



NSET
Disaster Resilient Communities in Nepal

Annual Report

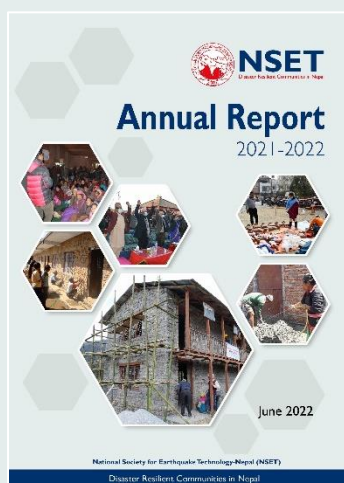
2021-2022



June 2022

National Society for Earthquake Technology-Nepal (NSET)

Disaster Resilient Communities in Nepal



Annual Report 2021-2022

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

Cover Photo (Front)

Glimpses of NSET Activities

Cover Photo (Back)

NSET Family Photo

June 2022

Book Publication Series:
NSE-147-2023

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Message from the President



We feel proud that NSET is completing 29 years in serving Nepal towards making our communities resilient. Our concerted efforts for earthquake risk reduction and disaster risk mitigation in collaboration with government authorities, national and international partners, and the communities has been a great journey.

It is our pleasure to inform you that we have launched NSET's 10-Year Strategic Plan (2021-2030) with an idea to ensure greater visibility in its strategic destination and the path to attain envisioned destination through accomplishment of its mission. This 10-year strategic plan has been prepared with a clear thirst and commitment for growth and efficiency in its overall performance and impact to the society. NSET was founded in 1993 for the broad but very explicit cause of ensuring earthquake safety in the hazard-prone urban as well as backward societies of Nepal and contributing to the regional and global level at large. Our institutional VISION which has been the pivotal inspiration of the organization till 2020 was to develop "Earthquake Safe Communities in Nepal by 2020". The new strategic plan is to further our institutional course of action.

As in the past, we vow to cooperate and collaborate with you all. We request our government agencies, donors, partners, urban and rural municipalities and wards of every municipal unit to guide us, collaborate with us and help us in pursuing our institutional journey that aims to help building community resilience. We appeal all the concerned to critically review our efforts and guide us by which NSET can contribute better to making our communities resilient to disasters.

Thank you!

Dr. Amod Mani Dixit

Message from the Executive Director



We are happy that NSET has successfully completed another year of journey towards building resilient communities in Nepal. We are thankful to all our stakeholders and partners. I also thank the members of NSET Management Committee and staff.

NSET has now launched 10-Year Strategic Plan (2021-2030). NSET has had a rich experience and lessons of working in the field of earthquake risk management in last 28 years, and we believe that such experiences, knowledge, and lessons can be leveraged effectively in managing multi-hazard risks. In addition, the focus of global and national frameworks related to disaster resilience has encapsulated the aspects of multi-hazard risk management. The newly launched NSET's Strategic Plan envisions for "Disaster Resilient Communities in Nepal by 2050". To achieve this, NSET has crafted its institutional Mission "To contribute in enhancement of disaster resilience of the communities through development and implementation of appropriate technologies, inclusive and collaborative approaches in order to minimize and manage disaster risks." This Strategic Plan has established the meaning, priorities, strategic direction for the overall being and operations of NSET and a roadmap for accomplishing targeted goals and objectives for next 10 years.

We are thankful to the trust that NSET received from our national and international partners, urban and rural municipalities, house-owners, community people, informal groups, governments of all tiers, bi-lateral agencies, donor institutions, private sector businesses, Nepali diaspora and other organizations.

We reassure our friends and well-wishers that we will continue to serve the nation by continuing what we did so far and we will add more dimensions to our services. We request for continued understanding and support from all.

Thank you!

Mr. Surya Narayan Shrestha

Table of Contents

Message from the President.....	i
Message from the Executive Director	ii
About NSET	I
NSET Accomplishments during 2020-2022.....	8
1. Assisting Post Earthquake Housing Reconstruction in Nepal.....	12
2. Efforts on Assisting Building Code Implementation and Multi-Hazard Risk Management.....	27
3. Technical Support on for Building Code Implementation for making Resilient Cities.....	31
4. Community-Led DRR Efforts.....	40
5. Efforts for Making Resilient Schools.....	46
6. Enhancing Preparedness and Emergency Response Capacity in Nepal and the Region.....	51
7. Use of Science & Technology in Resilience Building	56
8. Other Key Events	59
9. Networking and Collaboration	64
10. Monitoring, Evaluation and Learning.....	66
11. Our Current Status.....	70



२९औं एनसेट दिवस

29th NSET Day

विपद सुरक्षा अभिवृद्धिका लागि पुनःप्रतिज्ञाको दिन
A Day to Reaffirm Commitment to Disaster Resilience

असार ३, २०७९, सैंबु आवास, भैंसेपाटी, ललितपुर महानगरपालिका
June 17, 2022, Sainbu Awas, Bhainsepati, Lalitpur Metropolitan City



Glimpses from NSET Day 2022



About NSET

We, National Society for Earthquake Technology-Nepal (NSET), are a community of Nepali professionals belonging to various physical and social sciences with a common goal of contributing towards disaster risk management in Nepal and the region.

We are a multidisciplinary professional society registered with the Government of Nepal as a Not-for-Profit Non-Government Organization.

Our Vision

Disaster Resilient Communities in Nepal by 2050

Our Mission

To contribute in enhancement of disaster resilience of the communities through development and implementation of appropriate technologies, inclusive and collaborative approaches in order to minimize and manage disaster risks.

NSET was founded by a group of professionals on June 18, 1993 with the vision of contributing to build "Earthquake Safe Communities in Nepal by 2020". An interim Management Committee was then formed comprising eminent persons Mr. Shiva Bahadur Pradhanang as President, Mr. Amod Mani Dixit as General Secretary; and Mr. Jyoti Prasad Pradhan, Mr. Madhav Raj Pandey, Ms. Shanti Malla, Mr. Mukunda Prakash Singh Pradhan and Mr. Mahesh Nakarmi as Members.

Nepal has been facing significant damages and losses due to various degrees and types of disasters. NSET has had a rich experiences and lessons gathered from working in the field of earthquake risk management in nearly 3 decades and we believe that such experiences, knowledge, and lessons could be leveraged effectively in managing multi-hazard risks. In addition, the focus of global and national frameworks related to disaster resilience has encapsulated the aspects of multi-hazard risk management. NSET, hence envisioned to widen, deepen and scale up its area of contribution in enhancing disaster resilience of communities.

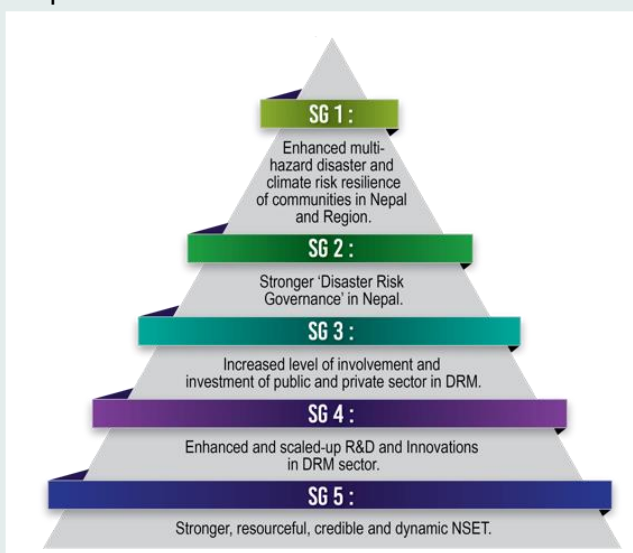
NSET has made contribution at local, national, regional and global levels, as envisaged by IDNDR(1990-1999), HFA(2005-2015), SFDRR(2015-2030), and has been also contributing towards achieving SDGs & various targets set at global, regional, national and local levels.

