 villages for DRM implementations are: Kargoin, Kankhe, Barigaun, Natta, Bhuwa, Faderagaun, Tumcha Chhatyalwada, Sarkeghat, Nimagaun and Lauthi.

- Representing from each VDCs: Kargoin and Barigaun from Kalika VDC; Natta and Chhidi from Jaira VDC; Bhuwa from Gothi VDC; Sarkeghat and Dulli from Saya VDC; Galfagadh and Mathillo Kalkhe from Srinagar VDC and Nimagaun from melchham VDC.
- Based on field observation and considering impact on infrastructures/resources: Kargoin, Barigaun, Kankhe, Sarkeghat, Dulli, Mathillo Kalkhe, Bhandariwada, Chhidi and Natta.
- Approach to the concerned authority / partners for the implementation DRM programs.
- Give training to the staff involved on DRM and CBDRM before they start working with communities
- Organize orientation programs to the communities and form Community Level Disaster Risk Management Committee
- Provide useful training/s to the committee members and other volunteers on different aspect of disaster preparedness eg. LSAR, First AID etc.
- Support on pre-positioning critical/practical hand tools/equipment and supply for rescue and relief
- Establish a link between the established committees and VDC and also with DDRC

Encourage local NGOs and CBOs to conduct awareness and training programs for capacity building to cope with disasters.







Specific Program of NSET **MUNICIPAL DISASTER RISK IDENTIFICATION PROGRAM (MDRIP)**

Ilam and Panauti Municipalities of Nepal

Background

This is the work conducted to identify and characterize potential natural hazards within and surrounding the two municipalities of Ilam and Panauti of Nepal, to assess the risks associated with the hazards, especially seismic risk, and to assist the two municipalities to develop action plans for earthquake risk reduction and emergency response planning under the Municipal Disaster Risk Identification Project (MDRIP). The National Society for Earthquake Technology – Nepal (NSET) implemented the risk identification project in close collaboration with the project municipalities along with a variety of stakeholders in the two municipalities, and national level government institutions. This project was conducted under the High Resolution Risk Analysis stream of activities of the Global Risk Identification Programme (GRIP), a program launched by UNDP highlighting the importance of Disaster Risk Reduction in achieving the Millennium Goals. Rich experiences of NSET prompted it to embark upon a program Urban Disaster Risk Atlas of Nepal. This project on Municipal Disaster Risk Identification Program (MDRIP) fits well with the aspiration of NSET, and contributed much to addressing the need for urban disaster risk assessment in Nepal.

MDRIP Objectives

General objectives of the Municipal Earthquake Risk Management Program (MERMP) are:

General Objective 1: Disaster Risk Reduction in Urban Areas of Nepal

General Objective 2: Institutionalization of Disaster Risk Management Practices in Urban areas of

Nepal and consolidation of past achievements for mainstreaming Disaster Risk Reduction into Municipal Development Planning

Current phase of MDRIP targetted the following specific objectives:

Objective 1: Earthquake Risk Reduction and Enhancement of Emergency Response Capabilities in Ilam and Panauti municipalities of Nepal

Objective 2: Institutionalization of Disaster Risk Management Practices in the two municipalities including mainstreaming Disaster Risk Reduction into Municipal Development Planning

Scope of the Current Phase of MDRIP

The current phase of MDRIP covered assessment of natural hazards and identification of disaster risk in the two municipalities by combining the hazard information with demographic data and with the information on vulnerabilities, largely physical vulnerabilities.

Ilam Municipality lies in the eastern hilly area while Panauti is adjacent to Kathmandu Valley in the central Nepal (Figure 1).



Figure 1: Panauti and Ilam Municipalities among the Municipalities in Nepal

Both the municipalities are rapidly growing and accessible by all weather road. The municipal authorities along with the community have shown a positive response to the activities of the project. Both the municipalities have a very good potential for tourist industry. Ilam has fascinating landscape and beautiful tea gardens with the snow peak Himalayas in the North. Panauti is a place of historic importance with various archaeological monuments. Panauti is one of the many cultural heritages within the country.

Details of Works Carried Out

Activity # 1 Preparatory works at the concerned municipality

Project Initiation Meeting and Agreement

National Society for Earthquake Technology – Nepal (NSET) signed an agreement with both Ilam and Panauti Municipalities to facilitate the smooth running of the activities planned under MDRIP. The municipalities assigned one of their staff to act as a focal person who would be responsible in coordinating the project activities with the municipality and NSET. Both the focal persons were working actively to carry out the activities.

Baseline Survey and Building Inventory

Existing building stock its typology and the inhabitants are the major information required to run RADIUS. This information was collected through a base line survey conducted in close coordination with the municipalities. Ilam has 3,576 housing units and the population is 16,246. There are 5,134 dwelling units in Panauti and the population is 14,674.

Activity # 2 Risk Assessment

DIG and Vulnerability Tour

Disaster Imagination Game (DIG) and Vulnerability Tour were organized for one day in both the municipalities. This program was organized so that the community members residing in the core city areas would be well aware of the existing hazard risk and vulnerabilities in their community. The participants comprised of all works of life from political leaders, teachers, students, businessmen, housewives, local influential persons and professionals.

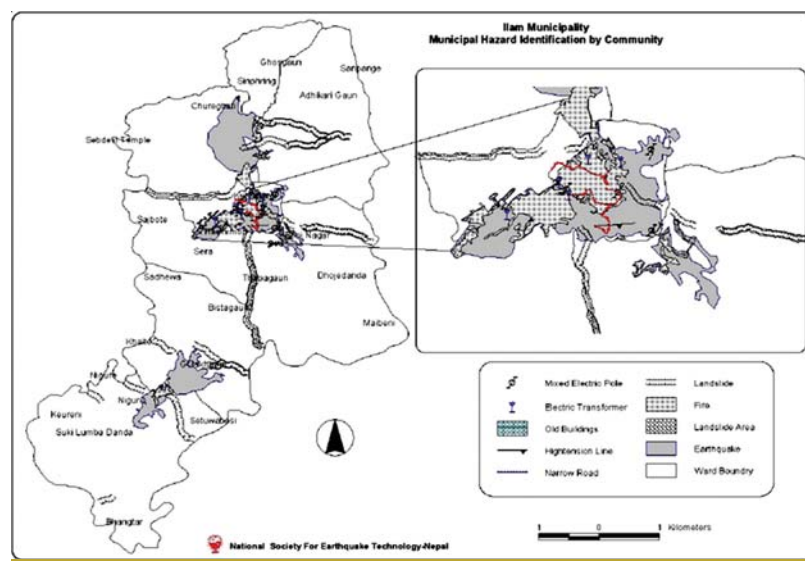
Both the Municipality prepared a Municipal level Hazard Vulnerability Capacity Assessment maps. Then the municipality prioritized the top five potential disasters as the outcome of the Risk Assessment exercise that the project facilitated them to organize.

The Potential disasters in Ilam were identified as

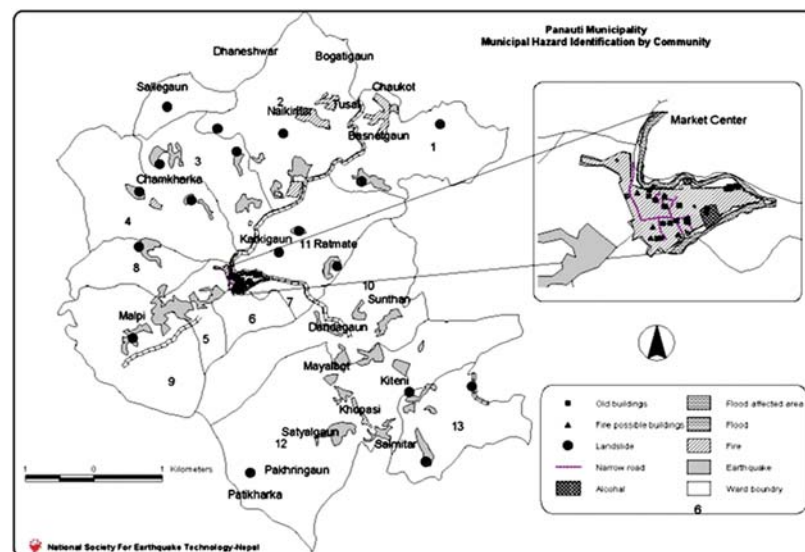
Earthquake, Fire, Landslide and Floods. Similarly Earthquake, Fire, Landslides and Epidemics was considered to be the top five disasters potential to Panauti

Kick off Meeting and Hazard Mapping Workshop

One Day Kick off Meeting and Hazard Mapping Workshop was organized in each of the Municipalities. The participants for the event comprised of the representatives from all the geographic area and kinds of people (races, casts, ethnic groups and professionals) including all the ward secretaries, active representatives from NGO/CBO working within the municipality.



Participatory Hazard Map of Ilam



Participatory Hazard Map of Panauti



MDRIP Kick off Meeting, Ilam

RADIUS Results

The outcome of the preliminary RADIUS application in Ilam and Panauti shows that both the municipality are almost equally vulnerable to Earthquake. Two different scenarios have been prepared. One scenario is based on the 1934 Bihar Nepal Earthquake and the other is based on the potential earthquake initiated by a potential fault nearest to the respective municipality.

Activity # 3 Municipal Level Risk Reduction and Response Master Plan

Two day Workshops were held at both the municipalities to initiate the process of Disaster Risk Reduction and Response Master Planning process.

Activity # 4 Initiate Implementing the Disaster Risk Reduction Initiatives

Develop a mechanism for effective implementation of Nepal National Building Code

Ilam Municipality has declared a phase-wise implementation of the Nepal National Building Code (NBC) with effect from July 2008. Panauti Municipality has decided to make all the preparations pertaining to implement NBC during this fiscal year so that it can be implemented from July 2009. Both

Ilam Municipality

Scenario 1: Assuming 1934 (Nepal-Bihar) Earthquake

Magnitude: 8.4 | Distance: 85 Km | Time 02:00 | Depth 10 km

Summary Results

Average			Buildings		MDR	Population		Affected	
Distance	PGA	MMI	Stock	Damaged		Day	Night	Injury	Death
90.2	.1	6.2	3576	197	5.5	16073	32145	243	4

Scenario 2: Assuming potential Fault nearest to Ilam,

Magnitude 7.2 | Distances: 10 Km | Time 2:00 am | Depth 10 km

Summary Results

Average			Buildings		MDR	Population		Affected	
Distance	PGA	MMI	Stock	Damaged		Day	Night	Injury	Death
16.5	0.3	8.1	3576	1341	37.5	16073	32145	4430	371

Panauti Municipality

Scenario 1: Assuming 1934 (Nepal-Bihar) Earthquake

Magnitude: 8.4 | Distance: 172 Km | Time 02:00 PM | Depth 10 km

Summary Results

Average			Buildings		MDR	Population		Affected	
Distance	PGA	MMI	Stock	Damaged		Day	Night	Injury	Death
172.0			5134	98	1.9	14674	25563	31	2

Scenario 2: North Banepa Earthquake

Magnitude: 7.6 | Distance: 52 Km | Time 10:00 PM | Depth 20 km

Summary Results

Average			Buildings		MDR	Population		Affected	
Distance	PGA	MMI	Stock	Damaged		Day	Night	Injury	Death
20.0			5134	1145	22.3	14674	25563	1505	150

the Municipalities have requested NSET to provide technical input for the implementation of NBC in their respective municipalities.

Activity # 5 Capacity Building

Training of Engineers

A five day Basic Technical Training (BTT) Course on Design and Construction of Earthquake Resistant Buildings was conducted in Ilam from 25 to 29 August 2008. 23 persons actively participated in the training program conducted in Ilam Municipality.

Masons Training Program

A five Day Masons Training Program on Construction of Earthquake Resistant Building was organised in both the municipalities. This training program was organized with the objective of upgrading the skill of practicing masons in earthquake resistant construction of building.

Activity # 6 Community Education and Awareness

One day general Awareness Program on Disaster

Management and Earthquake Risk Reduction was organized in each of the Municipalities.

Activity # 7 Model Demonstration of Earthquake Risk Reduction

Ilam Municipality has already initiated National Building Code with the help of the Masons trained on the Construction of Earthquake Resistant Buildings in the municipality. It has a few numbers of private earthquake resistant buildings as the outcome of MDRIP. However all the buildings built after this initiation have not incorporated all the components in their construction but the process has begun.

Lessons learnt

- This initiation can be considered to be the green signal in the municipalities for such interventions and need more support in the future.
- This first initiation is not enough for them and needs more activities to be done to make the endeavour much effective and sustainable.





Specific Program of NSET **DISASTER PREPAREDNESS FOR SAFER SCHOOLS IN NEPAL (DPSS)**

Background

Schools in Nepal and the region are highly vulnerable to different kinds of disasters. Disaster awareness and preparedness at the schools is very low. Hence, there is urgent need of disaster preparedness in vulnerable schools in Nepal. Realizing this need, National Society for Earthquake Technology - Nepal (NSET) has conceptualized a program “Disaster Preparedness for Safer Schools in Nepal (DPSS)” to be implemented jointly by Nepal Red Cross Society (NRCS) and NSET in Nepal with the funding support from American Red Cross (ARC).

DPSS is conceptualized as a regional program proposed to be implemented in few disaster prone countries of Asia. The program is designed to increase disaster awareness and improve the disaster safety of schools and communities through awareness, training and capacity building activities. Initially, the program is being implemented in Nepal, and this will be expanded to other countries based on the experiences and lessons of the initial phase.

Objectives

Overall Goal of this program is to reduce impact of disasters by building safer and resilient schools and communities for which the set objectives are to

- Improve disaster safety of public schools
- Increase disaster awareness of communities
- Assist institutionalization of disaster safety concepts

Scope Of Program

First year (Nov. 2009-Oct. 2010):

- Awareness, training and disaster preparedness activities in 50 schools of 2 districts in Nepal
- Program Districts: a) Nuwakot b) Bhaktapur

Key Activities

Objective 1: Improve disaster safety of public schools

- Training curricula development and adaptation

- Conduct training programs
 - School Based Disaster Preparedness Training of Trainers (SBDPTOT), 5 days course, 2 training in each of 2 districts with 25 participants, 2 teachers from each school
 - Basic Disaster Management Training (BDMT), 3 days course for all selected 50 schools of 2 districts; school teachers and students of selected schools
 - Basic First Aid Training (FA), 4 days course, 5 trainings in each of 2 districts with 25 participants; teachers and students of selected 10 schools, 12 participants from each school
 - Light Search and Rescue Training (LSAR), 4 days course, 2 trainings in each of 2 districts with 30 participants; teachers and students of selected 10 schools
 - Disaster Preparedness Planning/Vulnerability & Capacity Assessment Training (DPP/VCA), 3 days course, 1 training in each of 2 districts with 25 participants; teachers and students of selected 10 schools
- Implement Disaster Risk Reduction and Preparedness Activities
 - Vulnerability and risk assessment
 - Formation of Student Disaster Safety Clubs, strengthen Junior/Youth Red Cross (J/YRC)
 - Prepare and implement School Disaster Preparedness and Response Plan
 - Support for Students’ Summits in districts
 - School Disaster Preparedness Drill, in 20 Schools
 - Developing Handbook on School Disaster Preparedness

Objective 2: Increase disaster awareness of communities

- Community Disaster Awareness Sessions and Awareness Campaigns
- Orientation sessions to parents, community people and the leaders on concepts of hazards, disasters, preparedness and mitigation



During the Teachers TOT on Disaster preparedness, Nagarkot

- Disaster safety rallies
- Publications, 2 types, 5,000 copies each

Objective 3: Assist institutionalization of disaster safety concepts

- Involvement of key government and non-government institutions of education sector in the program
- Program Advisory Committee at Central Level
- District and local level stakeholder meetings
- Preparation of Draft National Strategy for Institutionalization of Disaster Preparedness in Schools
- Dissemination and Advocacy

Programs Activities implemented

The first phase of the program envisions implementation of disaster preparedness training and disaster preparedness activities in the first year in 50 schools as the pilot demonstration in Nepal. Nuwakot and Bhaktapur districts were selected for program implementation, and so far in course of project implementation, a one day National Level Kick Off workshop has been conducted on 14th February 2010 in order to share project goal, objective, approaches, working area and key intervention to the concerned stakeholders. A National Level Program Advisory Committee was formed for overall guidance of the project and project transparency during the workshop.

Likewise in order to introduce the program to the selected districts, District Level Program Kick Off workshops were held in each program districts Bhaktapur (5th March, 2010) and Nuwakot (18th March 2010).

With close coordination with NRCS and District Education Office, a total of 25 schools have been selected in each district to implement the program. And out of 50, 20 schools (10 in each district) have been selected as core program school for entire

During the Basic Disaster Management Training, Nuwakot

program intervention.

A (5-7 member) Program Steering Committee responsible for making necessary decision and providing assistance to the program team as per the need has been formed in each program district, Nuwakot and Bhaktapur.

Further, in order to mobilize and disseminate the message of disaster preparedness through junior and youth Red Cross Circle intensive session on disaster preparedness was provided to the District Level Junior/Youth Red Cross workshop held in both districts during February 2010.

Expected outputs / beneficiaries

- 650 teachers & management committee members and 5,700 students trained on Disaster Preparedness
- 400 teachers, students & community people trained on Light Search and Rescue and First Aid
- 20 schools prepare Disaster Preparedness Plan and conduct annual drill
- Disaster awareness of approximately 10,000 people of 20 communities increased
- 20 small disaster mitigation projects
- Students' Summit at district and national level
- Central government institutions, line agencies at districts, and other related stakeholders involved in the program
- Draft of National Strategy for Institutionalization of Disaster Preparedness in Schools

Direct beneficiaries: Approximately 8400 (students, teachers and common people),

Indirect beneficiaries: Approximately 250,000 people.



During the National Kick Off workshop ,Kathmandu





Other Cross-cutting Programs of NSET

Earthquake Awareness Camp

Background

In a seismically at risk country like ours the community needs to develop capacity to cope with unforeseen disasters, The Earthquake. If the local people are properly sensitized about precautions and preventive actions to be taken in case of such calamity, the loss of life and damage to the property could be drastically reduced. Considering the above facts NSET has decided to conduct Earthquake Awareness Camps in all the five development regions of Nepal. This is in line with NSET mission towards achieving Earthquake safe communities in Nepal by 2020 through developing and disseminating earthquake resistant technologies through conducting various orientations and training programs.

Objectives

- Study and assess the potential hazard / risk based on the existing housing stock and prevailing construction practice in Bidur Municipality.
- Make the local government and non-government institutions including grassroots communities aware on earthquake risk of Nepal along with the required preparedness and possible mitigation measures.
- Make the community members understand the importance of simple, economic earthquake resistant construction technology and non structural mitigation options for earthquake risk reduction.
- Persuade the community members and the respective stake holders to initiate interaction and planning process for Earthquake Risk Reduction.
- Look for potential local Champions to continue disseminating Community Earthquake Risk Reduction in and around Bidur Municipality.

Activities

The activities that are to be carried out in the Earthquake Awareness Camps are Planning Meeting with the local Authority, Building Typology Sample Survey, Earthquake Awareness Rally, Earthquake Safety Exhibition, Earth-quake Awareness Orientation Programs, Video Documentary Shows, and Earthquake Mobile Clinic.

Activities performed

Out of the five camps planned, first awareness camp was organized for Bidur Municipality during 19-24 March, 2010. As per the camp activities, preparatory/planning meeting was organized with the active participation and ownership by Bidur Municipality. Following the meeting a series of orientation programs were organized at Bidur Municipality, Bhairavi HSS Nuwakot and Sachetan Library for the local people.

A total of 18 mobile clinics were conducted around the municipality area. During the building inventory survey it was found that NSET Participation with DUDBC has started showing positive results as the initiative of municipality engineer seem to be effective and clearly reflected on the construction practice, it was observed that the Column size has increased to 9"X12" though all the columns are oriented on the same direction and the "Toothing" was replaced by Stepped Continuation for load bearing wall.

Mobile Earthquake Clinic

- Building Permit: approx 200/year
- Construction without permit: approx 100/year
- Under Construction during AEC: approx 75
- Bellow first floor slab: approx 30
- Mobile Clinic conducted: 18

Findings

- General public think Bidur is not so vulnerable to earthquake.



Briefing at the Earthquake Mobile Clinic

- The General Public is receptive to ERC ideas but are concerned about the additional cost.
- Initiative of municipality Engineer is more effective and clearly reflected on the construction practice.
- NSET Participation with DUDBC has started showing positive results.
- Masons are informed about ERC but not motivated to implement.
- Awareness on ERC Economics focused to women seems to be more effective in technology transfer.
- Column size has increased to 9"X12" but all the columns are oriented on the same direction.
- Grid pattern is maintained, may be due to absence of aesthetic and or architectural intervention.



Participants of the interaction program on Earthquake Risk Reduction and Preparedness, Bidhur Municipality

Lessons learnt

- Pre coordination with the concerned municipality and media is must.
- Organizing local press conference to initiate EAC will help.
- Finding out the local festivals and functions works better.
- Success is proportional to individual (mainly CEO and Municipal Authorities' perception on Earthquake Awareness.)
- Orientation programs should also be focused to different groups acting at community level like women group, clubs and others.

Disaster Risk Reduction Initiatives in Kathmandu Metropolitan city (KMC)

Earthquakes and Megacity Initiatives (EMI), National Society for Earth-quake Technology -Nepal (NSET) and Kathmandu Metropolitan City (KMC) have jointly implemented the Cross-Cutting Capacity Development (3CD) Project since 2005. During the period, different trainings and workshops have been conducted for understanding the risk, risk reduction measures and further building up the capacity of the communities.

With the funding support from German Committee for Disaster Risk reduction (DKKV) and technical support from EMI and NSET, KMC has been preparing the Kathmandu Risk Sensitive Land Use Plan and Emergency Operation Plan which aims to mainstream disaster risk reduction in the development strategies and legislations of KMC through development of a risk-sensitive land-use plan, advocacy campaigns, policy formulation, inter-institutional coordination and strengthening of local institutions.

Another initiative is the Kathmandu Emergency Management that aims to enhance the institutional capacities of the city government of Kathmandu in emergency and disaster management and integrates it with the National Strategy for Disaster Risk Management (NSDRM).

In this course a Participatory Validation of the KMC Profile and Situational Analysis Workshop was conducted on 15 July 2009 and further a Multi stakeholder Workshop on Visioning, Goals and Objectives Setting was conducted from 16-17 July 2009 at NSET meeting hall Bhainsepati, Lalitpur. Another workshop was held in Shree Meeting hall at NSET on 14 Dec. 2009 to present draft final report to the concerned stakeholders on Emergency



KMC Executive Mr. Ganesh Rai Addressing the workshop

Management System and Risk Sensitive Land Use Planning for Kathmandu Metropolitan city. The comments and suggestions gathered are incorporated in the plans being finalized and KMC will take it further for the implementation of the plan.

Kathmandu District Level Disaster Risk Reduction Program

Background

NSET is providing technical assistance to the program, Kathmandu District Level Disaster Risk Reduction Program organized by District Development Committee (DDC), Kathmandu.

Major objective:

- To manage Natural Disaster Risks specially emphasizing in the Earthquake risk reduction in Kathmandu

Specific objectives:

- To institutionalize the Metropolitan city, municipalities and 57 VDCs under Kathmandu DDC with respect to disaster risk management;
- To conduct orientation and training programs in the respective municipalities and Village Development Committees (VDCs) for the enhancement of capacity building regarding the DRR; and

To conduct the community based awareness program about the earthquake and its preparedness

Activities performed:

- Orientation Program for DDC staffs
- Orientation Program for VDC staffs (36) of Dahachowk, Balambu, Badbhanjyang, Thankot and Mahadevsthan, and representatives of political parties, NGOs at Thankot on 24 June 2009.
- Orientation Program for VDC staff (43) of Shesh Narayan, Talku Dude Chaur, Chhaimale, Dakshin Kali, Chalnakhel, Seti devi and representatives of political parties, NGOs on 25 June 2009.
- Orientation Program for VDC staff (48) of Pukhulachhi, Nanglebhare, Lapsiphedi, Suntol, Bajra Yogini, and representatives of political parties, NGOs at Pukhulachhi



During orientation program on Disaster Risk Reduction, Thankot

'Pull Down Test'



to test the vulnerability of buildings to earthquakes. Most of the casualties in the past earthquakes have occurred due to collapse of non-engineered masonry buildings (buildings constructed using brick masonry). Such non-engineered masonry buildings are widely available in Nepal and the region. Knowing the seismic risk of such widely available masonry buildings in Nepal and the region and to identify possible improvement measures, a Pull Down Test of an existing building was performed in Nepal as a part of the Regional Program of Earthquake Risk Reduction and Recovery preparedness program (ERRRPP) supported by Asian Disaster Reduction Center (ADRC), Japan. NSET provided the technical assistance needed for the pull down exercise. The purpose of the test is to investigate and compare seismic resilience of retrofitted and non retrofitted buildings. The test provides further opportunity to review and analyze retrofitting methods for masonry building which are the most common types of buildings in Nepal.

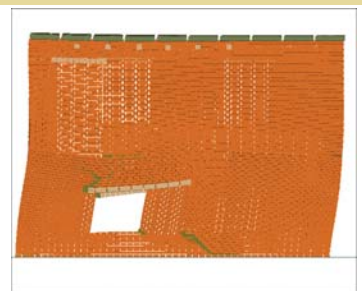
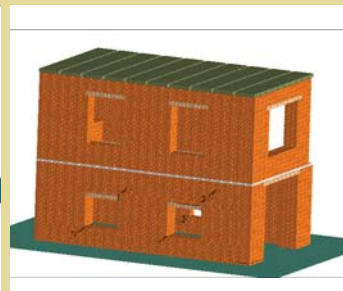
The first "Pull-Down Test" of an existing non-retrofitted building was conducted on 15 October in Kathmandu, Nepal. In this test, a 40-year-old building was pulled on until it fell. Many participants from the GoN, UN, ERRP, INGOs, NGOs, NSET and local communities, representatives from various media observed the experiment with strong interest. As the intensity was carefully increased, the cracks in the

wall of the house grew larger until the structure finally collapsed. This event made the participants keenly aware of how vulnerable existing buildings would be in a major earthquake.

The second "Pull- Down Test" of the retrofitted building was conducted on 2-3 November to confirm the effectiveness of the jacketing method of retrofitting as compared with non-retrofitted buildings, based on the results of the first pull-down test.

The non-retrofitted building used in the first pull down test completely collapsed at an intensity of 17 tons, of the pulldown loading as compared with the estimated 18.22 ton of the loading, whereas the retrofitted building used in the second test did not even crack when the intensity was raised to as high as 26.3 tons.

From the performed Pull Down Test it was clearly demonstrated that the earthquake resistance of a building can be strengthened by applying the proposed retrofitting method (jacketing method, steel wire mesh plus mortar coating). The capacity of the existing buildings can be increased up to desired value with proper designing with galvanised wiremesh plastering retrofit option. The cost per sqft of the plinth area comes out to around 3.92\$ which is also reasonable and less than the conventional retrofitting like steel re-bar jacketing of 50mm thick.



Crack pattern due to push over loading at the level of ground floor roof for building model with extra opening
Assumed shear strength = 5.4 t/m² (minimum)

Crack pattern due to push over loading at the level of ground floor roof for building model with extra opening
Assumed shear strength = 10.1 t/m² (average) strength.

Disaster Recovery Principles and Guidelines

Background

The processes to prepare Disaster Recovery Principles and Guidelines is now being worked on by National Society for Earthquake Technology-Nepal (NSET) under the Earthquake Risk Reduction and Recovery Preparedness (ERRRP) Programme (UNDP/ERRRP-NEP/07/010) implemented by Government of Nepal, Ministry of Physical Planning and Works (MPPW) and UNDP Nepal.

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 the calamity. Therefore development of a disaster recovery plan is a must. There should be well planned processes, emergency response mechanisms to normalize the living conditions. Let's wish there may never come a time when the plan must be implemented, however, it is always best to prepare for any circumstance. 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. The EMA Manual (Emergency Management Australia, 1996) stated that one of the positive aspects of the disaster recovery process is considered to be "the potential for individuals and communities to improve on their situation before the event, rather than merely restoring things to the way they had been previously."

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 can save more lives and reduce the impact of disasters. Hence, the importance of emergency and recovery preparedness planning is significant. A successful disaster recovery plan is a living entity. It is carefully planned and constantly

updated to ensure that if the need arises to use the plan, it will continue to be valid.

Objectives

- To develop basic principles of recovery for major disasters i.e. earthquake,
- To develop strategy for recovery preparedness planning for Kathmandu valley
- To develop process and methodology for immediate, medium-term and long-term response, relief and recovery, and
- To develop guidelines for recovery based on recovery principles and strategies.

Activities/Methodology

- Collection and review of existing materials on disaster recovery principles, strategies and practices
- Field visit and interaction with stakeholders
- Development of framework for earthquake emergency response
- Development of outline of principles, approaches and strategies for recovery process for major disasters
- Presentation of outlines to ERRRPP/UNDP and get feedback
- Development of detail concepts and guidelines for recovery preparedness
- Presentation of detail concepts and guidelines to ERRRPP/UNDP and get feedback
- Preparation of final recovery principles and guidelines
- Final workshop
- Report submission

Activities Completed so Far

1. Series of interaction meetings with ERRRP Project team have been conducted
2. The lessons learned from some of the major disasters in the country and abroad are reviewed e.g.
 - Koshi Flood, 18 August 2008
 - Jajarkot Diarrhea Outbreak, May 2009
 - Myanglung Fire, 7 December 2002
 - Gulf Coast hurricanes Katrina and Rita, September 2005
 - Mount Pinatubo Eruption in June 1991
 - Gujarat Earthquake, 2001
 - Orissa Super Cyclone, October 1999
 - Pakistan Earthquake 2005
 - Sichuan Earthquake, 2008
 - The Haiti Earthquake, 2010

3. Consultation Meetings and field visit
Field visits and consultation meetings to buy in suggestions/ recommendations and experiences from two representative cities from eastern and western Nepal were conducted respectively in Biratnagar Sub-metropolitan City and Pokhara Sub-metropolitan City during April 2010. The meetings were conducted with key stakeholders i.e. professionals from District Development and municipal offices, line agencies, Red Cross district offices, police, local NGOs and CBOs. The disaster hit areas in the vicinity of the municipalities and districts were also visited to understand the real situations of recovery in such disaster affected areas. Checklists and structured questionnaires were used during the meetings and consultations to capture the feedback and inputs more systematically.
4. Other literatures relevant to current project are explored and reviewed, specially the documents related to post disaster minimum response-relief-recovery standards, guidelines and principles. E.g. sphere hand book, UN documents and other case studies around the world.
5. Based on the lessons from past disasters in the country and abroad; and considering present/local context some major activities are recommended to be implemented in different phases.
6. A consolidated final draft report has been already submitted to ERRRP.

Activities to be Completed

1. Conduction of at least two consultation workshops
2. Conduction of Final sharing workshop
3. Submission of final report

NSET is working to complete the project activities by the end of June 2010.

Preparing Framework of National Emergency Response System for Nepal

Background:

Nepal has witnessed accumulation of vast experiences and knowledge on disaster risk management since the promulgation of Natural Calamity Relief Act 1982. It has suffered and managed significantly large disaster events during this period specifically the 1988 earthquake of Eastern Nepal, the 1993 flood of South-Central Nepal and 2008 Koshi flood. The responses during the entire major and moderate to

minor disasters have helped in enhancing the understanding and capabilities for disaster risk management. Several institutions have emerged during the period and are continuously working in various aspects of disaster risk management creating very good cases, templates and replicable models. However, all such efforts, activities and capacities are still to be put into a comprehensive national framework to achieve maximum output and significantly lower the disaster risks of the country.

The National Strategy for Disaster Risk Management in Nepal (NSDRM-N) has given a thorough review on the current activities and capacities and has provided a number of recommendations to improve disaster risk management in the country. The need for developing a comprehensive emergency response system is one of the major recommended strategic activities in the NSDRM-N and therefore a National Workshop for Preparing Framework of National Emergency Response System for Nepal was organised jointly by Ministry of Home Affairs, GoN and National Society for Earthquake Technology - Nepal (NSET) in association with Asian Disaster Reduction and Response Network (ADRRN); and with financial support from Australian Government, AusAID during 14 - 15 March 2010 in Kathmandu. The participants of the workshop included Members of Constituent Assembly and representatives from Government Ministries and Departments, Nepal Army, Nepal Police, Armed Police Forces; Associations of Local Authorities; Municipalities within Kathmandu Valley; Academic Institutions; UN agencies; Donor Agencies; NGOs and INGOs and Red Cross Movement. Altogether there were 48 participants.



Objectives: The main objectives of the proposed workshop were to help develop an outline of the emergency response framework for Nepal.

Following specific objectives were envisioned while developing the outline:

- Review existing condition of emergency response system and capacities.
- Revisit the lessons learned during major disaster events such as 1988 earthquake, 1993 flood, and 2008 Koshi flood.
- Review international practices of emergency response system specifically of the countries similar to the context of Nepal such as Bangladesh, India, and Philippines etc.

Expected outputs: The national workshop intended to produce following concrete outputs.

- Critical issues related to Framework of National Emergency Response System and thematic areas identified.
- Major actions to address the thematic issues identified and Institutions to take lead and support in materialising these actions identified.

Workshop Methodology and Agenda:

The workshop was conducted in a participatory manner by using appropriate participatory tools and methods. Each participant irrespective of his/her status and nature of work were provided opportunities to express their ideas freely and frankly. Participants were requested to write their ideas on the cards, which were flagged and analysed further. The use of visualisation method helped to record ideas from all the participants. Especially the visualisation method put those participants who are shy to speak in a comfortable position to express

their ideas which otherwise might have been lost. Small group discussions were organized to provide opportunities for every participant to contribute effectively and to get concrete results. All group works were presented in the plenary and consolidated after discussion as deemed necessary.

Programme of the Workshop

The workshop lasted for one and half day and had six sessions of approximately one and half hour each with a break in-between. The workshop started with a brief informal opening. During the informal opening Assistant Resident Representative of UNDP Mr Vijaya Singh and Under Secretary of MOHA Mr Thir Bahadur GC gave brief account of their initiatives and highlighted on the importance Framework of National Emergency Response System in Nepal. Executive Director of NSET highlighted on objectives and expectations from the workshop.