Building upon the achievements made, NSET has developed 10-year Strategic Plan (2021-2030) with the idea to expand its scope and works to managing multi-hazard situations, climate change adaptation and risk management, and integrate this synthesis of disaster risk management (DRM) and Climate Risk Management (CRM) into economic development efforts. The NSET's 10-Year Strategic Plan envisions to contribute to build "Disaster Resilient Communities in Nepal by 2050".

Strategic Objectives

We have set five Strategic Goals (SG) for 2021-2030. NSET now focuses on the following strategic objectives which are connected to our Strategic Goals:

- **SO1:** Develop and implement integrated and inclusive interventions related to Multi-Hazard Disaster and Climate Risk Management through development and enhancement of understanding, capabilities and resources of communities in Nepal and region.
- **SO2:** Assist in Institutionalization and Integration of validated understanding, approaches and technologies related to Disaster and Climate Risk Management into the laws, regulations, policies, initiatives and mechanisms in order to strengthen Disaster Risk Governance in Nepal.
- **SO3:** Devise and integrate innovative, cost-effective and appropriate methods and measures in order to increase involvement and investment of public and private sector in Disaster and Climate Risk Management.
- **SO4:** Develop and promote effective and inclusive collaboration in order to enhance and scale-up innovation and R&D in the area of Disaster Risk Management.
- **SO5:** Be a dynamic, sustainable and learning organization through enhancement of capabilities, networks and collaborations.



NSET's Strategic Goals (SG) for 2021-2030

Bringing "substantial change in the application of technology to the many facets of disaster risk management for saving lives of the people" has remained the guiding philosophy of NSET ever since its inception. NSET's each effort spearheads towards building disaster-resilient communities.

Strategic Initiatives

In order to achieve each of our strategic objectives within 2030, we are committed to take following strategic initiatives (but not limited to):

- Hazard and sector specific national programs for disaster risk management (DRM) and climate risk management (CRM)
- Specific programs targeted to various sectors of communities
- Appropriate methodologies for monitoring hazard incidents

- Objective-oriented community-based disaster risk management programs
- Local disaster and climate resilience plan and risk sensitive land use plan
- Multi-stakeholder engagement on DRM/CRM
- Collaboration in order to produce knowledge, concepts, methods and technologies related to multi-hazard and cascading disaster risk management.
- Enhanced engagement of young professionals, students, academicians, experts and practitioners on DRM/CRM
- Integrate 'innovation' into organizational identity, policies, processes, practices, leadership, approaches, behaviors and working environment

Current Affiliations/Involvements

NSET is contributing at local, national and international level on disaster risk reduction efforts and initiatives. The following affiliations and memberships allow us to contribute at different levels:

- International Centre of Excellence (ICoE) endorsed by Integrated Research on Disaster Risk (IRDR)
- National Delegate, International Association of Earthquake Engineering (IAEE)
- Founder Member and Chairperson in Management Board, Asian Disaster Reduction and Response Network (ADRRN)
- Founder Member, Disaster Preparedness Network (DPNet), Nepal
- Member, Global Network of CSO for Disaster Reduction (GNDR)
- Member, Governing Board, Global Earthquake Model (GEM) Foundation
- Member, National Platform for Disaster Risk Reduction, Nepal;
- Associate Member and Host Organization for Nepal National Chapter, CityNet
- Member, Network for Empowered Aid Response (NEAR)
- Member, Start Network / Start Fund Nepal
- Advisor, Lalitpur Metropolitan City; and
- Advisor, Vyas Municipality.
- For brief information on current activities, please refer [NSET's Brochure](#).

NSET Management Committee



Dr. Amod Mani Dixit
President



Mr. Shreeram S. Basnet
General Secretary



Mr. Surya Bhakta Sangachhe
Treasurer



Mr. Varun Prasad Shrestha
Executive Member
(Immediate Past President)



Mr. Yogeshwor K. Parajuli
Executive Member



Mr. Tika Sharma
Executive Member



Mr. Surya Prasad Acharya
Executive Member

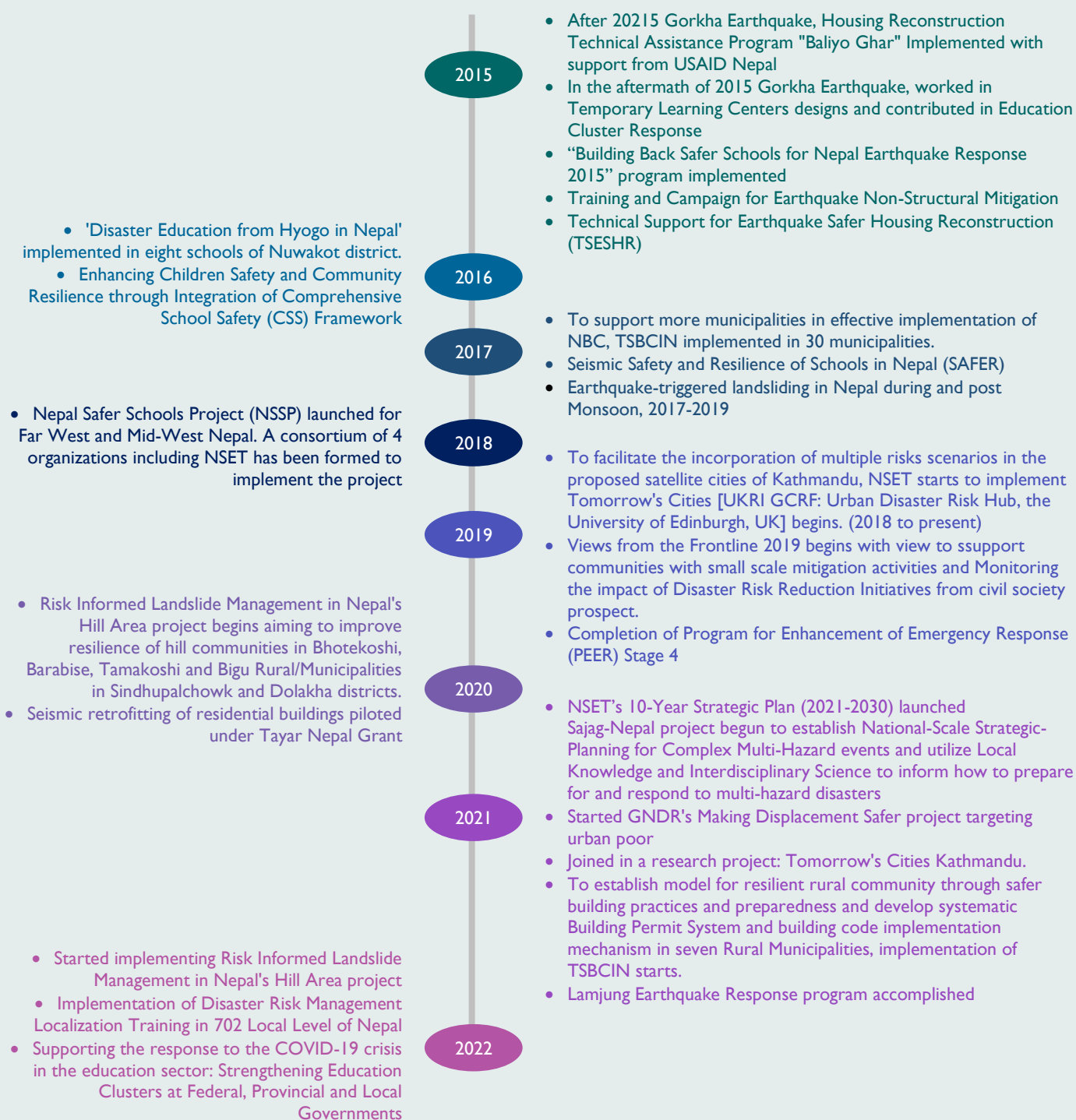


Mr. Surya Narayan Shrestha
Executive Member

NSET Timeline

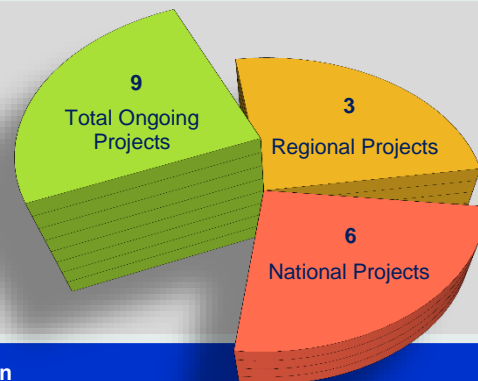






NSET Accomplishments during 2020-2022

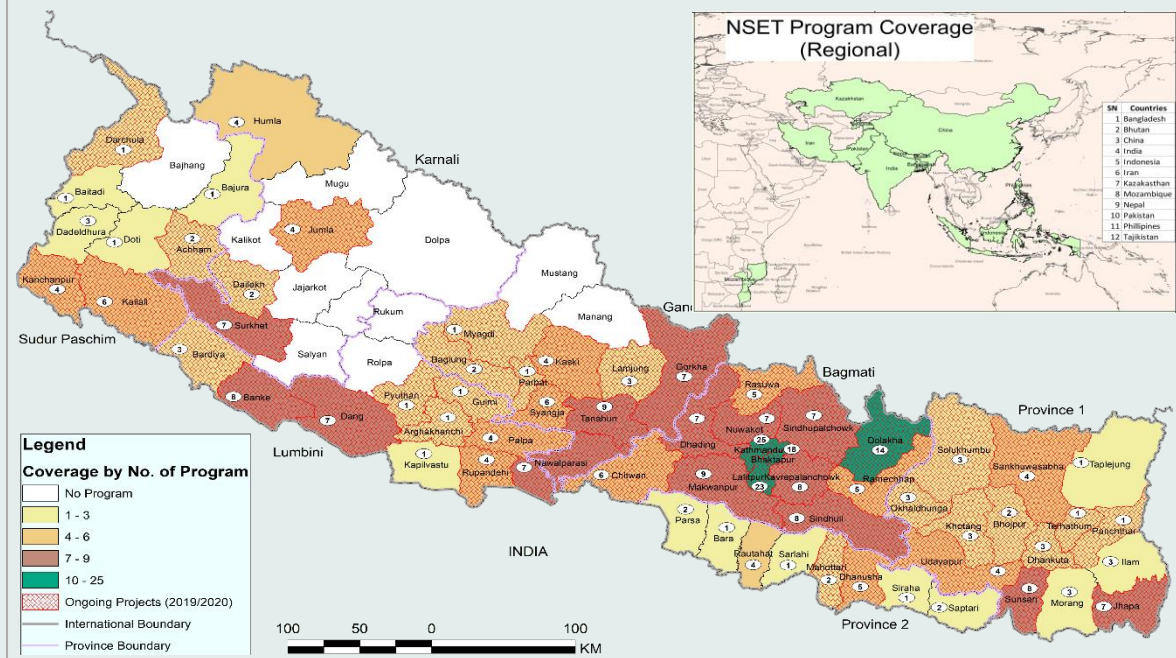
Reporting Period: **June 2021–May 2022**
Data Source: **NSET MEL**



NSET's Division



Distribution of NSET's DRM Programs in Different Districts of Nepal (Figures indicate number of programs in the districts during 1997-2022)



46,552 total beneficiaries reached during June 2021- May 2022

Direct Participants

7267 (2021-2022)
8,20,098 (1994-2022)

Indirect Participants

46,635 (2021-2022)
4,709,465 (1994-2021)

June 2021- May 2022

Cumulative data (1994 -2022)

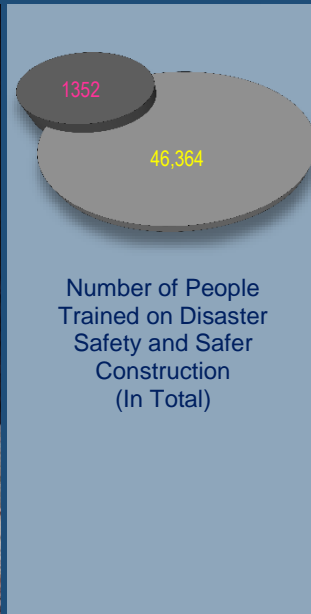
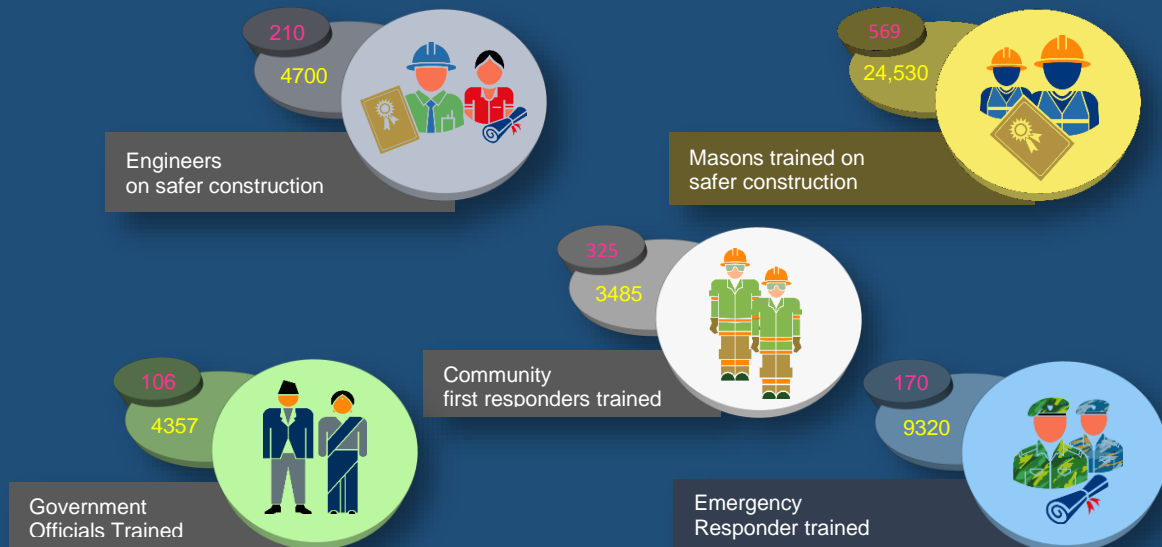
**Gender wise participation in NSET overall activities
(June 2021-May 2022)**