The informal opening session was followed by technical sessions. The first session was devoted to three presentations followed by discussions. Presentations were made on (a) lessons of responses during recent disaster by Mr Ram Luintel from UN-OCHA and Mr Thir Bahadur GC from MOHA (b) Epidemics of Mid-Western Nepal by Mr Rakesh Thakur from Department of Health (c) AIN: lessons of Emergency Preparedness and Response by Shyam Sundar Gewali from AAN and (d) emergency response system specifically of the countries similar to the context of Nepal such as Bangladesh, India, and Philippines including US by Mr Surya Narayan Shrestha from NSET. The second session was dedicated to the identification of critical issues related to National Emergency response system and clustering of issues. The issues were clustered into seven thematic areas such as Information, Communication and Coordination, Search, Rescue, Evacuation at National and Local Levels, Damage Control, Damage and Needs Assessment, Food and non-food relief including shelter, Recovery, Reconstruction and Rehabilitation and capacity building. The third session (on the second day) was focused on group work to suggest (a) actions to address the issues (b) proposed main lead institutions to implement the actions (c) supporting institutions and (d) Sources of resources. Four random groups were formed and groups were assigned to work on two themes each. It is interesting to note that six Constituent Assembly members divided themselves into these four working groups and fully participated in the workshop. In addition six of them sat together and came out with commitments from their side as CA members. The fifth and the last technical session of the workshop was organised in a plenary. Each working group presented their findings to the rest of the participants in the plenary followed by



discussion after each presentation. The workshop was wrapped up with an informal closing session.

Program Outcomes

The following existing gaps, problems and challenges have been identified during the workshop discussions.

- Emergency response planning and capability enhancement not institutionalized at the centre, district or community levels; response capacity exists only at the central level and it may be considered adequate for smaller disasters, but not adequate for medium or large disasters.
- There is a lack of fully equipped emergency operation centers at the central and district levels.
- Emergency preparedness or response plan exists for limited number of lifelines and critical facilities only; none of the ministries, departments and industrial establishments has adequate emergency response and business continuity plans.
- The Fire Brigade is not a unified institution and the coordination is ad-hoc.
- There is a lack of agreed upon standards for emergency response: even the existing Norms for Relief are not widely known to people because of the lack of proper mechanisms.
- There is no system for the enrolment and sustained operation of volunteers programs. Community as the first responder is usually not recognized and not assisted by any nationally organized program so far.
- No system for periodic assessment/ updating of and monitoring of disaster response capability made. Disaster drills have taken place few and far in between.

All the set objectives were achieved satisfactorily. For example participants got the opportunity to review existing condition of emergency response system and capacities, revisited the lessons learned during major disaster events such as 1988 earthquake, 1993 flood, 2008 Koshi flood and Review international practices of emergency response system specifically of the countries similar to the context of Nepal such as Bangladesh, India, and Philippines including US etc.

Most of the expected outputs were achieved. For example critical issues were identified and clustered into thematic areas and for each thematic area actions were suggested. Thematic areas suggested to be included in the Framework of National Emergency Response System include (a) Information, communication and Coordination (b) Search, Rescue and Evacuation (c) Damage control (d) Damage and needs assessment (e) Relief (food and non-food) (f)

Recovery, reconstruction, rehabilitation and Capacity Building. See Annex for detail outputs

In general, it can be reiterated that there is no properly functioning comprehensive emergency response system in the country. In most of the disaster situations, the actual response being done by Nepal Army, Nepal Police, Armed Police Force, Nepal Red Cross, NGOs, INGOs, UN System and donor agencies, but not necessarily in a collaborative and coordinated manner. Hence, there is a need of developing such a system and framework

Commitments from Constituent Assembly members: During the second day of the workshop, CA members discussed among themselves and came out with following resolutions in relation to the Disaster Response.

- Initiate to make constitutional provisions to manage resources and delegate authority up to the local level
- Initiate to formulate long term Policy
- Constituent assembly to respond in any disaster and force government to engage actively to respond
- Prepare to identify problems and resolve them
- Discuss with various subject matter specialists



Advocacy and Lobbying

NSET lobbying to ensure safety from disaster in new constitution

Realizing the seriousness of recurring and potential threats of disasters that Nepalese communities are very much exposed to, National Society for Earthquake Technology – Nepal (NSET) in 2009 geared up an initiative to lobbying for constitutional guarantee on people's right to safety from disasters as a fundamental right. This is a momentous segment in the socio-political history of Nepal that whole the nation is engaged in the process of making new constitution for Federal Democratic Republic of Nepal. Mainstreaming issues and concerns of almost all the communities particularly many of deprived communities never addressed before together-with values & systems advanced from years-and-years long experiences gained nationally and internationally have remained at the core of constitutional & political discourse at the moment.

Nepal is a hotspot for geophysical and climatic hazards. The country is relatively ranked very high in terms of vulnerability to natural calamities as well as human-induced disasters. The risk is believed to be increasing very rapidly mainly due to the growth in population, especially in urban and urbanizing areas. Another major factor for the increasing risk is the lack of a favorable policy and legal environment commensurate with the present-day situation, needs, opportunities and resource availability.

Disaster is one of the single largest disciplines that hold significant share of national economy and substantial role in livelihoods & socio-economic sustenance of people in different communities. It is hence a creditable address to disaster concerns has grown up as an unavoidable need in these days. NSET, palpating this beat, studied and prepared a concept note on "Proposed Provisions on Disaster to include in New Constitution of Nepal" and submitted to and interacted with high authorities of policy making and constitution making processes. The document suggests disaster concerns to integrate in sections of Fundamental Rights and Directive Principles of State in new constitution of Nepal. NSET delegates comprised of senior officials visited Chief Whips of major parties, influential CA members from different political parties and members of thematic committees specifically on constitutional committee, committee on fundamental rights & directive principles, and Committee on Natural Resources, Financial Rights and Revenue Sharing and also to many of senior leaders of different political parties. Proposed draft was also discussed and handed over to different stakeholders including UN-

OCHA and UNDP offices in Nepal.

Universal Declaration of Human Rights (UDHR)-1948 on Article 3 speaks "Everyone has the right to life, liberty and security of person" and it has established person's right to safe life as fundamental right. In our context also, Interim Constitution of Nepal -2063 (2007) in PART 3 under Fundamental Rights on Article 12 Right to Freedom, Sub-Article (1) guarantees "Every person shall have the right to live with dignity,....." and on Article 16 Right Regarding Environment and Health Sub-Article (1) guarantees "Every person shall have the right to live in clean environment." Adding few progressive steps to that, the concept paper has proposed following provisions to include in new constitution:

Part - - : Fundamental Rights

Article - - : Right to Protection from natural and human-made Disasters

1. Every person has the right to protection from natural and human-made disasters.
2. Every citizen and community shall have right to resilience from hazards related vulnerabilities as provided for in the law.
3. Every disaster affected person and community shall have right to equal access to rescue, response and rehabilitation as provided for in the law.

Part - - : Directive Principles and Policies of State

Article - - : State Policies

The state shall make necessary arrangements for natural and human-made disaster risk reductions. The existing legal document which is The Natural Calamity (Relief) Act 2039 (1982) was very progressive when promulgated, however, amended twice, it has failed to internalize the concept of development and paradigm shift in disaster risk management from a reactive intervention in the form of relief to a proactive approach of mitigation. The Act does not have any instrument to correspond to the current concept of mainstreaming disaster risk management to the efforts of national development. One major step towards addressing disaster issues more in comprehensive ways has been made last year. National Strategy for Disaster Risk Management in Nepal (NSDRMN) has been promulgated by Government of Nepal in October 2009. The National Strategy for Disaster Risk Management in Nepal (NSDRMN) endeavors to facilitate the required change in order to achieve the goal of disaster resilient Nepal by providing guidance for improving the policy and legal environment, and by prioritizing the strategic interventions. NSDRMN asks for series of systems and institutional setups to working effectively on Disaster Risk Management in Nepal.

Now the processes on revisiting legal status are on and constitutional provision on safety from disaster would add up new values and commitment toward making disaster resilient communities in Nepal.

Interaction with CA Members on DRR

NSET Deputy Director Mr. Surya Narayan Shrestha made keynote presentations on Disaster Risk Reduction in series of Interaction Programs with Constituent Assembly (CA) Members on 24th Feb, 7th April and 29th April 2010 in Kathmandu. The program was organized jointly by Humanitarian Aid Department of European Commission, Australian Government-AusAID, ActionAid and Co-Action Nepal in association with Oxfam, DPNet-Nepal and Eco-Nepal with the view to inform and sensitize the Constituent Assembly members on disasters, risks and need for increasing attention and framework to address disaster risks. Such an initiative has been believed to produce and propagate substantial dynamism in accelerating nation level policy formulation processes and developing effective plans and programs at various levels. Participating CA



Members were found highly concerned over issues of disaster risks and their management. CA members were availed with Disaster Risk Reduction Tool Kit, a brief but comprehensive publication material on Disaster situations and priorities in Nepal which is a professionally designed information pack on disaster risk reduction, specially designed to inform constituent assembly members on DRR, sensitize the policy makers on disaster issues and solicit their informed involvement and leadership to strengthen DRR framework in Nepal. The Tool Kit comprises of overview of disasters in Nepal, NSDRM, existing legislation on disaster management, HFA, need for strengthening DRR framework through an inclusive approach addressing special needs of differentially vulnerable people, disaster map of Nepal, disaster



fact sheet and proposed flood early warning strategy as a key DRR measure for Nepal. This compilation has been produced by key DRR stakeholders including Ministry of Home Affairs, partners of the DIPECHO program under European Commission Humanitarian Aid Department, United Nations Development Program in Nepal, Oxfam GB, Association of International NGOs, DPNet, Nepal Red Cross and NSET.

Strengthening the Quality, Reliability and Sustainability of National and Regional Disaster Databases in Nepal

Background

Disaster Information/Inventory Management System (DIMS), a systematic historical disaster data recording, is managed by NSET with the initial support of Bureau for Crisis Prevention and Recovery (BCPR) of the United Nations Development Program (UNDP). NSET is a non-governmental organization (NGO) which collaborates with the Government of Nepal, (I)NGOs and UN institutions in order to prevent and reduce the impact of earthquake disasters in Nepal.

The database has been developed in 2003, based on the DesInventar methodology developed by Latin American Network of Social Studies on Disaster Prevention (LARED), with the support of UNDP/BCPR. The main purpose of the database is to establish a comprehensive and consistent data inventory system of disasters in Nepal. The system is being developed to support the Government of Nepal and aims at serving different levels of Government authorities for decision making, as well as (I)NGOs for project implementation, and for awareness raising of the general public.

In July 2010, a Memorandum of Agreement (MOA) has been made between Centre for Research on the Epidemiology of Disasters (CRED), Belgium and National Society for Earthquake Technology-Nepal (NSET) with the view to exchange supports to maintain DesInventar database, develop proposals of mutual interest, and for future joint epidemiological analyses related to health and natural disasters within the country.

Methodology

The database has no impact thresholds for entering disasters in the database, the so-called 'entry criteria'. All disasters that are reported by the data sources and included in the list of 28 disaster types, as decided by the major national stakeholders' meeting, covered by the database are included. Traffic accidents are only included if they were secondary to a disaster. A hierarchical disaster classification exists, classifying the 28 disaster types into 5 groups. However, disaster are entered in the database by disaster type and thus at an equal level. Primary disasters and triggered secondary disasters are recognized in the database, through the data fields 'causes' and 'cause description'. These data fields are used to describe causes of a disaster, triggered events, and in some cases characteristics of the disaster.

Accuracy and reliability

In general, the accuracy and reliability of data is strongly linked to the accuracy and reliability of the data sources. Data sources used by NSET usually report the main information needed for the database, and cover disaster affected areas in the whole country. The newspapers provide rather straightforward information, however the definition of 'affected' people remains variable or unclear.

Serviceability

Users of the database can access data and analytical reports through the website, and reports are furthermore distributed in paper format. Data can be aggregated or disaggregate using the web interface according to the user's convenience, however aggregated data at the country level can in some cases be biased and therefore have to be interpreted with caution. Based on the data, tables, charts and maps can be produced. No further information is available to facilitate the interpretation of these outputs. Data are made available to the public on a yearly basis. Guidelines for users of the database are available on the internet. The user profile is not being monitored.

In terms of interoperability between other databases, DIMS is one of the disaster databases using the DesInventar methodology, sharing the goal of

building the capacity to analyze and represent hazards, vulnerabilities, and risks in terms of space and time, both retrospectively and prospectively. The purpose of this capacity is its application in risk management, whose activities go from mitigation to post-disaster attention and recovery.

Accessibility

Access to the database is free of charge. Users do not have to register and the database is fully accessible for the time-span 1971-2007. Data from 2007 onwards are stored in the database but currently not publicly accessible. Non-published data are available upon request. Contact details of the database manager are available on the website only through a general email address.

Credibility

The NSET website provides information on the institute. General information on database goals and objectives, methodology, classifications, and definitions, are available on the DesInventar website. Data sources used for the database, applied analytical procedures, and changes in policies and practices concerning the database are mentioned in reports. Data products are clearly identified by an institute reference. NSET disseminates its expertise through the development of reports (e.g. the Global Assessment Report on Poverty and Disaster Risk 2009, Global Assessment of Risk, Nepal Country Report, in collaboration with ISDR and as a part of many other projects), conference papers and training manuals. Furthermore, information from the database is cited in the media. In order to increase, staff attends database-related conferences whenever possible. Reports are not submitted to peer-reviewed journals. NSET management is supportive of data quality improvement efforts. The database is not directly used for resource allocations.

Prerequisites and sustainability

As an NGO, NSET holds an authentic initiative in Nepal, which is seen as the reference public database in the country. The database can be maintained independent from its institutional framework, however only in its basic functions such as collecting, inserting and storing disaster data. Development of outputs and analytical reviews are not covered. Currently, no collaborations with other institutes exist regarding the database. NSET would like to develop collaborations, with mutual benefits, for improving the database in favour of NSET and the country. Long-term objectives of the database are to develop and institutionalize a disaster inventory system from the local level up to the national level for disaster risk reduction and sustainable development in Nepal.



Various Activities of the Year

Earthquake Safety Day 2010

Background information

Commemorating the most devastating tremor that quaked on 15th of January 1934 (i.e. 2nd Magh 1990 as per Bikram Sambat calendar) in Nepal-Bihar region, Earthquake Safety Day is celebrated annually in Nepal nationwide with series of gala events during January 15-16 and around. Government of Nepal had decided in 1999 to observe this day annually with the view to enhance earthquake safety in Nepali communities through various awareness raising programs on earthquake hazard, risk, and risk reduction measures including preparedness, and also to strengthen policy instruments to cope with potential threats.

Nepal being located astride the Tibetan and Indian Tectonic plate boundary has been subjected to many devastating earthquakes since the Indian Plate started subducting into the Tibetan Plate. The history reveals that there have been ten large earthquakes in Nepal since 1255 and the latest one quaked in the year 1934 is of magnitude 8.4 in the Richter Scale that killed more than 15,000 persons in Nepal and India. 4,296 persons died in Kathmandu Valley alone and the total death due to this tremor within Nepal was 8519. Another small earthquakes of the year 1980 with magnitude 6.1 Richter Scale in Bajhang, western Nepal which killed 178 persons and yet another moderate earthquake of 6.7 Richter Scale triggered in Murkuchche, Udaypur district of eastern Nepal which killed 721 persons in 1988 alarmed Nepali professionals to work on earthquake safety more with systematic approaches. One such commitment was the inception of National Society for Earthquake Technology-Nepal (NSET) some 17 years back. NSET was conceptualized with the vision to make "Earthquake Safer Communities in Nepal by 2020". Substantial amount of efforts have been paid on and impactful initiatives have been carried on towards enhancing earthquake safety in Nepal, but there is

still massive need to accelerate activism and make a quantum jump in terms of quantity, quality and geographical coverage. Earthquake Safety Day celebration is such an event accounted for reclaiming historical devastations due to earthquakes, revisiting year-long efforts to earthquake risk reduction & preparedness and gearing further develop plan, programs and strategies to cope with potential threat.

Objectives

The general objective of this event is to create nationwide awareness on earthquake Hazard, Risk, and Risk Reduction measures including Preparedness. The followings are the 3 specific objectives set for the 12th Earthquake Safety Day celebration.

- Revisiting year-long efforts on earthquake risk reduction and preparedness and sharing of experiences among stakeholders to join hands in improving seismic safety in Nepal.
- Raise public awareness on earthquake risk & available risk reduction measures and preparedness programs.
- Support strengthening policy level commitments and instruments to address earthquake risk and mainstreaming disaster issue in Development Process

Activities

Earthquake Memorial Meeting, Earthquake Safety Day National Meeting, Earthquake Awareness Rally, Franking the Commemorative Envelope to mark the Earthquake Safety Day, Radio Message from Home Minister, Earthquake Safety Exhibition; Full Scale Model Demonstration of Eq. Res. Components in a Building, First Aid Demonstration, Shake Table Demonstration, National Symposium on "Experiences on Disaster Risk Reduction", Earthquake Safety Walkathon, Eloquence contest among school children, Interaction Program on Radios and Televisions, Masons Training on Earthquake Resistant Building Construction, Earthquake Safe School

Building Handover Program, District Level ESD Programs by DDRC at all 75 Districts; ESD Programs at 25 Division Offices of DUDBC, Municipality Level ESD Programs by 58 Municipalities, Sensitization Workshops, Nationwide "Duck, Cover and Hold" Exercise, National Program on Human Chain to show commitment on Earthquake Preparedness, Street Drama and etc.