Male
61%

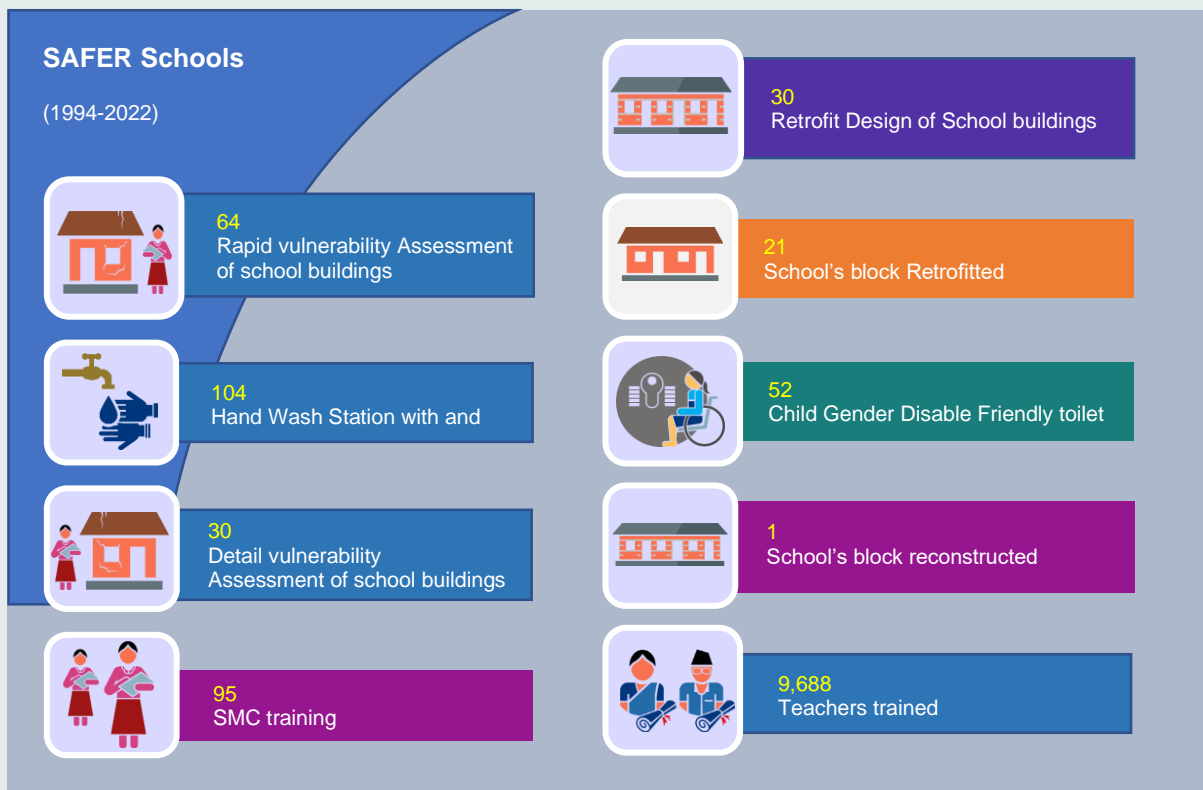
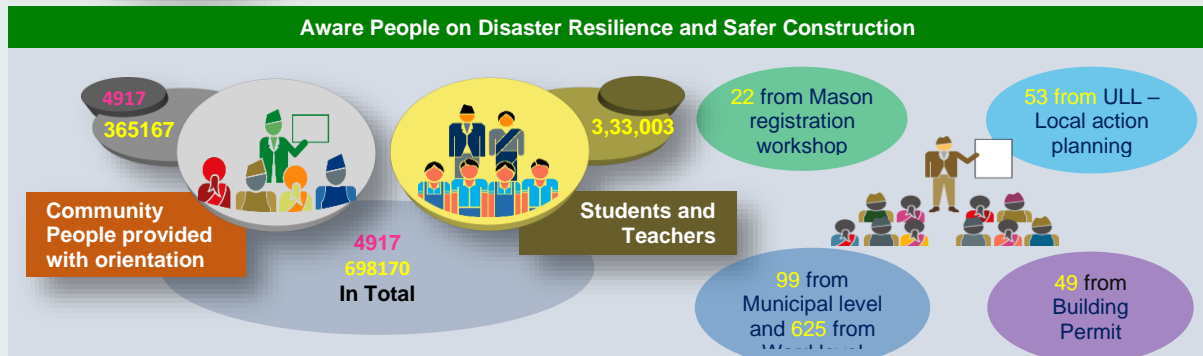


Female
39%

Trained Population on Disaster Resilience and Safer Constructions



■ June 2021- May 2022
 ■ Cumulative data (1994 -2022)



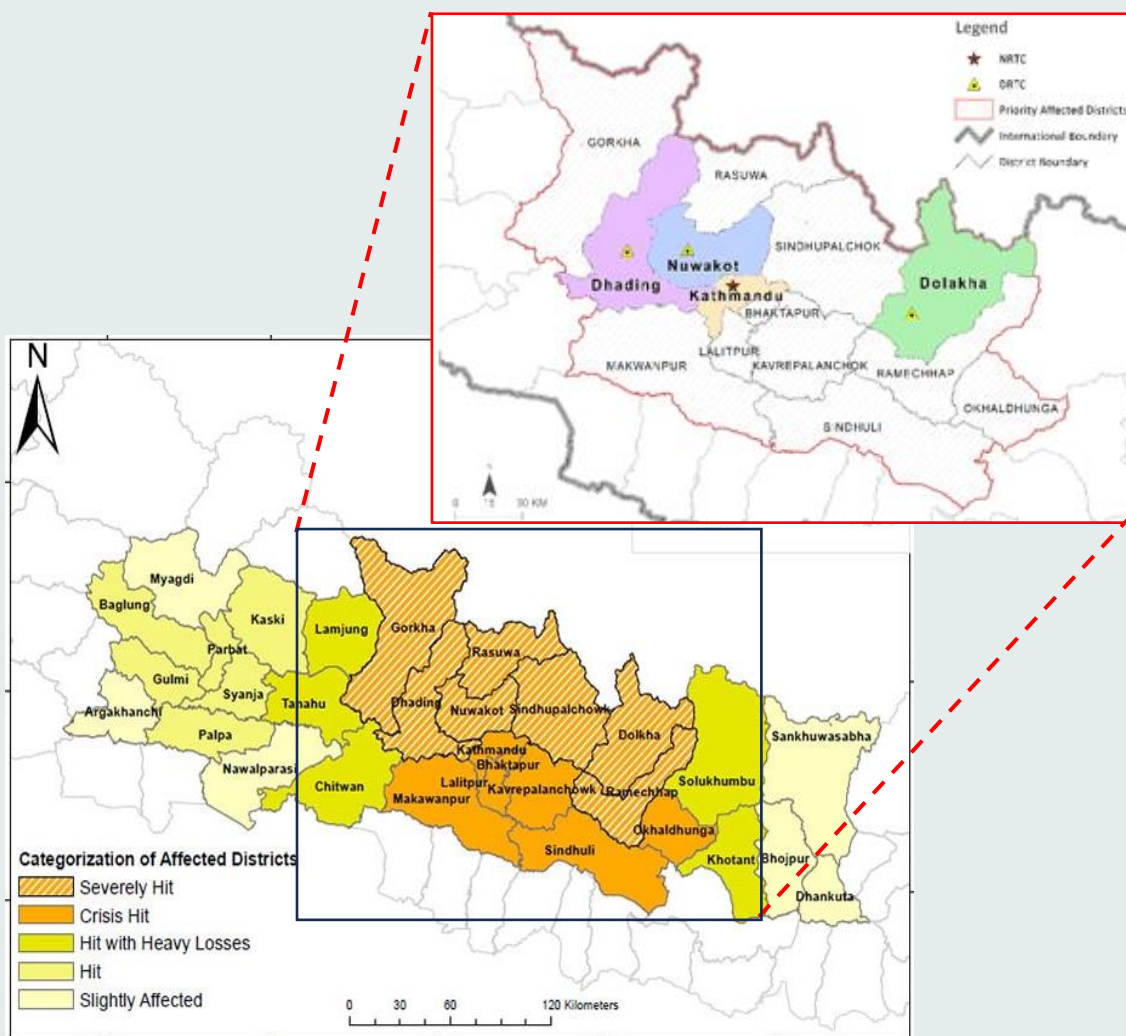


June 2021- May 2022 Cumulative data (1994 -2022)

I. ASSISTING POST EARTHQUAKE HOUSING RECONSTRUCTION IN NEPAL

Housing Reconstruction Technical Assistance Program – Baliyo Ghar

NSET implemented the Housing Reconstruction Technical Assistance Program - Baliyo Ghar, to support post 2015 Gorkha Earthquake reconstruction with the support from United States Agency for International Development (USAID Nepal). Through Baliyo Ghar Program, NSET provided comprehensive technical support to the Nepal Government's reconstruction program by empowering and supporting communities to "build back better". The program was implemented during October 1, 2015 to September 30, 2020 in 4 districts out of 14 most severely impacted districts; Dhading, Dolakha, Nuwakot, and Kathmandu.