Earthquake Safety Day 2010 : the 12th edition celebrated amid series of gala events nationwide

Earthquake Safety Day 2010 has been celebrated nationwide with series of gala events during January 16, 2010 and around. 12th Earthquake Safety Day National Committee executed all the set programs fully in coordination with different government/non-government, UN and International agencies, academia and many more community institutions. The main slogan for this year's celebration spells:

**"Enhance Community Safety; Reduce Earthquake Risks
Construct Safe Schools, Hospitals and the Settlements"**

12th ESD National Meeting: On 16th January 2010, Rt. Honorable Prime Minister Mr. Madhav Kumar Nepal inaugurated National Meeting of 12th Earthquake Safety Day 2010 amongst the large public gathering at Lalit Mandap, Jawalakhel. In his noteworthy address, Prime Minister Mr. Nepal stressed the need of and asserted the commitments from the side of Nepal Government to enhancing institutional capacities, strengthening relevant policy instruments and promoting collaborative efforts to achieve the desired level of safety. Prime Minister Nepal highlighted the vulnerabilities of Nepal to disaster and noted the recent quake in Haiti. On the

occasion, Prime Minister also franked the Commemorative Envelope to mark the 12th Earthquake Safety Day 2010 and unveiled the National Disaster Report 2009.

From the chair, Honorable Home Minister and Chairperson of Earthquake Safety Day National Committee Mr. Bhim Bahadur Rawal highlighted the government initiatives to Disaster Risk Reduction and also for earthquake safety despite number of adversities and prevailing political transition in the country. Dr. Govinda Kusum, Secretary, Ministry of Home Affairs shared about the recent promulgation of National Strategy for Disaster Risk Reduction and also on the process of Act formulation in this regard. Mr. Robert Piper, UN Resident & Humanitarian Coordinator urged to act on earthquake safety before it is too late. He urged- "Mr. Prime Minister, the safety of your citizens is profoundly important."

Mr. Amod Mani Dixit, Executive Director of NSET and Member Secretary of Earthquake Safety Day National Committee pointed out the acute risks prevailing naturally in this geography and hinted his confidence to enhance coping capacity of Nepalese communities which is possible but only with coordinated and collaborative efforts. Initially, Mr. Arjun Kumar Thapa, Chief and Executive Officer, Lalitpur Sub-Metropolitan City had put his cordial welcome note while in the later part Dr. Mahendra Subba, Deputy Director General, DUDBC put vote of thanks. Mr. Ramesh Chand Thakuri, Chief of Nepal Police; Mr. Sanat Kumar Basnet, Chief of Armed Police Force, Mr. Shankar Prasad Koirala, Joint Secretary, Ministry of Home Affairs; Mr. Ratna Raj Pandey, Chief District Officer, Lalitpur were among other distinguished guests.

This year's national mass meeting was locally hosted by Lalitpur Sub-Metropolitan City. The mass had got converged through Earthquake Awareness Rally that walked along inner cities of Patan region. Mass meeting was with the participation of high level government officials, UN agencies, donor agencies, national/international NGOs, academic institutions and the public as well as community organizations.



Earthquake Memorial Meeting 2010: In honor of those deceased ones by the largest ever earthquake in the Nepalese history of the year 1934 and in all the past earthquakes, Earthquake Memorial Meeting was held at the historical place of Bhugol Park, New Road, Kathmandu in the morning at 8:30 on the day of January 16, 2010. Honorable Minister Mr. Bhim Bahadur Rawal, MOHA, Mr. Shankar Prasad Koirala, MOHA; Mr. Ganesh Rai, KMC; Mr. Arjun Kumar Thapa, LSMC; Mr. Amod Mani Dixit, NSET; and government officials & security staffs, disaster risk reduction professionals & activists; and community people paid tribute with one minute silence and national anthem followed by offering bouquets on Earthquake Monument.

Earthquake safety Rally: As a part of 12th Earthquake Safety Day celebration, Earthquake Safety Rally was organized in Lalitpur. The rally was inaugurated by Honorable Minister for Home Affairs Mr. Bhim Bahadur Rawal at the premises of Lalitpur Sub-Metropolitan City, Pulchowk, Lalitpur. The rally was initiated with an Elephant at front carrying model of earthquake resistant building and decorated with earthquake safety awareness messages. The huge procession started from LSMC premises passed through Patan Dhoka, Nakabahal, Patan Durbar Square, Mangal Bazar, Lagankhel, Kumaripati and converged into the National Meeting at Lalit Mandap in Jawalakhel. On its way, the rally had paid tributes to Earthquake Monument at Mangalbazar, Lalitpur.



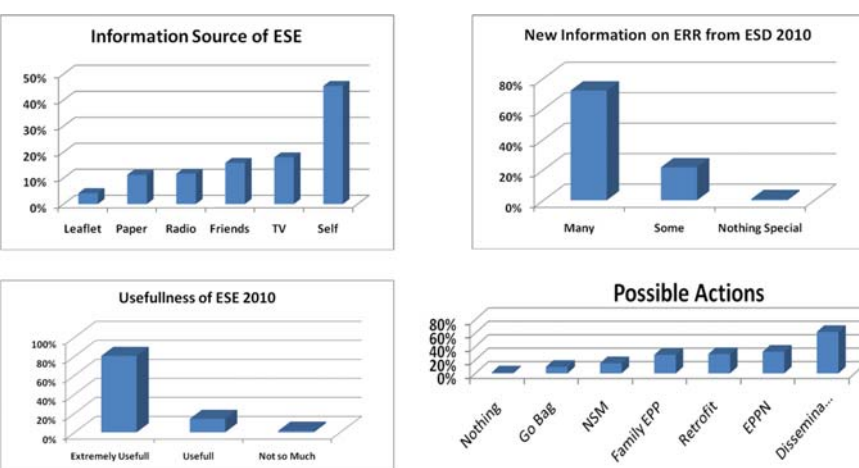
Earthquake Safety Exhibition: Rt. Honorable Prime Minister Madhav Kumar Nepal inaugurated Earthquake Safety Exhibition 2010 at Jawalakhel on 16th January 2010. The exhibition was managed for the duration of Jan 16-19, 2010. Nearly two dozen agencies participated to display and expose their institutional initiatives & practices on DRR. The event was basically with the view to demonstrating earthquake safer construction technologies, knowledge & skills required for earthquake safety, and initiatives for earthquake risk reduction by different agencies.

Real size model of building construction was an instrumental for transferring knowledge of earthquake resistant building construction amongst key actors of that job area. Number of engineering students & professionals, community people, DRR practitioners, academicians, university students, house-owners, and different people from various clusters visited the exhibition with keen interest. Yet another attraction of exhibition was Shake Table Demonstration. This is a test with 1:10 scale building models with and without earthquake-resistant elements showing how buildings damage during earthquakes. It was performed on Jan 18 at 1:30 pm which was live telecasted by Sagarmatha Television, Kathmandu. Demonstration of fire drills, search and rescue etc. were other attractions of the Earthquake Safety Exhibition.



It is estimated that around 8000 persons visited the four day long Earthquake Safety Exhibition. All the visitors were requested to fill up a survey/feedback form about their perception on the exhibition. The following four simple questions were included in the survey form to get the peoples' perception.

- How did you know that this Exhibition is being organized?
- Did you find anything new on Earthquake Risk Reduction from this Exhibition?
- How useful did you find this Exhibition?
- After visiting this exhibition what do you think you can do to enhance your seismic safety?



The response of the visitors to these questions follows: Earthquake Safety Walkathon: As a concluding event for all the official celebrations of Earthquake Safety Day 2010, Earthquake Safety Walkathon was organized in Kathmandu on 23rd January. The program was inaugurated by Home Minister Mr. Bhim Bahadur Rawal at historical place of Bhugol Park, New Road Kathmandu with flagging off and handing Earthquake Safety Flag to Veteran Athlete Mr. Baikuntha Manandhar who then led Earthquake Safety Walkathon onward. More than 500 eager participants from government and non government agencies, security institutions, veteran players and people from different clusters of Nepali communities walked along 4 Km track. Attractive Prize of participation was awarded to 10 Lucky Participants. Also 5 Lucky winners among from Earthquake Safety Exhibition visitors who had filled up feedback form were awarded on the occasion.

National Symposium on “Experiences in Disaster Risk Reduction and Response”: As a part of Earthquake Safety Day 2010 celebration, a two day National Symposium on “Experiences in Disaster Risk Reduction and Response” was held at Yak Palace in Pulchowk, Lalitpur during 13-14 January 2010.

Dr. Yubaraj Khatiwada, then Vice Chair, National Planning Commission in his inaugural speech stressed on the need of developing risk reduction technologies affordable, appropriate and sustainable. In the inaugural session chaired by Mr. Ashok Nath Uprety, DUDBC; keynote speakers Mr. Thir Bahadur G.C., MOHA; Mr. Yuri Chakalall, UNDP and Mr. Luc Verna, European Commission had made their invaluable remarks. In the beginning, Mr. Amod Mani Dixit, Executive Director, NSET had highlighted the objectives of the symposium. Altogether 23 experts from various organizations through their presentations shared the experiences, exchanged “good practices” and raised the key issues of DRR in Nepal in the following 6 thematic areas related to disaster risk reduction and response.

- Session A:** Experiences and Lessons of Emergency Response during Recent Disaster Events in Nepal
- Session B:** Achievements in Earthquake/Disaster Risk Reduction, Preparedness and Response
- Session C:** Mainstreaming Disaster Risk Reduction in Nepal
- Session D:** Earthquake / Disaster Safety of Schools in Nepal
- Session E:** Mainstreaming Disability Considerations into Disaster Risk Management
- Session F:** Climate Change Adaptation (CCA) in the Context of Disaster Risk Reduction

The program was jointly organized by Department of Urban Development and Building Construction (DUDBC), United Nations Development Program (UNDP), UN Office for the Coordination of Humanitarian Affairs (OCHA), Lalitpur Sub-Metropolitan City (LSMC) and National Society for Earthquake Technology-Nepal (NSET) in association with Center for Energy Studies (CES) Institute of Engineering; Disaster Preparedness Network – Nepal (DPNet); Action Aid; Handicap International, and National Federation of the Disabled Nepal (NFDN).





"Issue of Safer Inhabitation and Rational Implementation of NBC in Nepalese Cities" Hetauda Municipality, National Drill on "Duck, Cover and Hold"; National Program on Human Chain to show commitment on Earthquake Preparedness, street drama and many others.

Program output

- A wide national and international participation of professionals and institutions in the ESD program
- Increased number of well informed and aware communities



Other key activities: Radio Message from the Honorable Home Minister on ESD, Eloquence contest on "Role of Students in Earthquake Preparedness", Interaction Program on Radios and Televisions, Masons Training on Earthquake Resistant Building Construction, Earthquake Safe School Building Handover Program; District Level ESD Programs by DDRC at all 75 Districts; ESD Programs at 25 Division

Offices of DUDBC, Municipality Level ESD Programs by 58 Municipalities, Sensitization Workshop on



Students' Summit 2009 on Earthquake Safety 2009

Background

The history of organizing "Students' Summit" in Nepal annually dates back to the year 2005 when Nepali students participated in Natural disaster Youth Summit in Japan. The idea was then first conceptualized and initiated in the same year. Adding values to the ongoing event then, NSET in collaboration with Government of Nepal, Ministry of Education and Sports, UNICEF, ActionAid, JICA, Save the Children Alliance, USAID and other partner Organizations successfully organized "3rd Students Summit on Earthquake Safety " in 2008 and 4th in 2009 in the month of August. The participants of these summits were students and teachers from different districts of Nepal, Maiko High School Kobe, Japan, Support for International Disaster Education (SIDE) Kobe, Japan and Osaka University, Japan.

The Students' Summit is hence organized by NSET in coordination with government and other partner organizations. The summit takes place in a very healthy and peaceful environment where students are much more encouraged to interact, share and learn from the co-participants. At the end of the summit, participating students come up with "Students' Summit Declaration" incorporating recommendations and findings of the summit sessions. The program becomes fully residential where the participants are provided accommodation, food and recreation facilities. However few non residential participants from the locality also join the event. The participating schools of Nepal are those which are running Earthquake/Disaster Safety Programs, having Eco Clubs, Earthquake/ Disaster Safety Clubs and/or program schools of organizing partners. Past participants have been remained only from Nepal and Japan. Now the attempts are on to add up broader coverage. For this, participation also from countries in the region like India, Bangladesh, Pakistan, Sri Lanka, Bhutan and also from other earthquake/disaster prone countries is expected.

Objectives

- To raise awareness and sensitize students from different schools of Nepal, Japan and other participating countries on earthquake safety;
- To promote inter-school exchange of knowledge, ideas and experiences on earthquake safety amongst students and teachers from Nepal, Japan and other participating countries;
- To impart knowledge and skills to students for earthquake preparedness and emergency plans;
- To consolidate the voice and aspirations of students from different corners for the cause of safer schools and community;

- To build public commitment of government agencies and various stakeholders on school safety;
- To establish conducive networks of students from different parts and countries for exchanging their views and information on earthquake safety

Proposed Activities

The summit programs are precisely designed incorporating fundamentals and different dimensions of learning and knowledge sharing on school earthquake safety. Various activities include:

- Earthquake Awareness/ Safety Rally,
- Workshop Sessions,
- Simulation Exercise,
- Safety Demonstration,
- Demonstration Of Students' Past Works At Their Schools,
- Earthquake Safety Cultural Programs & Games
- Case study Visits

Expected Outcomes

- Approximately 150 Students/ teachers share the School safety activities being conducted in the region and learn through the best practices being implemented;
- The participants share knowledge and experience of other countries on School Safety specially Japan on earthquake risk reduction and preparedness
- The participants share inter-school knowledge and experiences;
- Participants become able to implement disaster safety activities by sharing experiences between schools of Nepal and other countries in earthquake/disaster safety measures focusing on lesson learned from past disasters and the preparedness activities;

The 2009 edition

Amid series of interactive sessions of idea sharing, brainstorm & public advocacies, Students' Summit



on Earthquake Safety 2009 has proclaimed Hetauda Resolution-2009 renewing their vigour and commitments to keep schools safe from earthquake. The residential 3-day Summit held during 3-5 August 2009 at Hetauda, Nepal drew a total of 125 participants including 66 students and 32 teachers from 30 public schools in 18 districts of Nepal, 10 participants from various disaster management committees, a delegation of 17 Japanese participants including 2 teachers and 10 students from Maiko High School of Kobe and 3 delegates from Support for International Disaster Education (SIDE) – a Japanese NGO created by previous students of Maiko High School and 2 delegates from Osaka University.

As a part of the School Earthquake Safety Program (SESP) being implemented by National Society for Earthquake Technology (NSET), the School Physical Improvement Program, being implemented by Department of Education (DOE), and as part of the Disaster Education Program of Maiko High School, Kobe, Japan; the Students' Summit for Earthquake Safety-2009 was organized jointly by the three institutions in association with ActionAid Nepal, Japan International Cooperation Agency (JICA), Save the Children Alliance Nepal, UNICEF, and USAID. The 3-day Summit program included earthquake awareness rally, lectures and discussions on various

aspects of earthquake safety, practical exercises on improving earthquake preparedness in schools, earthquake drills, physical exercises and games, and also cultural programs. During the program, the participants happily engaged in all activities. Presence of Japanese students and teachers was extremely motivating.

The main theme of this summit campaign was "Let's Keep Our Schools Safe from Earthquakes". The Summit ended with a "Hetauda Resolution 2009" in which the students, the teachers, and the activists committed to work further to

- Ensure all schools to be made earthquake safe,
- Promote inter-school and international collaboration in school earthquake safety, and
- Expand the summit outreach to other earthquake prone countries of the Asia.

Representatives of the collaborating institutions referred to the high casualty of school-going children and teachers during recent earthquakes in the region, critically evaluated the programs in Nepal, highlighted the immense potential contribution of the students in achieving earthquake safety in community by carrying the message from schools to family and ultimately to the community. A consensus opinion was the necessity of expanding the outreach of disaster safety message to all households and to all communities of Nepal. The speakers endorsed the efforts made so far in the country and tasked NSET to continue the School Earthquake Safety Program including creative advocacy at policy-makers level.

Hetauda Resolution 2009

We, the participants of the Students' Summit for Earthquake Safety, 2009, comprising 125 students and teachers from Nepal and Japan, together with our mentors from NSET, Maiko High School, SIDE, and Osaka University



Having met for 3-days under the Summit Campaign theme "Let's Keep Our Schools Safe from Earthquakes"

Having been inspired by the ongoing School Earthquake Safety Program of NSET, School Physical Improvement Program under Education for All (EFA) program of DOE, the Disaster Education Program of Maiko High School, international efforts made by the Support for International Disaster Education (SIDE), Japan, and disaster research programs of Osaka University

Having been inspired by the endorsement of the SUMMIT objectives and program by officials of Ministry of Education Nepal, Japan International Cooperation Agency (JICA), USAID, UNICEF, ActionAid Nepal, Save the Children Alliance Nepal, and Women and Children Development Forum (WCDF); and encouraged to continue our efforts

Having been encouraged by the focus on Safer Schools by several international initiatives such as Hyogo Frameworks of Action 2005-2015, the International Decade for Education for Sustainable Development, and by national disaster risk management strategies of Nepal, Japan and other countries,

Having been enthused by the build-up of friendship, mutual under-standing, and confidence on the potentials of making a difference in our countries and the region during Summit,

We the participants collectively resolve, hereby, that WE WILL:

1. Consolidate the knowledge and lessons of earthquake safety gained during the summit and contribute to disseminate that to our schools and communities,

2. Continuously learn about natural hazards and ways of achieving safety from them by formal and informal education,
3. Be actively involved in making our school buildings strong against natural hazards,
4. Assist in developing and implementing school disaster preparedness plan including evacuation drills in our schools,
5. Assist our parents, teachers, community leaders and government officials to make our schools gradually safer against natural hazards,
6. Listen to the advice of and collaborate with benevolent organizations in the implementation of school disaster reduction programs,
7. Advocate for expanding outreach of the summit to other schools of Nepal and other disaster prone countries of the region, and
8. Express our gratitude to the various organizations that supported us through this Summit.

Lessons learnt

It was the first time that this type of grand gathering of students and teachers was organized out of valley. Following lessons were recorded during the summit.

- Involve as much number of participants to encourage their initiation towards school safety activities
- Involve more and more Institutions so that school safety issues are given priority in their program planning and implementation.
- Involving local level institutions as partners in international level programs helped to convince them on the disaster safety consideration.
- The people out of valley have comparatively less opportunities on getting knowledge on disaster safety hence the activities of Students during the summit were able to sensitize local people.
- Establishing network among national and international students is essential and one institution shall be given responsibility of focal institution for disaster safety networking.
- It was noticed that Nepalese students were more proactive on learning from recent disasters hence inviting participants from the recent disaster hit countries of the region and sharing the lessons will be more fruit full.
- Although there was participation from remote areas of Nepal, it was suggested to increase the area coverage and numbers from the remote areas.
- The duration of the program was limited and time allocated for each activity was short. Hence it is recommended to increase the duration by 1 to 2 more days.
- Case study and observation visits to be included.



16th NSET Day celebrated

CELC dedicated to the Nation

On 18th June 2009, National Society for Earthquake Technology - Nepal (NSET) celebrated its 16th Anniversary in a festive event organized in its office premises at Bhainsepati Residential Area, Lalitpur. NSET was founded by a meeting of professionals on June 18, 1993 with the vision "Earthquake Safe Communities in Nepal by 2020". The meeting, convened by Amod Mani Dixit and Mahesh Nakarmi, was attended by around 15 professionals from the Ministry of Housing and Physical Planning and its departments, seismologists, university professors, civil engineers and journalists. NSET was later registered at the District Administration Office, Kathmandu on April 28, 1994 and at the Social Welfare Council on August 10, 1998.

Accompanied by a gracious presence of invitees among from NSET's partners, well wishers & community people; together-with NSET Founders, Board Members & Office Staffs, President of NSET Mr. Shiva Bahadur Pradhanang officially dedicated newly built building facilities of Community Earthquake Learning Center (CELC) to the Nation. In his historical note, Mr. Pradhanang declared CELC as an autonomous and financially self sustained public institution to operate under the management of NSET.

On the auspicious occasion, General Secretary and Executive Director of NSET Mr. Amod Mani Dixit briefed about the various features of the Center. CELC has been envisioned to serve as a Centre of Excellence in general for Disaster Risk Management and in particular for Earthquake Risk Management in Nepal. It will facilitate practical researches in specific problem areas and provide physical facilities for earthquake disaster awareness and education for specific target groups, such as children, artisans. It will have a museum for transferring the lessons learned from past earthquakes to the current and future generations. The building structure is visualized to serve as a model of earthquake resistant construction, use of various forms of alternative energy like solar/ wind energy for water heating and wind energy, back-up power for some equipment, and environment friendly and energy efficient building. Nearly 200 invitees including representatives from government offices, diplomatic missions, Academic institutions, NGOs, INGOs, CBOs, Consulting firms, Funding Agencies, and other many civic sectors observed the newly built facilities.

This year's program included the unveiling of NSET decade book 'Safer Society and Annual Report 2008'

along with June issue of NSET Newsletter. Group of senior people including NSET President Mr. Shiva B. Pradhanang, Litterateurs Mr. Shanta Das Manandhar and Mr. Dinesh Raj Pant, Journalist Mr. Shreeram Singh Basnet, Mr. Indra Bahadur Shrestha, Director General, DUDBC, Mr. Vijaya Singh, Assistant Resident Representative - UNDP, Mr. Badan Lal Nyachho, Director- Multi Disciplinary Consultants Pvt. Ltd, Mr. Ramesh K. Sharma, Former Chairman Nepal Red Cross, Mr. Prayag Raj Singh Suwal, Former Minister and member of school management committee, Vidyodaya Primary School and Mr. Keshab Man Amatya jointly released the publications. Safer Society is an aperture to peer what NSET aims to pay its efforts and has been paying since more than a decade to foster the advancement of science and practice of earthquake engineering & technology for mitigating the earthquake risk and increasing the seismic safety, to enhance professionalism, professional engineering and scientific ethics and to further the objectives of the International Association for Earthquake Engineering as applicable to Nepal. Safer Society is published as a composition of NSET journeys. Safer Society is thus a self-assessment of NSET activities or it's the way of looking-self-in-mirror so that forthcoming activities and strategies could be more accurately designed towards meeting targeted goals.

The program was followed by a Reception Party. Later in the evening, families of NSET Founders, Board members and Staffs also joined the occasion participating in the various entertaining and fun events which concluded with a family dinner program.



Knowledge sharing

NSET Deputy Executive Director ED Mr. Surya Narayan Shrestha made an extensive presentation on Global, Regional and National Initiatives on DRR in National Symposium on DRR in Nepal organized in coordination of DPNet-Nepal on occasion of celebrating ISDR Day 2009. Some of the key stakeholders in DRR in Nepal including DIPECHO partners, AIN, DPNet, NDAC, DiMAAN have decided to join hands to mark 2009 ISDR Day with series of programs during 13-14 Oct 2009. Testimonies of disaster affected people were another major component of the event. At the end, a 9-point Declaration on DRR in Nepal was formulated and announced. The declaration has been submitted to President, Government of Nepal and Legislative Parliament.

Workshop on “Modern Methods in Seismic Hazard Assessment”

The Office of Foreign Disaster Assistance (OFDA) and U.S Geological Survey (USGS) in close coordination with National society for Earthquake Technology – Nepal (NSET) organized a week long workshop on “Modern Methods in Seismic Hazard Assessment” during 8-12 June, 2009 at Club Himalaya, Nagarkot, Bhaktapur.

The workshop provided an overview of modern seismic hazard assessment, with emphasis on freely available software tools. The workshop also included a series of lectures by participants as well as workshop leaders on key issues associated with regional seismic hazard assessment techniques.

There were 13 Pakistani participants from seven different organizations and 5 Nepalese participants from 3 different organizations who were benefited from the workshop.

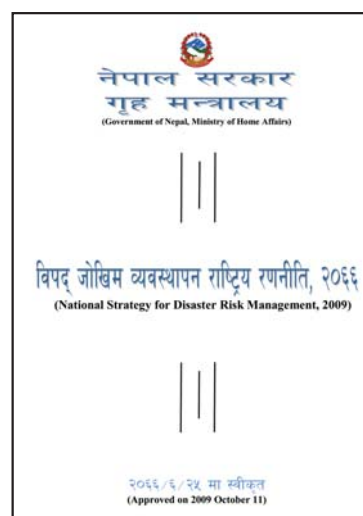
The Participating Institutions were NESPAK, Islamabad, NED University, Karachi, Berkeley



Associates, Lahore, University of Peshawar, Ishfaq Ahmad Research Laboratories, University of Balochistan, Quetta, Geological Survey of Pakistan, Institute of Engineering, Lalitpur, Nepal, Department of Mines and Geology, Nepal and National Society for Earthquake Technology (NSET) .

NSDRM Promulgated

The first National Strategy for Disaster Risk Management in Nepal (NSDRM) was approved by the cabinet on October 11, 2009. This valuable and much awaited document was prepared under leadership of Ministry of Home Affairs with financial support from European Commission's Humanitarian Aid Department & UNDP and technical support of National Society for Earthquake Technology (NSET).



The National Strategy for Disaster Risk Management (NSDRM) endeavours to facilitate the required change in order to achieve the goal of Disaster-Resilient Nepal by providing the guidance for improving the policy and legal environment and by prioritizing the strategic interventions. It suggests institutional reorganization and development, suggests strategic improvements for enhancing policy and legal environment for creating enabling conditions to encourage DRR and preparedness planning at all levels, and for ensuring disaster risk reduction strategies into national development and poverty alleviation efforts. Thus, it is a road map indicating where Nepal intends to be by 2015 in DRM area. Its not an Action Plan, but a guide for subsequent action planning for DRM in any of the development sectors by government or non-government institutions. Based on a sound analysis of the existing gaps, NSDRM aims to assist to trigger a process of change in both aspects of disaster risk management – disaster reduction and emergency response planning and capacity enhancement.

Tempest Express 17

With an aim to build capacity and improve ability of representative organizations to work together for disaster victim for more rapid and more effective response, a workshop MPAT (Multinational Planning Augmentation Team) Tempest Express – 17 (TE-17) was organized from 26 August to 4 September 2009 at Hotel Yak and Yeti, Kathmandu. NSET professionals, Mr. Ram Chandra Kandel, Director SESP, and Ms. Bhubaneswari Parajuli, Gender, Social and Env. Mgmt. Specialist participated in the Tempest-17.

The MPAT is a multinational program established in early 2000 to plan and execute coalition operations. The MPAT program includes military planners from all interested nations and also incorporates expertise from International & Non-governmental Organizations and the UN. The primary focus of MPAT is to improve multinational interoperability at the operational level of command in emergency response.

The major objectives of the workshop were to

- Support Government of Nepal (GON) efforts to develop an integrated “whole of government” approach to disaster relief planning, preparedness and response
 - Improve coordination between NA and civil agencies and amongst civil agencies involved in HA/DR
 - Support implementation of UN, National Society for Earthquake Technology-Nepal (NSET) and other organizations’ recommendations that have been accepted by the GON.
 - Support initial development of basic procedures/checklists to maximize whole of government unity of effort
- Support the development/ refinement of international, multiagency disaster management and emergency response mechanisms complimentary to existing procedures
- Conduct a disaster relief workshop that supports the Government of Nepal’s capability to respond to extensive disasters in the Kathmandu Valley/Terai regions
- Test MNF SOP procedures relevant to humanitarian assistance and disaster relief missions and civil-military coordination
- Improve civil-military coordination and staff planning skills to deal with rapid onset disasters

The program was basically a simulation exercise based on earthquake scenario for Kathmandu and it was the 17th workshop of the MPAT series. There are 31 MPAT member countries at present and out of that 25 had participated in the workshop. NSET had provided technical support at organizational level for the construction of the exercise.

Miscellaneous

- As a part of the capacity building of the NSET professional an interactive lecture on photography was conducted at the NSET meeting hall on July 22, 2009. The lecture was delivered by one of the energetic-practicing-professional-photo-journo Mr. Min Bajracharya on the theme of capturing events or moments in camera more nicely with the view to enhance the work quality in keeping records of various NSET activities more in point of fact. The session remained much interactive in terms of sharing practice-based ideas and techniques.
- An “Orientation Program on Yoga” was organized for the staff of NSET at the YOGA Hall, CELC/NSET on Monday August 31, 2009. Mr. Kiran Shankar Yogacharya (Swami Shivalingam Saraswati), Chairman of Society of Hydrologists & Meteorologists-Nepal delivered his insightful lecture on it.
- With the objective to test emergency response capability of the various elements of the response plan designed by ICIMOD in case of earthquakes and to raise staff’s awareness about the earthquake preparedness, an Earthquake Drill Exercise was conducted in ICIMOD on 30th June 2009 with the technical facilitation of NSET.
- NSET professionals, Mr. Ganesh Jimee, Emergency Preparedness and Response Manager and Ms. Bhubaneswari Parajuli, Gender, Social and Env. Mgmt. Specialist participated in a two-day Shelter Cluster workshop organized by UN Habitat on 20-21 July 2009 at Hotel Malla, Lainchaur. It was the third workshop of its series for the development of Contingency Plans for emergency shelter. The main objective of the Contingency Plan is to support the Government of Nepal (GoN) to undertake preparedness activities in collaboration with all agencies and organizations involved in disaster management to meet the emergency shelter needs during emergencies and to promote cooperation and coordination among the relevant organizations in providing emergency shelter required for the people rendered homeless by disasters.

The workshop had the following two agendas:

- Finalizing for all agencies the agreed specifications and quantities, facilitating uniformity for emergency interventions when

- approaching donors for funding, session led by IFRC, NRCS and UN Habitat
- Reviewing and Revising the Sphere handbook and minimum standards for shelter, settlement and NFI's, session led by Red R India
- Representing Asian Disaster Reduction and Response Network (ADRRN), Mr. Azeem Patterson from MERCY Malaysia, Ms. Genevieve Lorenzo from CARITAS Manila and Mr. Khadga Sen Oli from National Society for Earthquake Technology - Nepal (NSET) participated International Training Workshop on Natural Disaster Reduction (ITW) - 2010 during May 10-14, 2010 in Taipei city of Taiwan R.O.C.. The program was organized by National Science and Technology Center for Disaster Reduction (NCDR), Taiwan. In kind invitation from organizers for ADRRN participation, ADRRN had nominated those professionals for the program among from ADRRN community.
- Internship
Research fellow Ms. Maria Catalina Jaime Sanchez from Colombia did her internship with National Society for Earthquake Technology-Nepal (NSET) in Kathmandu, Nepal for five months (July - November 2009) to fulfil partial requirement of her Master's Degree curriculum in International Humanitarian Action from University of Deusto, Spain under the Erasmus Mundus Grant Award from the European Commission.

Ms. Snchez has worked with "Urban and Community Disaster Risk Management" team of NSET. During her internship period, as part of NSET team, she supported the Urban and CBDRM Division of NSET by developing the valuable documents: "NSET- CBDRM Program Evaluation Report"; & "NSET - CBDRM Program Guideline". While preparing the Evaluation

Report, she had done series of interactions with NSET staff, with community people where NSET has implemented the CBDRM Program and with different stakeholders including UNDP, Action Aid, Oxfam, and others. Also, she assisted a lot to School Earthquake Safety (SESP) Division of NSET while during 'Student Summit on Earthquake Safety- 2009'.

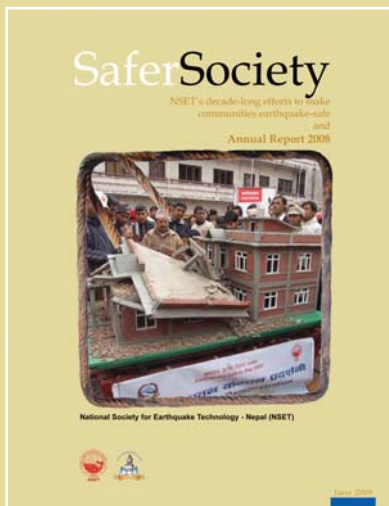
MOU

- A Memorandum of Understanding (MOU) was signed between Central Department of Geography (CDG) and National Society for Earthquake Technology-Nepal (NSET) on July 31, 2009 with an aim to pool information, expertise and human resources to contribute to effective earthquake risk management in Nepal.
- A Memorandum of Understanding (MOU) was signed between Centre for Research on the Epidemiology of Disasters (CRED) and National Society for Earthquake Technology-Nepal (NSET) on August 2009 in order to establish collaboration between disaster database initiatives in Asia, in order to strengthen their quality and improve the interoperability between them.



NSET New Publications

Safer Society NSET's decade-long efforts to make Communities earthquake-safe And Annual Report 2008



National society for Earthquake Technology-Nepal (NSET), established in the year 1993, has now grown up to be a leading organization in the field of earthquake risk management in Nepal and its activities have spread to different parts of the world that have been affected by earthquakes and other natural hazards. NSET envisions "Earthquake Safe Communities in Nepal by 2020". To accompany with this vision, NSET has clearly outlined its mission, goals

and strategic objectives with well set pattern of extensive activities of its own and numerous initiatives from various corners of society. NSET has been privileged to bring this very first edition of Safer Society with the view to share and documenting its decade-long experiences, lessons learnt and all the endeavors it has made; together with its Annual Report 2008.

Safer Society is hence an aperture to peer what NSET aims to pay its efforts and has been paying since more than a decade to foster the advancement of science and practice of earthquake engineering and technology for mitigating the earthquake risk and increasing the seismic safety, to enhance professionalism, professional engineering and scientific ethics and to further the objectives of the international Association for Earthquake Engineering as applicable to Nepal. Number of activities and programs that NSET executes and advocates for are having one very common element as an in-built, and that is the idea to enhance safer society. To make the society safer from earthquake and other disasters is the only round-sound motto of NSET initiatives whether that could have been carried on within or beyond the boundaries of Nepal.

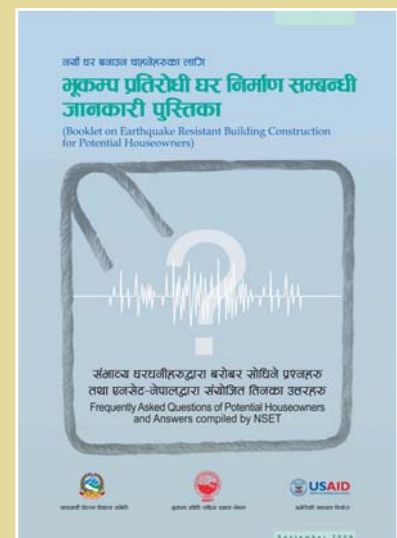
Safer Society is just the composition of NSET journeys. Various areas of NSET works like creating and raising

awareness, exhibiting drills and simulations, conducting trainings, executing risk assessments of existing structures, implementing corrective measures, promoting earthquake resistant constructions, post-disaster activities and even policy level interventions have paved the path of NSET. Safer Society is thus a self-assessment of NSET activities or it's the way of looking-self-in-mirror so that forthcoming activities and strategies could be more accurately designed towards meeting targeted goals.