Baliyo Ghar program areas

The program had two-fold goals, in shorter-term, the program aimed at ensuring earthquake safer construction of all houses being reconstructed; and in longer-term, the program aimed at establishing a system of disaster-resilient construction to achieve the goal of disaster-resilient communities in Nepal.



Baliyo Ghar Program Strategy

To achieve the set goals, the NSET had a 3-pronged strategy:

- i. Support in developing appropriate policies and systems such as reconstruction mechanisms, guidelines, manuals and checklists,
- ii. Capacity Building to homeowners, masons, engineers, and other relevant stakeholders to undertake disaster resilient reconstruction, and
- iii. Awareness raising to homeowners, local authorities, social leaders, and communities to enhance knowledge on disaster risk and mitigation measures.

NSET adopted following key principles and approaches to implementing program activities.

- **Comprehensive mode of assistance**, that focused on policy, capacity building and awareness; and was carried out through a multitude of activities ranging from formal methods such as trainings, orientations, workshops, seminars and meetings to informal methods such as household interaction, community engagement and mass awareness activities.
- Promoting appropriate technology for housing solutions, that is technically feasible, economically affordable, culturally acceptable, locally available, and sustainable.
- Complimenting national reconstruction policies and processes, combining 3 main facets of reconstruction; socio-technical assistance, financial support and compliance check mechanism.



NRA CEO handing over the first participation agreement to a beneficiary at the enrollment camp organized in Singati of Dolakha district in April 2016

- **Ensuring inclusion and access to blanket socio-technical assistance** to leave no one behind in this course enhancing disaster resilience of the affected communities.
- Well-structured implementation plan with defined structure and hierarchy of Reconstruction Technology Centers (RTCs) and Mobile Teams.

Major Accomplishments

A. Contribution in standardization of policies for disaster resilient reconstruction

Large scale recovery and reconstruction following the principle of “build back better” is challenging, and need appropriate policy, plan, procedures, guidelines, manuals, checklist etc. for the whole system to function appropriately. NSET provided technical support to National Reconstruction Authority (NRA) to draft various policy as well as technical documents as needed.



- **Technical support for development of reconstruction policies** largely based on need felt by the NRA. NSET's contribution was on following policy documents: GoN Policy for reconstruction and rehabilitation, 2015; SOP for Enrollment and Housing Grant Distribution, 2015; Nepal Earthquake 2015 Post Disaster Recovery Framework (2016-2020); Guidelines for Training Conduction and Management, 2073; Technical Inspection Guidelines for Housing Reconstruction, 2016 and SOP for Management of Grievances related to Reconstruction, 2017. Such support was delivered by deploying expert advisor to the NRA Chief Executive Officer and other senior officials upon their request.

- **Development of Guidelines and Manuals**, based on expertise and experience in the field of earthquake resistant construction, retrofitting and reconstruction. NSET supported in developing several key technical guidelines and manuals to aid the reconstruction and recovery process: Training Manual on Basic Technical Training for Engineers on Earthquake Resistant Design and Construction, 7-Day Mason Training Manual on Earthquake Resistant Building Construction Technology (Rural/ Urban), Correction/ Exception Manual for Masonry Structures, Repair and Retrofitting Manual for Masonry and RCC Structures, Light

Timber / Steel Frame Structure Manual, Hollow Concrete Blocks Manual for Load Bearing Structures for houses that have been built under the Housing Reconstruction Programme, Guidelines for Repair and Maintenance of Masonry Buildings, Curriculum for on-the-job Training for Retrofitting of houses. These documents helped resolve the housing reconstruction technical issues and facilitate the inspection process.



B. Strengthening National Capacity in Disaster Resilient Construction and Build Back Better

The training and capacity building of local construction workforce; masons and engineers and the auxiliary support systems such as social mobilizers and social activists was one of the core socio-technical assistance components of Baliyo Ghar Program. These capacity building trainings not only had direct impact on the disaster resilient construction to expedite the reconstruction process but also aided in enhancing awareness through community mobilization, identification and resolution of key reconstruction issues, developing synergy and harmony in the earthquake affected communities and ensuring the sustainability of disaster resilient construction practices. With these objectives, Baliyo Ghar Program trained a total of 19,865 professionals from various groups and expertise to support the reconstruction of its program areas, and beyond.

Followings the various capacity building trainings conducted and their achievements.

- **Enhancing skills of existing masons and developing new masons:** National Reconstruction Authority estimated the requirement of more than 60,000 construction workers to complete the reconstruction of more than 825,000 fully damaged and retrofitting of another 70,000 houses. While the estimated number of existing masons in the earthquake affected areas could cover 50% of the total reconstruction need.

NSET conducted capacity enhancement of local masons in 2 ways:

Masons' Trainings (7 days), for existing masons working in the field of construction, that aims enhance knowledge and skills on earthquake resistant construction, and

On-the-Job Training (OJT), a 50-day course that aims to develop new masons.



Training participants working together in construction of stone masonry walls using earthquake resistant construction techniques in Dolakha. Participants constructed a small scale model of masonry walls to apply hands on practice of the techniques of construction under close supervision of instructors.



Participants working on construction of wooden bands during hands on practical exercise of rural mason training in Dhading.

NSET, under Baliyo Ghar Program, trained 12,675 masons. Of these, 7,245 existing masons were trained in earthquake resistant construction through the 7-day training program whereas 5,430 new skilled masons were developed through the On-the-Job training (OJT) program. Additionally, through these programs, 910 full scale demonstration model houses and more than 400 small scale demonstration models were constructed throughout the Baliyo Ghar Program areas, that significantly contributed to enhancing awareness in the communities.

- **Enhancing knowledge and skills of technical professionals in disaster resilient design, construction and technical assistance:** NSET trained 3,995 technical personnel (engineers, sub engineers and architects) in earthquake resistant design, construction, supervision and technical assistance during the housing reconstruction program through the various capacity building and training events.



Orientations on reconstruction process conducted for engineers, architects and sub-engineers deployed by NRA to the quake hit areas, NSET supported to train a total 2,759 professionals.

- **Strengthening capacity and understanding of decision makers and reconstruction actors:** NSET conducted learning and interactive sessions for elected representatives and various decision makers at local, district and national levels to build their better understanding on reconstruction issues so that they could lead the process in better ways.

NSET conducted capacity building activities for various groups like media-persons, social mobilisers and others.



Training for Local Authorities (TLA) events conducted by Baliyo Ghar program



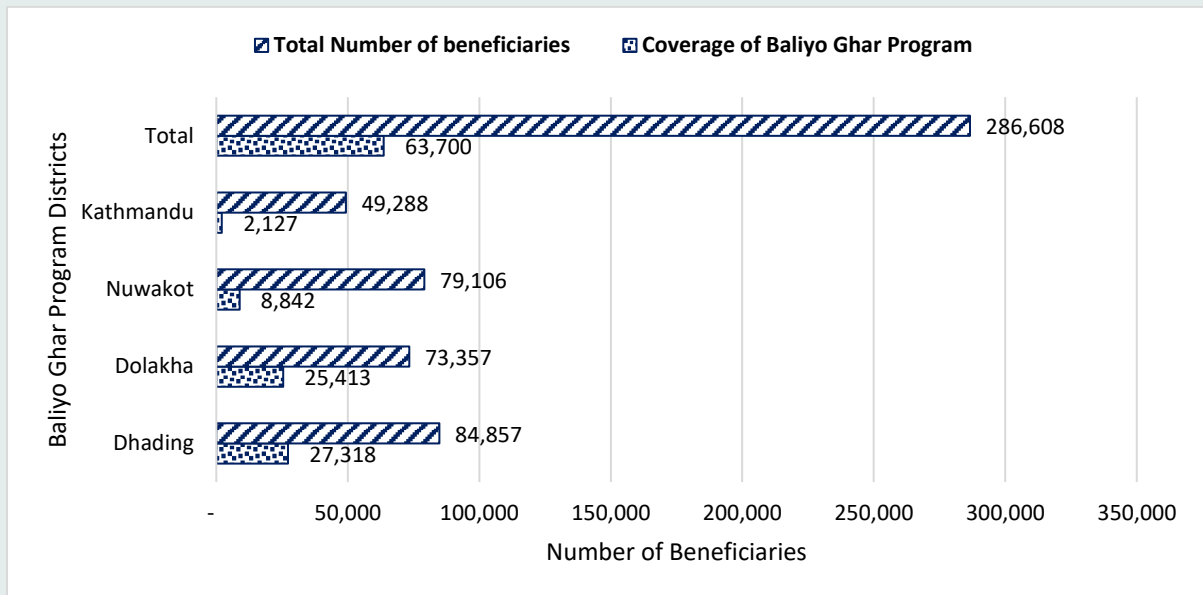
Training for Local Authorities (TLA) events conducted by Baliyo Ghar program



Training for Local Authorities (TLA) events conducted by Baliyo Ghar program

C. Socio-technical Assistance and Awareness Raising

- **Socio-Technical Assistance on Post Earthquake Reconstruction:** NSET provided direct socio-technical assistance for the reconstruction of total 63,700 houses in the quake hit communities.



Baliyo Ghar Program districts and coverage in terms of beneficiaries



Family of Shanti Bhujel in Bigu Dolakha resuming their normal life after completing reconstruction

The program provided socio-technical assistance for safer reconstruction through different means:

- **Community based orientations** conducted massively in order to make the house-owners aware on the need of earthquake-resistant construction consisting of closed

classroom-based sessions on earthquake risks, mitigation measures and the technical and administrative provisions of reconstruction were conducted in program areas.



Community orientation conducted by NSET in Baliyo Ghar program area

- **Door to Door Technical Assistance and Social Mobilization** provided to earthquake affected beneficiaries to support them on reconstruction process.
- Demonstration models constructed to aid house owners, masons, engineers, and other stakeholders adequately visualize earthquake resistant construction techniques.
- Information Desks served to groups of beneficiaries with information and ideas related to reconstruction process.



Local community people including house owners, local government representatives and others visiting a demonstration construction site on retrofitting to learn about the technique. Such demonstration visits were facilitated by Baliyo Ghar Program through awareness campaigns or trainings.



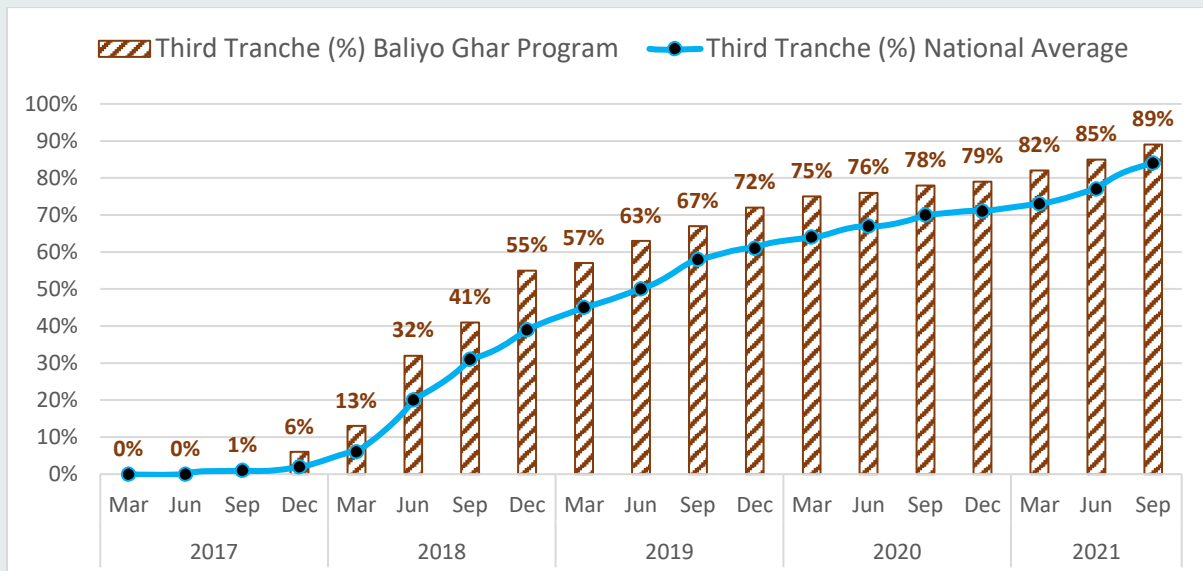
- Enhancement of awareness on disaster resilience:** One of the key objectives of the NSET implemented Baliyo Ghar program was to raise awareness among the house-owners, professionals and practitioners on resilient housing reconstruction. To achieve this, NSET conducted different program activities like orientations, door to door technical assistance, information desk, demonstration model, and media campaigns to support accelerate reconstruction process.

Outcomes and impacts

A. Improved and efficient housing reconstruction and grant management process

NSET provided support for the improved and effective housing reconstruction and grant management process.

Following curve is about third tranche received by the beneficiaries. This shows that the release of the tranche is higher in NSET program areas compared to other areas. It seems 3to9 months faster. That resembles the reconstruction progress also speeding better in the NSET program areas..



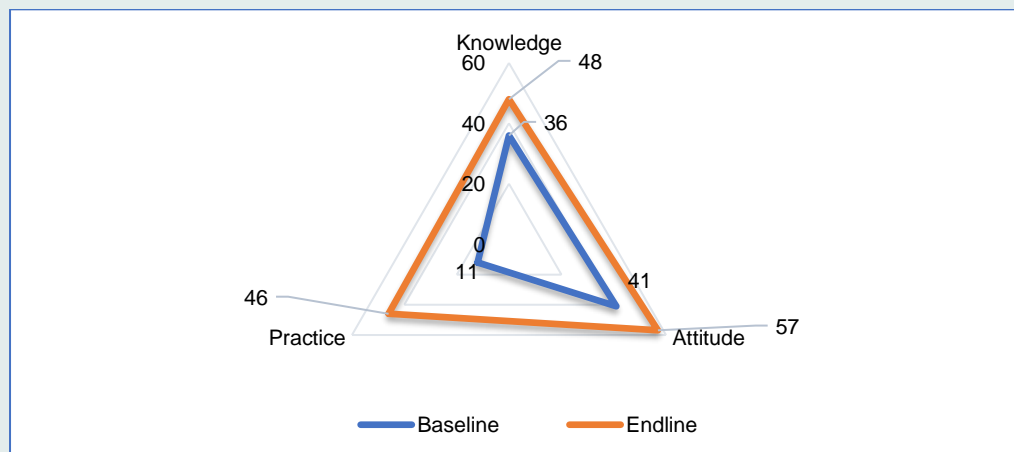
Comparative cumulative third tranche progress of housing reconstruction in NSET implemented Baliyo Ghar (BG) program areas and National Average (as of total beneficiaries in Aug 2021)

B. Engagement of trained masons in construction works is high

The capacity building of local masons and their involvement in the reconstruction process was one of the emphases of the national reconstruction program. In this line, Baliyo Ghar program also subsequently developed strategies to ensure that homeowners rebuilding their damaged houses utilized and employed trained masons. The involvements of trained masons was overall 86% (specifically 93% in Dhading, 81% in Dolakha, 80% in Nuwakot). It was found that the compliance rate of newly built houses was improved substantially with the involvement of trained workforce.