Booklet on Earthquake Resistant Building Construction for Potential House-owners

The booklet entitled "Frequently Asked Questions of Potential House Owner and Answer compiled by NSET-Nepal" is yet another effort of NSET towards developing earthquake safe communities through exchanging knowledge and ideas amongst key stakeholders. Bringing such a supporting document in a very handy & user-friendly print has been made. This compilation aims to respond much common but pertinent questions of potential house owner in regard to earthquake safe building construction. Based on past and ongoing interactions and consultations with and to the people from various sectors and clusters, we have found these questions perfectly set in terms of disseminating information effectively. However, questions could be many but this has been made in view to establish an array of contents in sequence so that concerned potential house-owner could be privileged with. And, responding to the questions gathered, NSET has compiled the knowledge, idea and information in very simple, precise and accurate ways. Not only academically and technically proven, these responses are built on decade-long experiences of NSET as an institution while due in course of paving the journey of building safe communities in Nepal.

This publication is highly believed to satisfy the very needs and concerns of potential house owner in connection to construction of earthquake resistant building, possible with the financial support from Kathmandu District Development Committee.



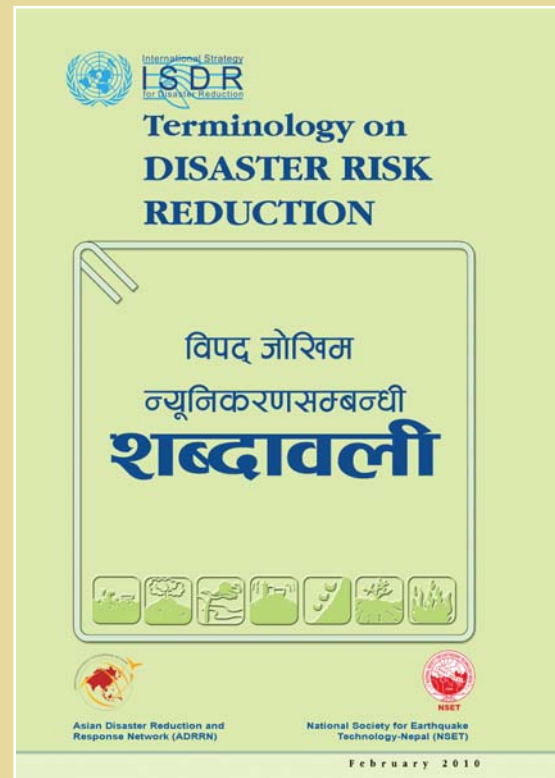
Simplification of UNISDR Terminology On Disaster Risk Reduction

The translation of DRR terminologies in Nepali language along with simple illustrations has been done by National Society for Earthquake Technology – Nepal (NSET) with the support from Asian Disaster Reduction and Response Network (ADRRN) and UN-ISDR Asia Pacific Office, Bangkok. The Purpose of this task was to develop simple terminology on Disaster Risk Reduction with easy to understand illustration. With the help of UN-ISDR Asia Pacific office in Bangkok ADRRN has managed to bring out this task to translate these terminologies in various Asian languages.

The United Nations International Strategy for Disaster Reduction (UNISDR) Terminology aims to promote common understanding and common usage of disaster risk reduction concepts and to assist the disaster risk reduction efforts of authorities, practitioners and the public. The 2009 version is the result of a process of ongoing review by the UNISDR and consultations with a broad range of experts and practitioners in various international venues, regional discussions and national settings. The terms are now defined by a single sentence. The comments paragraph associated with each term is not part of the definition, but is provided to give additional context, qualification and explanation. It should be noted that the terms are not necessarily mutually exclusive, and in some cases may have overlapping meanings. The Terminology has been revised to include words that are central to the contemporary understanding and evolving practice of disaster risk reduction but exclude words that have a common dictionary usage. Also included are a number of emerging new concepts that are not in widespread

use but are of growing professional relevance; these terms are marked with a star (*) and their definition may evolve in future.

This work of DRR Terminologies in Nepali language with easy-to-understand illustrations is believed to serve DRR practitioners, professionals, academia, community people and all sections of lives to enhance homogeneity in understanding disaster terminologies and concepts.



Special Franking of the Commemorative Envelope dedicated to Earthquake Safety Day



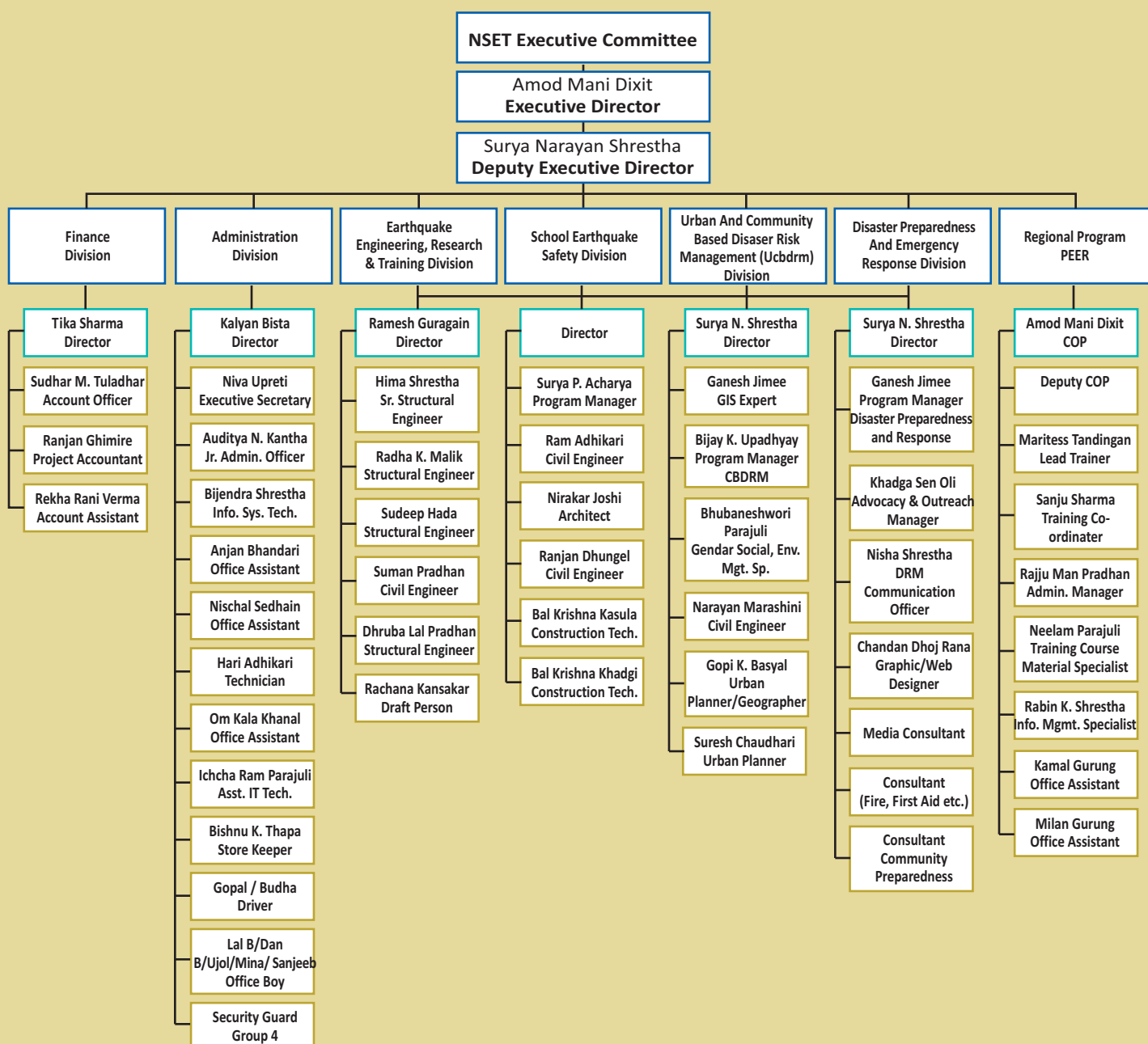


ORGANIZATIONAL DEVELOPMENT

Evolution of NSET as an organization

When NSET started its first project, the Kathmandu Valley Earthquake Risk Management Project (KVERMP) in 1997, it had a total staff of five and barely enough equipment in its offices. During the

period 2009-10, NSET has nearly 55 staff members, including a number of well-qualified, international class professionals. The following charts show NSET's current organization:





Box 1: Emergency Response plan of NSET

Emergency Response plan of NSET is being updated based on new office building at Bhainsepati staff, and available resources. The Response plan is being developed for two situations i.e. emergency during office hour and non-office hour.

The major components of NSET Emergency Response Plan are:

- Emergency communication plan
- Emergency diary and ICE
- Spatial location (map representation) of all staff and board members
- Formation of emergency response teams and responsibility distribution
- Orientation for staff and staff family
- Earthquake Go Bags and emergency Household kits to all staff
- Structural/nonstructural assessment of NSET office building and its premise; and mitigation
- Structural/nonstructural assessment of NSET staff residents
- Identification of safe/unsafe places in the building and development of evacuation plan
- Capacity development (FA, LSAR, fire fighting etc)
- Preparation of annual calendar for emergency response activities
- Conduction of drill
- Preparation of complete document as Emergency Response Plan of NSET

NSET is now well equipped with complete Light Search and Rescue supplies. It has developed a concept of distributing emergency household kits to the communities, including minimum LSAR supplies. Some sample kits have already been prepared.

NSET has distributed Earthquake Go Bag to all staffs, and has planned to provide bags with complete items for public in request. Recently in March 2009, it has provided 45 Go Bags for Action Aid with complete items.

NSET had started off with just two –three projects in hand in the earlier years and the coverage area was also limited whereas in the recent years the number of projects has increased considerably, thus extending its boundary further. A list of significant projects/programs implemented so far by NSET appears in Annex 8.

NSET has now been established as a credible non-governmental institution capable of implementing specialized earthquake vulnerability reduction and preparedness capabilities for government, private, and international/regional institutions. NSET continues to receive requests for assistance in implementing projects for earthquake risk reduction and earthquake preparedness from a wide variety of institutions: government ministries, departments, local governments, and communities both in the national and the international level. The depth as well as extent of services delivered by NSET has expanded.

Diversification of Activities and Current Thinking

While the focus on earthquake by risk management continues, NSET is diversifying its activities to include risk management for other natural hazards such as landslide, flood and implications of climate change and global warming etc by developing and implementing multihazard approaches in its activities. Likewise, NSET is also paying due attention to other cross-cutting issues such as gender consideration, right-based approaches, inclusiveness, environmental considerations in its program design and implementation.

NSET believes in the use of science and technology for enhancing safety from natural hazards. While knowledge and technology exists internationally and available for use in Nepal and the region, the task is to adapt the existing knowledge and technologies to the local physical, socio-economic and cultural-demographic and contexts. The adaptation process demands development of methodologies for which practical researches are indispensable. NSET is engaged and will be engaged with national and international research stations and academic centers in such implementation-oriented researches. That explains NSET's close relationship with academia. Likewise, we strongly believe that disaster risk reduction efforts should be aligned with other development initiatives such as achieving MDGs, Poverty reduction, risk-sensitive land use planning and are giving our efforts in understanding the inter-linkages and adapting our programs to contribute to the longer goal of overall developing nations.

In-house Capacity Enhancement

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

During the period of 2009-10, 15 staff members have completed training of various types both within and outside the country. A list of such training program appears in Annex 7.

Financial Sustainability

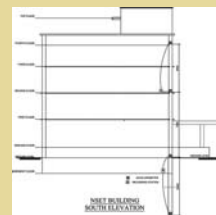
In this context, NSET has been trying to develop itself into a financially self-sustaining institution, and considerable success has been achieved over the years. This is reflected in continued increase and growth in the volume of the work implemented by NSET and services provided to communities in reducing the identified earthquake vulnerabilities. However we still need financial support, still have to raise funds, and still have to provide fee-based services. Developing local capacities, sharing of knowledge and experiences, helping develop local champions are the ruling criteria for the fee-based services, that we deliver in cooperation with international NGOs, development agencies the UN systems and the related programs conducted by international financial institutions such as the World Bank.



Box 2: Accelerometer installed at CELC/NSET premises

As a collaborative initiative of National Society for Earthquake Technology–Nepal (NSET), Nepal Engineering College (nec), Kathmandu and Ehime University, Japan; four accelerometers have been installed in October 2009 at Community Earthquake Learning Center (CELC) building where NSET office resides. This work has been done with an objective to record the nature of vibration on different level of building while during the period of an earthquake. Ehime University provided all the technical devices and systems of Accelerometer for the purpose.

Four sets have been placed at



- Sub-base below 10m depth,
- Ground Level,
- Second floor of building, and
- Fourth floor of building on Terrace.



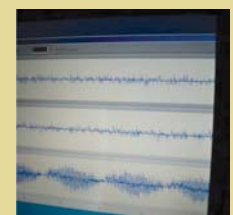
Characteristics of the device
Name: RS232C Interface for 3D-Axis Accelerometer
Model No: GID-SSS/IF232
Produced by: Mathematical Assist Laboratory



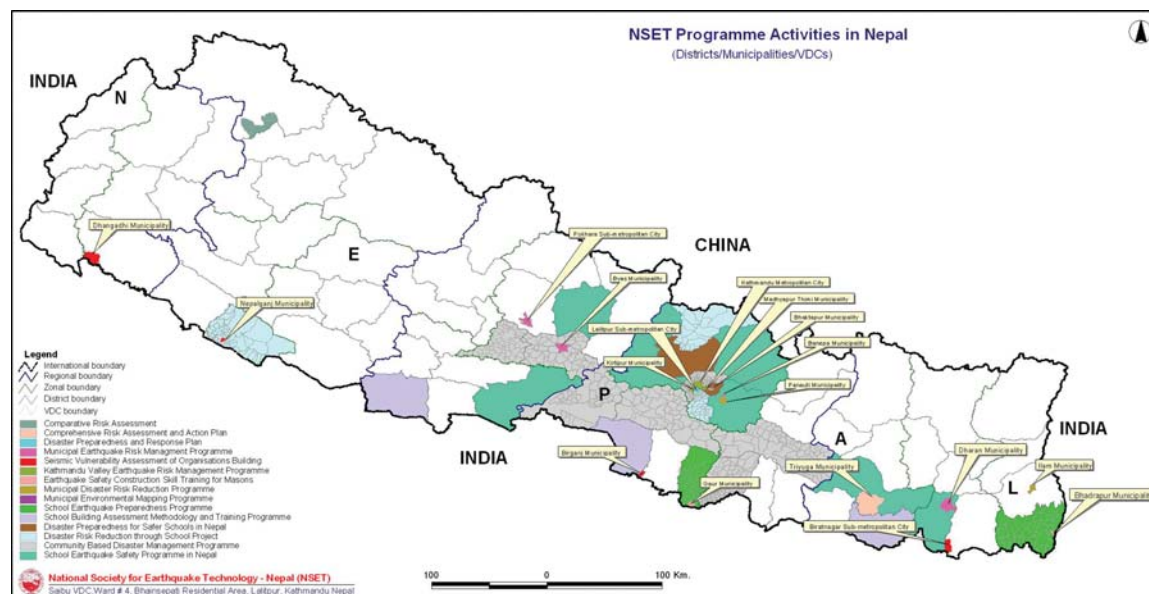
Device Installation at Ground Level



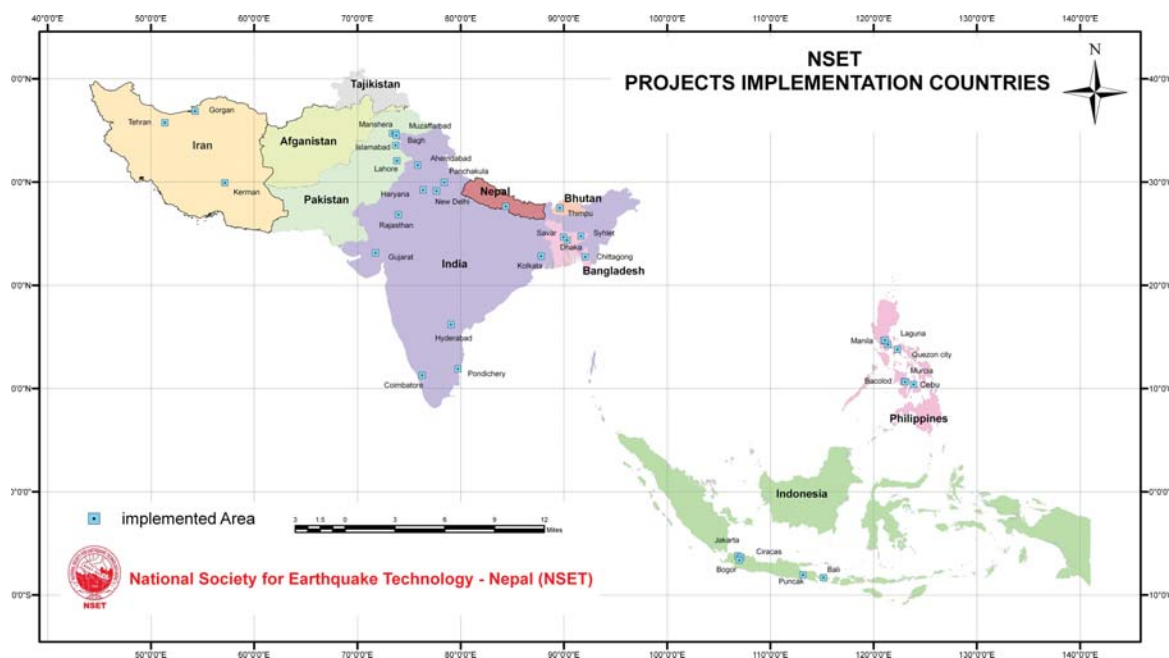
Extraction of data output at Recording Station



Records of the accelerometer will be posted through NSET webpage.