C. Perception towards disaster risks and reduction enhanced

NSET conducted baseline and endline surveys in the program areas to measure the level of awareness of the people before and after the implementation of the program. The average knowledge, attitude and practice (KAP) score in the baseline survey was 30 (out of 100), that is low; while the KAP score increased to 50 during the endline survey. This difference shows that the level of awareness has raised due to the program intervention in the areas.



Knowledge, Attitude, Practice (KAP) score of beneficiaries in Baliyo Ghar Program area

D. Community engagement increased

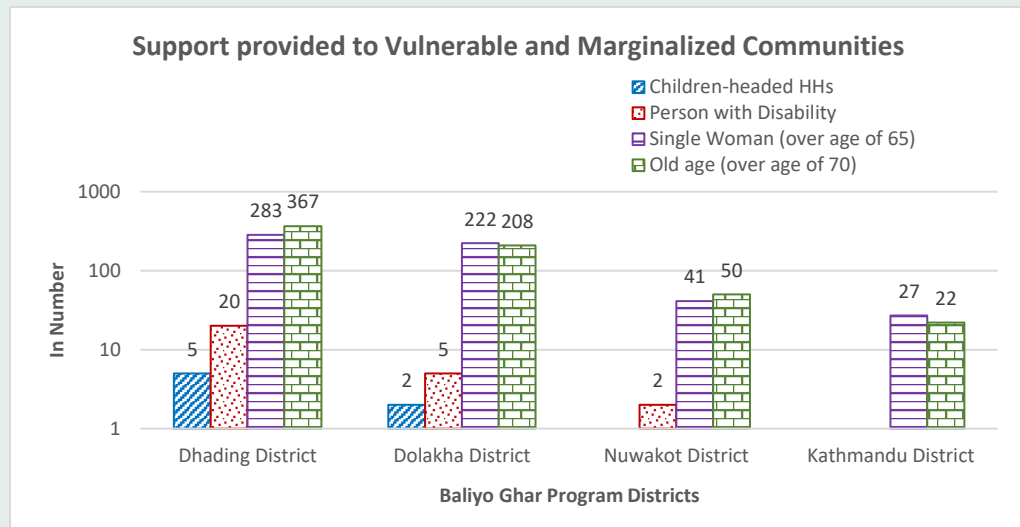
NSET, through Baliyo Ghar program, conducted various community engagement and awareness activities to primarily assist the house-owners on decision making process related to safer reconstruction. Initially, the community people were more reliant to others, seeking guidance on every issue from the technical professionals and authority people. But, gradually, their engagement and role on decision making found continuously improving and increasing.

E. Female involvement in reconstruction process enhanced

NSET has focused to enhance female involvement in reconstruction process. That has yielded some good results. The existing number of female masons was low, only 7% were female who participated in the mason trainings. But in OJT, there were higher number of female workers involved, 26% female workers joined in and got developed as trained masons. NSET deployed more than one hundred social mobilizers, of which 54% were female. Among technical professionals mobilized, 17% were female. In the program areas, NSET worked with more than 60,000 households, of which 42% were headed by female. In a complete view, there was appreciable ratio of female involvement in reconstruction process.

F. Support provided to vulnerable and marginalized communities in reconstruction process.

During the reconstruction, emphasis was given to provide support to vulnerable and marginalized families to rebuild their houses.



For more detail, please refer [Baliyo Ghar publications](#) and [Baliyo Ghar](#).



Reconstruction accomplished in a village in Bigu Rural Municipality, Dolakha where Baliyo Ghar program provided socio-technical support

NSET efforts through Housing Recovery and Reconstruction Platform (HRRP)

The Housing Recovery and Reconstruction Platform (HRRP) is a mechanism for coordination, strategic planning and technical guidance to agencies involved in recovery and reconstruction and to support the Government of Nepal in coordinating the national reconstruction program. NSET leads technical coordination under HRRP, NSET has provided technical staff at central and district level. Followings are the NSET's contribution through HRRP during this period.

Managing tranche disbursement inspection form and RMIS

NDRRMA, HRRP and NSET conducted virtual orientations on inspection forms of housing reconstruction after monsoon and fire-induced disasters. The orientation also instilled know-how on using RMIS system for tracking information updates of housing reconstruction.

The orientation events conducted for Engineers, IT Officers and other concerned staff working in data management in entire Local Governments from 67 districts till the end of May 2022. Earlier, the inspection form was reviewed and revised based on feedback provided by the inspection team.

The RMIS orientation was initiated mainly to address issues on data collection of fire outbreaks and monsoon affected households to be enrolled in NDRRMA's KOBO Collect Mobile App and to further implement the RMIS in full-fledged manner.

Localization Study on Disaster Risk Reduction and Management

Consultation workshop on 'Localization Study on Disaster Risk Reduction and Management' conducted jointly by HRRP, NDRRMA and NSET in Gandaki and Bagmati Provinces. The workshop aimed to identify all actors involved in the process of localization of DRRM, the post-disaster housing and settlement recovery process, and map out their relationships to identify strengths, gaps and successes as they pertain to implementing the DRRM Act 2017 and achieving the mandate of DRRM Strategic Plan of Action 2018-2030.



Constitution Workshop on localization Study on DRRM held in Bagmati Province

Field assessment to observe effects of post monsoon induced rainfall

NDRRMA with technical support of HRRP conducted technical field assessment of post monsoon induced rainfall of October 2021 in Panchthar district. Through HRRP, NSET provided support in data collection of landslides affected beneficiaries in the KOBO tool for initiating the enrollment process so that beneficiaries can reside in disaster resilient houses. The task was initiated after NDRRMA received requests from 3 affected rural municipalities of Panchthar district, namely Miklajung, Phalgunanda and Tumbewa.



Landslide impacted families in Panchthar District in temporary shelters.

Orientation on Private Housing Reconstruction and Rehabilitation Guidelines 2077

In technical coordination with HRRP and NSET, NDRRMA provided orientations to disseminate and localize the NDRRMA's Private Housing Reconstruction and Recovery Grant Disbursement Procedural Guidelines-2077 and information management tools to all municipalities and districts in Bagmati and Gandaki Provinces.

To strengthen the capacity of local government staff to speed up private housing recovery and reconstruction processes of affected populations, one-day orientation program was held in 20 Local Governments from Sindhupalchowk and Lamjung district for staff of local government and frontliners.

Studies on Urban Recovery Strategy and Economic Impact

HRRP carried out an "Urban Recovery Study" on urban issues commissioned by NRA with technical support by NSET, CRS. The objective of the study was to collate learning elements and prepare ground for integration of evidence-based urban strategies into specific government acts, policies, working procedures and regulation. The report was shared during the NRA's ICNR held in December 2021.

HRRP also conducted "Economic Impact Study" which was executed by a team of 3 independent consultants, technically supported by NRA. The report was shared in the NRA's ICNR.

House Cost Calculator Application

House Cost Calculator (HCC), an application tool was launched in June 2021. The tool was developed by the Housing Recovery and Reconstruction Platform (HRRP) in collaboration with Catholic Relief Services (CRS)-Nepal, National Society for Earthquake Technology (NSET)-Nepal and UK-AID with support from Vulnerable Support Working Group (VSWG) Technical Committee Members Organizations-Practical Action, Build Change, People In Need, Build Up Nepal.

The HCC is a simple and free web and mobile application to calculate the cost of house construction for various housing typologies of different shapes and sizes. This HCC application will print Bill of Quantity (BOQ), after choosing typology, dimensions and location for the user and inputting data in the app as required. The house designs covered by the calculator are residential buildings prepared on the basis of Nepal's National Building Code (NBC) 202 and NBC 203.

The image displays three screenshots of the House Cost Calculator application interface.