NSET Project/Program Coverage (National)



NSET Project/Program Coverage (Regional)



Box 3: IN-HOUSE CAPACITY ENHANCEMENT

- NSET professional Mr. Nirakar Joshi, Architect and Mr. Dhruba Lal Pradhan, Structural Engineer participated in the 'Building Leadership Training on Disaster Risk Reduction', organized by Xavier Institute of Management (XIMB) and Concern Worldwide during 26 Jan - 4 Feb 2009 at Xavier Institute of Management, Bhubaneshwore, India.
- NSET professionals Mr. Ram Adhikary, Civil Engineer and Ms. Niva Upreti, Executive Secretary, participated in the training on 'Management of Dead Bodies after Disaster' organized by ICRC and Victorian Institute of Forensic Medicine (VIFM) at Dhulikhel Lodge Resort, Dhulikhel during 8 -12 Feb 2009.
- Mr. Ganesh Jimée, Emergency Preparedness and Response Manager and Mr. Sudeep Hada, Structural Engineer, participated in the Training on Dead Body Management organized by IFRC at Hotel Himalaya, Lalitpur during 4-6 Feb 2009.
- Mr. Tika Sharma, Director-Finance at NSET, participated in the two weeks training seminars conducted by Center for Public Management in Arlington, Virginia at Holiday Inn Rosslyn, USA. The training seminars were conducted in accordance with the standards of the National Registry of CPE Sponsors. CPE Credits were granted based on 50 minute hour.

The program incorporated the training modules:

USAID Administrative Compliance Requirement session, May 11-13 2009

Financial Management of USAID Awards Session, May 14-15, 2009

Basics of USAID Contracting Session, May 18-19, 2009

Introduction to USAID Cooperative Agreement Session, May 20-21 2009

Obtaining USAID Contracting/ Agreements Office Approval session, May 22, 2009

- Mr. Ram Prasad Adhikary, Senior Civil Engineer, participated in the training program on "Disaster

Response and Recovery" during May 19 -27, 2009 in Kuala Lumpur, Malaysia organized by Malaysian Government and Mercy Malaysia under Malaysian Technical Cooperation program.

- As a part of the capacity building of the NSET professional an interactive lecture on photography was conducted at the NSET meeting hall on July 22, 2009. The lecture was delivered by one of the energetic-practicing-professional-photo-journo Mr. Min Bajracharya on the theme of capturing events or moments in camera more nicely with the view to enhance the work quality in keeping records of various NSET activities more in point of fact. The session remained much interactive in terms of sharing practice-based ideas and techniques.
- NSET professionals Mr. Bijay K. Upadhyay – Earthquake Tech. Training Specialist, Mr. Surya P. Acharya, Project Manager- SESP, Mr. Ganesh Jimée, Emergency Preparedness and Response Manager, attended the 5-day training program on "Essentials of Humanitarian Practice" Training for building capacities on Emergency response, organized by RedR India during 1-5 July 2009 at Dhulikhel Nepal.
- NSET professional Mr. Ranjan Dhungel Civil Engineer, attended the Training on 'Bio Engineering Methods for Landslide Hazard Mitigation organized by SAARC Disaster Management Center (SDMC) during 6-12 September 2009 at Khwopa Engineering College, Bhaktapur
- Mr. Surya P. Acharya, Project Manager- SESP, attended the Disaster Planner Course organized by DMO USA and Nepal Army during 14 – 18 September 2009 at Nepal Army Headquarters.
- NSET professionals Mr. Khadga Sen Oli, Advocacy and Outreach Manager and Mr. Suresh Chaudhary, Urban Planner, participated in the Medical First Responder (MFR) Course organized by Nepal Police Academy and NSET with support from USAID/OFDA, at the Nepal Police Academy, Maharajgunj, Kathmandu during 1-14 March 2010.

Annex 1: Financial Report

National Society for Earthquake Technology - Nepal

Income and Expenditure Statement
for the period from Shrawan 1, 2065 to Ashad 31, 2066

Particulars	Schedule	NSET Rs	NERMP Rs	PEER Rs	SESP/AAN Rs	SESP/World Bank Rs	Current Period Total Rs	Previous Period Rs
Income								
Professional Service Charge		37,314,519.99	-	-	-	-	37,314,519.99	21,314,191.55
Earthquake Safety Day		856,680.85	-	-	-	-	856,680.85	759,188.24
USAID/OFDA Grant/UNDP		-	10,590,847.00	106,074,760.55	-	-	116,665,607.54	125,900,896.78
Action Aid Nepal		-	-	-	1,676,857.00	-	1,676,857.00	610,283.00
World Bank		-	-	-	-	3,150,548.00	3,150,548.00	
PEER Overhead	V	17,909,773.08	-	-	-	-	17,909,773.08	1,835,411.53
PEER G&A	V	21,899,216.25	-	-	-	-	21,899,216.25	13,498,059.68
PEER Sub Contractor Handling Fee	V	24,247.16	-	-	-	-	24,247.16	428,637.11
PEER PFAP Handling Fee	V	462,441.16	-	-	-	-	462,441.16	476,081.42
Contribution from/for Publication		90,413.83	-	-	-	-	90,413.83	27,036.00
Membership Fee		-	-	-	-	-	-	5,500.00
Income from Other Sources		1,457,799.95	17,266.89	1,048,206.10	704.52	2,962.96	2,526,940.42	1,492,499.90
Total Income		80,015,092.27	10,608,113.89	107,122,966.65	1,677,561.52	3,153,510.96	202,577,245.28	166,347,785.21
Expenses								
Model & NSET Building/Shed	XII	-	-	-	-	-	-	15,950,877.67
SESP Expenses - Reconstruction and Wages	VII	39,005.00	23,872.55	-	2,190,308.55	-	2,253,186.10	99,384.00
Public Awareness	XI	147,513.50	603,430.88	-	-	-	750,944.38	1,080,012.39
Earthquake Safety Day	VIII	407,107.40	404,489.14	-	-	-	811,596.54	982,684.50
Workshop/Training/Seminar	IX	3,736,385.33	40,858.31	32,481,504.97	-	393,011.49	36,651,760.10	25,944,685.75
Travel Expenses	X	5,267,165.02	454,155.26	644,474.31	-	211,362.50	6,577,157.08	3,593,046.61
Administrative Expenses	VI	30,089,859.87	11,790,470.95	82,506,956.99	-	3,071,201.47	127,458,489.29	117,173,601.54
Exchange Gain/Loss		(1,280,934.49)	12,518.49	60,312.75	-	-	(1,208,103.25)	143,990.76
Total Expenditure		38,406,101.63	13,329,795.58	115,693,249.02	2,190,308.55	3,675,575.46	173,295,030.24	164,968,283.22
Excess of Income Over Expenditure		41,608,990.64	(2,721,681.70)	(8,570,282.37)	(512,747.03)	(522,064.50)	29,282,215.04	1,393,661.12
Opening Balance		13,299,950.72	(2,024,636.61)	9,548,293.29	408,436.50	-	21,232,043.90	18,870,325.47
Exchange Fluctuation		-	(124,869.61)	243,320.94	-	-	118,451.34	968,057.31
Adjustments relating to errors relating to earlier years		15,950,877.67	-	-	-	-	15,950,877.67	
Balance of funds as on Ashad 31, 2066		70,859,819.03	(4,871,187.92)	1,221,331.86	(104,310.53)	(522,064.50)	66,583,587.95	21,232,043.90

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

As per our report of even date

Tika Sharma
(Finance Director)Amod Mani Dixit
(General Secretary)Yogeswar K. Parajuli
(Treasurer)Shiva Bahadur Pradhanang
(President)Shashi Satyal
(Partner)
T R Upadhyaya & Co.
Chartered AccountantsDate: 9 April 2009
Place: Kathmandu

National Society for Earthquake Technology - Nepal

Balance Sheet as at Ashad 31, 2066

Particulars	Schedule	As at Ashad 31, 2066 Rs	As at Ashad 31, 2065 Rs
Assets			
Fixed Assets	I	46,484,933.58	7,986,947.26
Receivables	II	23,739,497.86	15,482,330.04
Cash & Cash Equivalents	III	12,540,749.07	17,216,363.81
Total Assets		82,765,180.51	40,685,641.11
Liabilities			
Vehicle Loan		1,080,339.21	1,577,027.30
Current Liabilities	IV	15,101,253.35	17,876,569.91
Surplus as per Income & Expenditure Statement		66,583,587.95	21,232,043.90
Total Liabilities		82,765,180.51	40,685,641.11

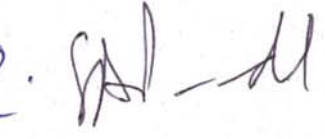
Significant accounting policies & notes to accounts forms an integral part of this Balance Sheet

XIII

As per our report of even date


Amod Mani Dixit
(General Secretary)


Yogeswor K. Parajuli
(Treasurer)


Shiva B. Pradhanang
(President)


Shashi Satyal
(Partner)
For TR Upadhyaya & Co.
Chartered Accountants


Tika Sharma
(Finance Director)



Date: 9 April 2009
Place: Kathmandu

Annex 2: NSET Management Committee (July 2005 - 2010)

Shiva B. Pradhanang
President



Amod Mani Dixit
General Secretary



Yogeshwor K. Parajuli
Treasurer



Mukunda Pradhan
Member



Shreeram Singh Basnet
Member



Varun Prasad Shrestha
Member



Tika Sharma
Member

Annex 3: NSET staff list 2010

Name	Designation
Mr. Amod Mani Dixit Executive	Director
Mr. Surya Narayan Shrestha	Deputy Executive Director (Director for Urban and CBDRM Division and Emergency Response and Preparedness Division)
Mr. Tika Sharma	Director, Finance
Mr. Kalyan Bista	Director, Administration
Mr. Ram Chandra Kandel	Director, School Earthquake Safety Program
Mr. Ramesh Guragain	Director, Earthquake Engineering Research and Training Division
Ms. Bhubaneshwori Parajuli	Social, Environmental and Gender Specialist
Mr. Ganesh Kumar Jimée	Emergency Response and Preparedness Manager
Mr. Surya Prasad Acharya	Senior Civil Engineer/Program Manager SESP
Mr. Bijay K. Upadhyay	Earthquake Technology Training Specialist
Ms. Hima Shrestha	Structural Engineer
Mr. Narayan Marasini	Civil Engineer
Mr. Gopi Krishna Basyal	Geographer/Urban Planner
Mr. Ram Prasad Adhikari	Civil Engineer
Mr. Suman Pradhan	Civil Engineer
Mr. Dhurba Lal Pradhan	Structural Engineer
Mr. Suresh Chaudhary	Geographer/Urban Planner
Mr. Sudeep Hada	Structural Engineer
Mr. Radha K. Mallik	Structural Engineer
Mr. Ranjan Dhungel	Civil Engineer
Ms. Nisha Shrestha	Disaster Risk Communication Officer
Mr. Nirakar Joshi	Architect
Mr. Sudhar Man	Tuladhar Accounts Officer
Mr. Hari Adhikari	Technician
Mr. Chandan Dhoj Ranamagar	Graphics/Web Designer
Ms. Neeva Upreti	Executive Secretary (ED's Office)
Mr. Adutiya Narayan Kantha	Junior Administrative Officer

Ms. Rachana Kansakar	Draftsperson
Mr. Anjan Bhandari	Office Assistant
Mr. Nischal Sedhain	Office Assistant
Ms. Om Kala Khanal	Librarian
Mr. Bijendra Shrestha	Information System Technician
Mr. Bal Krishna Kasula	Construction Technician
Mr. Bal Krishna Khadgi	Construction Technician
Mr. Bishnu Thapa	Store Keeper
Mr. Ichcha Ram Parajuli	Assistant Information System Technician
Mr. Gopal Chaulagain	Driver
Mr. Buddha Shrestha	Driver
Mr. Lal Bahadur Pradhan	Office Boy
Mr. Dan Bahadur Koirala	Office Boy
Mr. Ujjal Dhakal	Office Boy
Ms. Meena Shrestha	Cleaner

Program for Enhancement of Emergency Response (PEER) Team:

Mr. Amod Mani Dixit	Chief of Party
Ms. Maritess Tandigan	Lead Trainer
Mr. Rajju Man Pradhan	Administrative Manager
Mr. Sanju Sharma	Training Coordinator
Ms. Neelam Parajuli	Training Course Materials Specialist
Mr. Rabin Kumar Shrestha	Information Management Specialist
Mr. Ranjan Ghimire	Project Accountant
Ms. Rekha Rani Verma	Accounts Assistant
Mr. Kamal Gurung	Office Assistant
Mr. Milan Gurung	Office Assistant
Mr. Sanjip Poda	Janitor

Annex 4: NSETs partners and supporters (1993-2010)

National

- Armed Police Force
- B.P. Koirala Institute of Health Sciences
- Department of Mines and Geology
- Department of Urban Development and Building Construction
- Disaster Management Committee of Wards 17, 29 and 34, Kathmandu
- Disaster Preparedness Network (DPNet)
- Diploma Engineers' 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
- National Forum for Earthquake Safety
- Nepal Army
- Nepal Forum for Environmental Journalists
- Nepal Bureau of Standards and Metrology
- Nepal Engineering College
- Nepal Engineers Association
- Nepal Geological Society
- Nepal Red Cross Society
- Nepal Police
- National Police Academy
- Rotary Clubs
- Social Welfare Council
- Society of Consulting Architectural and Engineering Firms
- Society of Nepalese Architects
- PARADIGM-Nepal

International

- Action Aid International Nepal
- All India Institute of Hygiene & Public Health (AIHH&PH), India
- Ambullan 118 of Indonesia
- American Red Cross
- Amity Public Safety Academy of Philippines
- Asian Disaster Preparedness Center
- Asian Disaster Reduction Center
- Asian Disaster Reduction and Response Network
- Asian Seismological Commission
- Badan Koordinasi Nasional of Indonesia
- Badan Search and Rescue National of Indonesia
- Bangladesh Disaster Preparedness Centre
- Boarder Security Force of India
- Building Research Institute of Japan
- Central Reserve Police Force , India
- Christian Aid-UK
- 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
- Fire National Training Institute of Philippines
- Fire Service and Civil Defense Directorate of Bangladesh
- Focus Humanitarian Assistance, Pakistan
- GeoHazards International
- Give2Asia
- 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
- MERCY Malaysia
- Ministry of Food and Disaster Management, Bangladesh
- Ministry of Health and Family Welfare, Bangladesh
- Ministry of Health, Indonesia
- Ministry of Home Affairs, India
- National Disaster Management Authority of Pakistan
- National Disaster Coordinating Council of the Philippines
- National Industrial Security Academy of India
- Nat'l Institute of Preventive and Social Medicine of Bangladesh
- National Research Institute for Earth Science and Disaster Prevention of Japan
- New Zealand Society for Earthquake Engineering
- Norwegian Refugee Council
- Office of Foreign Disaster Assistance of United States Agency for International Development (OFDA/USAID).
- Oxfam GB Nepal
- Philippines General Hospital
- Reynolds Geo-Sciences Limited, UK
- Safety Solutions Incorporated, USA
- SAARC Disaster Management Center, India
- Sustainable Environment and Ecological Development Society (SEEDS/India)
- The International Institute for Geo-Information Science and Earth Observation (ITC)
- United Mission to Nepal
- The World Bank
- United Nations Center for Regional Development - Disaster Management Planning Hyogo Office
- United Nations Development Programme
- UN-ISDR
- United Nations Educational, Scientific and Cultural Organization
- UN-HABITAT
- World Health Organization
- World Seismic Safety Initiatives

Annex 5: List of organizations that have signed a Memorandum of Understanding (MOU) with NSET for Cooperation in Earthquake Risk Management and Emergency Response Training

S. N.	Name of Institution	Specific Purpose
1	UNDP, Nepal	To cooperate in the implementation of Kathmandu Valley Earthquake Risk Management Project.
2	United Mission to Nepal (UMN)	To cooperate in the implementation of Kathmandu Valley Earthquake Risk Management Project.
3	Room to Read	To assist communities to construct earthquake resistant public schools
4	Bibhuti Man Singh, Architect	Architecture design/drawings of NSET's proposed Community Learning Center Building
5	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.
6	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.
7	Kathmandu University	To pool information, expertise and human resources in the fields of disaster risk reduction and emergency response capacity enhancement
8	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.
9	Diploma Engineers Association Nepal (DEAN)	To reduce earthquake risk through awareness raising program as well as organizing training, workshops/seminars, research and development.
10	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.
12	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
13	Kathmandu Metropolitan City (KMC)	To pool information, expertise and human resources in the fields of disaster risk reduction and emergency response capacity enhancement.

14	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.
15	DPRI/Kyoto University	Establishment of Case Station and Field Campus
16	Bangladesh Disaster Preparedness Center (BDPC)	Enhancing cooperation and collaboration in disaster risk management areas.
17	Focus Humanitarian Assistance, Pakistan	Enhancing cooperation and collaboration in SESP program in Pakistan
18	Norwegian Refugee 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.
19	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.
20	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".
21	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.
22		
23	Central Department of Geography (CDG)	To pool information, expertise and human resources to contribute to effective earthquake risk management in Nepal
	Centre for Research on the Epidemiology of Disasters (CRED)	To establish collaboration between disaster database initiatives in Asia, in order to strengthen their quality and improve the interoperability between them

MOU For the Implementation of Program for School Earthquake Safety Program (SESP)

S.No.	Name of Institution	Specific Purpose
1	Bhuwaneshwory Lower Secondary School, Nangkhel, Bhaktapur	To retrofit the existing school building and to build the earthquake resistant new building.
2	Gadgade Primary School, Nagarkot, Bhaktapur	To retrofit the existing school building
3	Upayogi Primary School, Sirutar, Bhaktapur	To retrofit the existing school building
4	Vaisnabi Secondary School, Kritipur	To construct new earthquake resistant school building
5	Bal Vikash Secondary School, Alapot, Kathmandu	To retrofit the existing school building
6	Kabhresthali Lower Secondary School, Kavresthali, Kathmandu	To construct new earthquake resistant school building
7	Himalaya Primary School, Thimi, Bhaktapur	To construct new earthquake resistant school building
8	Tinkannya Primary School, Katrak, Dhading	To construct new earthquake resistant school building
9	Amarkhu Lower Secondary School, Bhumisthan, Dhading	To construct new earthquake resistant school building
10	Nateshwori Primary School, Chhaling, Bhaktapur	To construct new earthquake resistant school building
11	Vidyodaya Primary School, Jhochan Kathmandu, KMC-23	To construct new earthquake resistant school building
12	Saraswoti Secondary School, Thencho, Lalitpur	To construct new earthquake resistant school building
13	Shree Krishna Secondary School, Dhapakhel, Lalitpur	To construct new earthquake resistant school building
14	Saraswoti Secondary School, Thakalmath, Bhaktapur	To construct new earthquake resistant school building
15	Chaitnya Multiple Campus, Banepa	To construct new earthquake resistant school building
16	Shiva Primary School, Viyas, Tanahun	To construct new earthquake resistant school building
17	Sangam Primary School, Viyas, Tanahun	To construct new earthquake resistant school building
18	Bal Premi Secondary School, Thimi, Bhaktapur	To construct new earthquake resistant school building
19	Golmadevi Primary School, Sindupalchowk	To construct new earthquake resistant school building
20	Janajyoti Secondary School, Bhimad Tanahun	To construct new earthquake resistant school building
21	Janasewa Primary School, Vyas Tanahun	To construct new earthquake resistant school building
22	Suryodaya Bal Bikash Primary School, Imadol, Lalitpur	To construct new earthquake resistant school building

23	Adarsha Saul School, Bhaisepati, Lalitpur	To construct new earthquake resistant school building
24	Shree Jana Udaya Nimna Madhyamik Vidyalaya, Bhaisepati, Lalitpur	To retrofit the existing school building
25	Mahendra Shanti High School, Balkot, Bhaktapur	To retrofit the existing school building
26	Mahendra Adarsha High School, Imadol, Lalitpur	To retrofit the existing school building
27	Bansha Gopal Higher Secondary School, Hetauda-6, Makwanpur	To retrofit the existing school building
28	Churiyamai Secondary School, Churiyamai, Hetauda	To retrofit the existing school building
29	Sakala Devi Primary School, Dibyapuri, Nawalparasi	To retrofit the existing school building
30	Buddha Jyoti Bal Udhyan L.S. School, Balaju, Kathmandu	To retrofit the existing school building
31	Shree Panchayat Secondary School, Dharan, Sunsari	To retrofit the existing school building
32	Shree Laxmipur H.S. School, Triuga, Gaighat, Udaypur	To retrofit the existing school building
33	Shree Balkumari Secondary School, Sunakoti, Lalitpur	To construct new earthquake resistant school building
34	Shree Seti Bhooma Lower Secondary School, Ramche, Rasuwa	To construct new earthquake resistant school building
35	Shyame Wangphel Secondary School, Syaphru Besi, Rasuwa	To construct new earthquake resistant school building
36	Janakalyan Secondary School, Bageshowari, Banke	To construct new earthquake resistant school building
37	KaliDevi Higher Secondary School, Kavresthali-9, Kathmandu	To construct new earthquake resistant school building
38	Mahendra Secondary School, Mathehiya, Banke	To construct new earthquake resistant school building
39	Bagiswoari secondary school, Bichaur, Lamjung	To construct new earthquake resistant school building
40	Shanti Higher Secondary School, kuncha-2, Lamjung	To retrofit the existing school building
41	Kalika secondary School, Nawalparasi, Gaidakot	To construct new earthquake resistant school building
42	Daunae Devi Secondary School, Nawalparasi, Bardaghat	To retrofit the existing school building
43	Shanti Shrijana Lower Secondary School, Nawalparasi, Jhankre	To construct new earthquake resistant school building
44	Marsyangdi Lower Secondary School, Paundi, Lamjung	To construct new earthquake resistant school building

MOU For the Implementation of Program for Enhancement of Emergency Response (PEER)

S.No.	Name of Institution	Specific Purpose
1	Institute of Medicine, Tribhuvan University	To nationalize and institutionalize HOPE course in Nepal
2	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.
3	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.
4	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.
5	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.
6	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

Annex 6: List of NSET publications

S. N. Name Of Publication

Books and Guidelines

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	What to do during an Earthquake (In Nepali)
15	Earthquakes (30 Frequently Asked Questions and Answers by NSET) –In Nepali
16	Parale Kunyu ko Aago (Illustrated story on Earthquake / Tsunami for Adult) – In Nepali
17	Parale Kunyu ko Aago (Illustrated story on Earthquake / Tsunami for Children) – In Nepali
18	Retrofitting of Common Frame Structural (Pillar System) Houses
19	"What are the tricks for constructing earthquake-resistant buildings?"
20	"Hazuraama Ko Katha" -Earthquake Story for Children (Nepali)
21	Safer Society – Annual Report 2008
22	Booklet on Earthquake Resistant Building Construction for Potential Houseowners

Posters and Fliers

1	Risk Land
2	NSET Timeline (Brochure)
3	Calendar - Annual
4	Earthquake-induced Cracks in building (size 20" X 30")
5	Earthquake Safety through community-based Initiative (size 17" X 22")
6	Modified Mercalli Intensity Scale (Size 20" X 30")
7	Earthquake Risk Reduction of Non Structural Items
8	Citizens Responsibilities During Mass Casualty Management
9	ESD- Poster - Annual
10	NSET News Letter - Quarterly
11	Guideline for Training Instructors
12	Fliers (Pillar, Stone, Brick Masonry, Earthquake Safety and Retrofitting)

Annex 7: List of SESP implemented Schools

S.No	Name of School	Address	Retrofitting / Re/New Construction	Year	Project Status	Link Project
1	Bhuaneshwori Lower Secondary School	Nangkhe, Bhaktapur	Retrofitting/ Reconstruction	1999-02	Completed	NERMP
2	Gadga Primary School	Nagarkot , Bhaktapur	Retrofitting	1988-89	Completed	NERMP
3	Upayogi Primary School	Sirutar, Bhaktapur	Retrofitting	1988-89	Completed	NERMP
4	Vaisnabi Secondary School	Kritipur , Kathmandu	Reconstruction	2000	Completed	NERMP
5	Bal Vikash Secondary School	Alapot, Kathmandu	Retrofitting	2000	Completed	NERMP
6	Kabhresthali Lower Secondary School	Kabhresthali, Kathmandu	Reconstruction	2001/02	Completed	NERMP
7	Himalaya Primary School	Madhyapur Thimi, Bhaktapur	New construction	2002	Completed	NERMP
8	Tinkannya Primary School	Benighat , Dhading	Reconstruction	2002	Completed	NERMP
9	Amarkhu Lower Secondary School	Bhumisthan, Dhading	New construction	2002	Completed	NERMP
10	Nateshwori Primary School	Chhaling , Bhaktapur	New construction	2002/03	Completed	NERMP
11	Vidyodaya Primary School	Jhochhen, Kathmandu	Reconstruction	2002/03	Completed	NERMP
12	Saraswoti Secondary School	Thecho, Lalitpur	Reconstruction	2003	Completed	NERMP
13	Shree Krishna Secondary School	Dhapakhel, Lalitpur	New construction	2002/03	Completed	NERMP
14	Saraswoti Secondary School	Sudal, Bhaktapur	Reconstruction	2003- 04	Completed	NERMP
15	Chaitanya Multiple Campus	Banepa	New construction	2003	Completed	NERMP
16	Shiva Primary School	Vyas, Tanahun	New construction	2003-2005	Completed	NERMP
17	Sangam Primary School	Vyas, Tanahun	Reconstruction	2003	Completed	NERMP
18	Golmadevi Primary School	Kadambas, Sindhupalchowk	New construction	2003	Completed	NERMP
19	Janajyoti Higher Secondary School	Bhimad, Tanahun	New construction	2004/2005	Completed	NERMP
20	Balpremi Secondary School	Thimi, Bhaktapur	Reconstruction	2004/05	Completed	NERMP
21	Suryodaya Balbikash Primary School	Ikudol, Lalitpur	Reconstruction	2005	Completed	NERMP
22	Adarsha Saula H. S. School	Sainbu, Lalitpur	Reconstruction	2006/ 2007	Completed	NERMP
23	Shree Jan Uday Nimna Madhayamik Vidhyalaya	Sainbhu, Lalitpur	GF retrofitting/FF New Construction	2006-2007	Completed	NERMP
24	Mahendra Shanti Secondary School	Balkot, Bhaktapur	Reconstruction	2007	Completed	NERMP
25	Mahendra Adarsha Secondary School	Imadol, Lalitpur	Reconstruction	2007/ 2008	Under Construction	NERMP
26	Churiya Mai Secondary School	Churiya Mai, Hetauda	New construction	2008	Completed	DRRSP/AAN
27	Bansha Gopal Higher Secondary School	Chaugadha, Hetauda	New construction	2008	Completed	DRRSP/AAN

28	Sakala Devi Primary School	Divyapuri Nawalparasi	New construction	2008	Under Construction	NERMP
29	Buddha Jyoti Bal Udhyan L.S. School	Balaju, Kathmandu	Retrofitting/Re construction	2008	Under Construction	DRRSP/AAN
30	Shree Panchayat Secondary School	Dharan, Sunsari	Retrofitting	2008	Completed	DIPECHO/AAN
31	Shree Laxmipur H.S. School	Triuga, Gaighat, Udaypur	Retrofitting	2008	Completed	DIPECHO/AAN
32	Shree Balkumari Secondary School	Sunakoti, Lalitpur	New construction	2008	Under Construction	DRRSP/AAN
33	Shree Seti Bhoom Lower Secondary School	Ramche, Rasuwa	New construction	2009	Under Construction	DRRSP/AAN
34	Shyame Wangphel Secondary School	Syaphru Besi, Rasuwa	New construction	2009	Design completed	DRRSP/AAN
35	Janakalyan Secondary School	Bageshowari, Banke	New construction	2009	Under Construction	DRRSP/AAN
36	KaliDevi Higher Secondary School	Kavresthali-9, Kathmandu	New construction	2009	Under Construction	NERMP
37	Mahendra Secondary School	Mathehiya, Banke	New Construction	2009	Proposed	DRRSP/AAN
38	Bagiswoari secondary school	Bichaur, Lamjung	New construction	2009	Under Construction	World Bank / GFDRR
39	Shanti Higher Secondary School	kuncha-2, Lamjung	Retrofitting	2009	Under Construction	World Bank / GFDRR
40	Kalika secondary School	Nawalparasi, Gaidakot	New Construction	2009	Under Construction	World Bank / GFDRR
41	Daunae Devi Secondary School	Nawalparasi, Bardaghat	Retrofitting	2009	Under Construction	World Bank / GFDRR
42	Shanti Shrijana Lower Secondary School	Nawalparasi, Jhankre	New Construction	2009	Under Construction	World Bank / GFDRR
43	Marsyangdi Lower Secondary School	Paundi, Lamjung	New Construction	2009	Under Construction	World Bank / GFDRR

Annex 8: NSET participation at International workshops and conferences 2009/2010

S.No	Conference/ Workshops	Date/Venue	NSET Representation
1.	EVRC -8 organized by Asian Disaster Preparedness Centre (ADPC) participated as an instructor	28 Jan -7 Feb 2009, Bangkok, Thailand	Mr. Bijay Upadhyay
2.	Meeting on the Asia Pacific Task Force on Hospitals Safe from Disaster 5-6 Feb 2009, Presentation on Health Sector Preparedness in Nepal	5-6 Feb 2009, Bangkok, Thailand	Mr. Ramesh Guaragin
3.	Workshop on Partnership for Structural and Non-Structural safety for health facilities in emergencies, Hammamet, Tunisia 17-19 Feb 2009	17-19 Feb 2009 Hammamet, Tunisia	Mr. Ramesh Guaragin
4.	16th Training Course on "Water Induced Disaster Mitigation	25 Feb 2009, DWIDP Training Hall	Mr. Bijay Upadhyay
5.	Video Workshop on Unleashing economic Growth : Nepal Region Based Urban Development Strategy	26 Feb 2009, ADB, Kamaladi	Mr. Ganesh Jimée
6.	Global Platform for Disaster Risk Reduction , Geneve	15 – 18 June 2009, Geneva, Switzerland	Ms. Nisha Shrestha
7.	Inter Agency Emergency Simulation	16-17 Apr 09 , Un Conference Hall, Pulchowk	Mr. Ganesh Jimée
8.	INSARAG Asia Pacific Regional Earthquake Response Simulation Exercise organized by UN ,INSARAG and MOHA	22-24 Apr 09 Hotel Soaltee, Ktm	Mr. Surya Narayan Shrestha, Mr. Ram Chandra Kandel, Mr. Ganesh Jimée
9.	Meeting on Crop and Food Security Assessment organized by Ministry of Agriculture and Co-operatives (MOAC),Singhadurbar and World Food Program	22 May 2009 (MOAC),Singhadurbar Kathmandu	Mr. Ganesh Jimée
10.	ADRRN Board Meeting	14 Sept 2009 , Bangkok	Mr. Amod Dixit
11.	Project Working Group Meeting and Workshops of Risk Sensitive Land Use planning for Kathmandu Metropolitan City, Facilitate KMC-NSET team during the meeting and workshops	15-19 Sept 2009, Makati City, Philippines	Mr. Surya Narayan Shrestha
12.	Socio-Economic Impact brainstorming meeting organized by GEM Foundation	Sept 16, 2009, Paris	Mr. Amod Dixit
13.	Workshop MPAT Tempest Express – 17 organized by Nepal Army , U. S Army	26 Aug- 4 Sept 2009, Hotel Yak and Yeti	Mr. Ram C. Kandel
15.	SAARC Regional Workshop on Earthquake Risk Management	8-9 October 2009, Islamabad, Pakistan	Mr. Amod Dixit
16.	"DRH Consortium International Workshop" toward implementation of Science for Disaster Risk Reduction	10-16 October 2009, Kyoto University, Kyoto, Japan	Mr. Amod Dixit
17.	Technical Advisory group meeting of Center for Research on Epidemiology of disasters-CRED (Global Disaster Database Initiative)	23-30 October 2009, Newyork, USA	Mr. Surya Narayan Shrestha
18.	ADRRN Annual General Meeting organized by ADRRN and BDPC	26-30 October 2009, Dhaka, Bangladesh	Mr. Amod Dixit, Mr. Khadga Senoli
19.	Workshop/retreat validating and reviewing of earthquake risk assessment and contingency planning under Earthquake and Tsunami Preparedness Component of CDMP, ADPC	6-7 November 2009, Dhaka, Bangladesh	Mr. Ramesh Guragin

20.	36th World Hospital Congress	10-12 November 2009, Rio de Janeiro, Brazil	Mr. Amod Dixit
21.	A national symposium on DRR in Nepal held in coordination of DPNepal Nepal	13 October 2009	Mr. Khadga SenOli
22.	"Janata Awas Karyaniti" presentation & discussion program organized by Department of Urban Development and Building Construction (DUDBC) and UNHabitat	11 November 2009, Hotel Himalaya, Lalitpur	Ms. Bhuvaneshwori Parajuli
23.	"Seminar on International GIS Day 2009" organized by Nepal GIS Society	18 November 2009, Women Development Training Center, Jwalakhel	Mr. Suresh Chaudhary
24.	Workshop on Hazard Management for Sustainable Development organized by Nepal Engineering College, Ehime University, Japan and DWIDP	29-31 November 2009, Hotel Annapurna, Kathmandu	
25.	Workshop on Use of Space Technology for Disaster Risk Reduction organized by National Institute of Disaster Management, Ministry of Home Affairs, Government of India and United Nations Office for Outer Space Affairs (UNOOSA)/ United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UNSPIDER)	11-13 January 2010, Delhi, India	Mr. Ganesh Jimee
26.	Results Management Council (RMC) of the Global Facility for Disaster Reduction and Recovery (GFDRR) expert meeting	19-21 January 2010, World Bank at Washington, DC; World Bank Headquarters	Mr. Amod Dixit
27.	International Conference, 'Connecting for Sustainable Change; Building Disaster resilience through global networking'	25-27 January 2010, London	Mr. Amod Dixit, Ms Nisha Shrestha
28.	Expert Meeting on Non-engineered Buildings	21 February, 2010, Kobe, Japan	Mr. Amod Dixit
29.	International Forum on Telling Live Lessons from Disasters	20-22 March , 2010, Yomiuri ,Kobe, Japan	Mr. Amod Dixit
30.	South Asia Planning Meeting " Advancing Grassroots Women's Leadership in Community Resilience" organized by LUMANTI and supported by HUAIROU COMMISSION	8 -11 February 2010, The Everest Hotel, Kathmandu Nepal	Ms. Nisha Shrestha
31.	Mini-communication workshop hosted by USAID for its partners on Writing Effective Press Releases	18 March, 2010 USAID Office Building	Mr. Kalyan Bista, Mr. Khadga SenOli