Top Screenshot: Dashboard
The dashboard shows a sidebar with navigation options: Dashboard, Projects, Market Rates, and Profile Setting. The main content area displays project statistics for four typologies: Stone in Mud Mortar (SMM), Stone in Cement Mortar (SMC), Hollow Concrete Block (HCB), and Brick in Cement Mortar (BMC). Each typology shows the number of total projects created. A map of Nepal is also visible, showing housing locations. A 'Recent Projects' section at the bottom shows the last project created on 27 Aug, 2020 at 12:00.

Middle Screenshot: New Project Form
The 'New Project' form allows users to select a house typology (SMM, SMC, HCB, or BMC) and a model (Two room without veranda, Two room with veranda, or Four Room). It also includes a section for client information (Name, Address, Phone) and a map to choose the location in Nepal.

Bottom Screenshot: New Project Form (Dimensions)
This section of the 'New Project' form allows users to input house dimensions (Length of L1, Length of B, Length of L2, Length of V) in feet and inches. It also includes a 'House Layout' diagram and a 'House Info' section showing the selected typology and model.

Free web and mobile application to calculate the cost of various type of house construction

2. EFFORTS ON ASSISTING BUILDING CODE IMPLEMENTATION AND MULTI-HAZARD RISK MANAGEMENT

A study done by Global Earthquake Safety Initiatives (GESI, 2001) in Kathmandu valley shows that major source of earthquake risk is from possible collapse of buildings. Many studies of past earthquakes have shown buildings as main source of human casualty. 2015 Gorkha Earthquake gave a similar picture on the sources of casualty during earthquake, more than 95% of people who lost their lives were found inside the buildings. That clarifies the high need of focusing more on improving construction practices.

Effective implementation of National Building Code (NBC) is one of the most effective ways to decrease potential risk of casualty from earthquakes. NSET has been involved to provide technical assistance to the municipalities for the effective implementation of NBC. NSET implemented “Kathmandu Valley Earthquake Risk Management Project (KVERMP)” in 1997-1999, under which one of the activities was to provide assistance to municipalities and municipal professionals in implementing seismic provisions of building code. Then Lalitpur Sub-Metropolitan City (LSMC) started enforcement of NBC into the building permit process in 2003. NSET and other professional groups provided support to LSMC. Since then, several municipalities have initiated the enforcement of NBC. As a replication process of the successes of the KVERMP, NSET successfully piloted “Municipal Earthquake Risk Management project (MERMP)” in Banepa, Dharan, Vyas and Pokhara Municipalities in 2003. Dharan Sub-Metropolitan City was the second municipality that officially announced the enforcement of NBC in 2007. NSET implemented ‘Nepal Earthquake Risk Management project (NERMP)’ during 2005-2010 and worked with few more municipalities. In 2008, NSET implemented ‘Municipal Disaster Risk Reduction Program in Nepal (MDRIP)’ and worked with Ilam and Panauti municipalities. Based on those experiences, NSET developed a program ‘Building Code Implementation Program in Nepal (BCIPN)’ and implemented in 30 municipalities from 2012-2017 with funding support of USAID/OFDA. NSET then continued implementing the program Technical Support for Building Code Implementation in Nepal (TSBCIN) in 30 Municipalities during 2017-2019.

NSET continues to work in collaboration with more urban and rural municipalities for the effective building code implementation (BCI) and overall Disaster Risk Reduction and Management (DRRM).

Model of Resilient Rural Communities

NSET has been implementing Technical Support for Resilient Community (TESREC) program with the name “My Village is Resilient” (“मेरो सुरक्षित गाउँ” कार्यक्रम) for supporting capacity enhancement of Rural Municipalities on Disaster Risk Reduction and Management. This is the USAID/BHA supported program being implemented in 7 Rural Municipalities: Babai, Simta, Baijanath, Kailari, Chure, Tamakoshi and Sinja..

Through the program, NSET intends to develop model of community resilience approach for Rural Municipalities viewing its huge scope of replicability and scaling up the successes, to learn and utilize the experiences, and to utilize the methodologies appropriate for rural areas. The program builds upon the experiences and lessons of building code implementation support programs implemented in the urban municipalities in the past.

There are two major components:

1. Establish framework and systems for ensuring safer building construction in Rural Municipalities; and

2. Develop model disaster resilient community, piloted in 3 communities.

The program works in 3 thematic areas: Building and Infrastructures Regulation, Multi-Hazard Risk Assessment and Planning; and Preparedness and Response Planning.

There are 3 cross-cutting themes as well: Awareness Raising and Capacity Enhancement, Institutionalization, and Coordination, Cooperation and Coherence



Major Accomplishments

A. Developing building and infrastructure regulations

NSET has assisted rural municipalities in developing building permit system (BPS) applicable for rural areas. Series of capacity building activities on building permit system have been conducted for municipal staff. Tamakoshi and Kailari Rural Municipalities have entered implementation stage. Other municipalities have also finalized the BPS Guidelines and are now at approval process. The BPS helps bring construction works within those areas in a system ensuring building safety requirements. This effort is expected to serve as reference for other local governments.

B. Multi-hazard risk assessment and planning

NSET assisted Rural Municipalities to carry out multi-hazard risk assessment of 3 communities: Malu Khola, Thigni and Mohanpur respectively in Tamakoshi, Simta and Kailari Rural Municipalities. Based on the assessment, disaster risk reduction plan has been prepared for each community. These are both consultative and participatory processes, where local community and stakeholders have made key contribution. The plan is supposed to be updated periodically.

C. Making Model Resilient Community

NSET worked for making model resilient community in 3 communities: Malu Khola, Thigni and Mohanpur respectively in Tamakoshi, Simta and Kailari Rural Municipalities. Disaster Community Learning Centers established in those 3 communities as an integral part of model village. Training on basic emergency medical response (BEMR), community search and rescue (CSAR), detail damage assessment (DAT) and simulation conducted for community people to build local capacity on emergency response. NSET has conducted disaster risk management trainings to enhance the understanding of local leaders.



One of the practical stations of Community Search and Rescue (CSAR) conducted at community level

D. Awareness raising & capacity enhancement

NSET, through “My Village is Resilient” program, conducted various activities to raise awareness of social & political leaders, community members, local government employees, house owners on prevalent disaster risks. NSET conducted number of orientation programs for different groups, produced and distributed IEC materials and carried out partnership with local radios to produce and broadcast radio program and audio podcast.



Workshop and Training on Disaster Risk Management organized in Tamakoshi Rural Municipality.

NSET also conducted various training courses; namely mason training course on earthquake resistant building construction for rural buildings, basic training for engineers on earthquake resistant design of buildings design based on updated Nepal National Building Code (NBC), training on earthquake resistant building design and building permit system, disaster risk management training and others.

E. Institutionalization



Help Desk set up at Thigni of Simta Rural Municipality, Surkhet

NSET aims to develop, adopt and implement systems and guiding documents for building community resilience. That helps for the institutionalization of the system and practices.

Catalogue of Model Building Design for Rural Buildings has been developed, that includes both architectural and structural aspects.

Draft Model Building Byelaws and Guidelines for Risk Sensitive Land Use Plan (RSLUP) have been prepared. Draft Guideline for Multi Hazard Risk Assessment focusing on earthquake, flood, fire, and landslide has been drafted. Disaster Preparedness and Emergency Response Plan for Rural Municipality developed. Building Permit System Help desk got established in the rural municipalities.

F. Enhancing coordination, cooperation and coherence

NSET worked in coordination with Rural Municipalities, Federal Ministry & Departments, academia and various local and national level stakeholders with the view to ensure collective efforts on making model resilient communities. Cooperation gathered from various agencies and local communities in this course. NSET conducted Emergency Response Training to community volunteers in collaboration with Nepal Red-Cross Society. Collaborative efforts made while for developing plans and building local capacity.

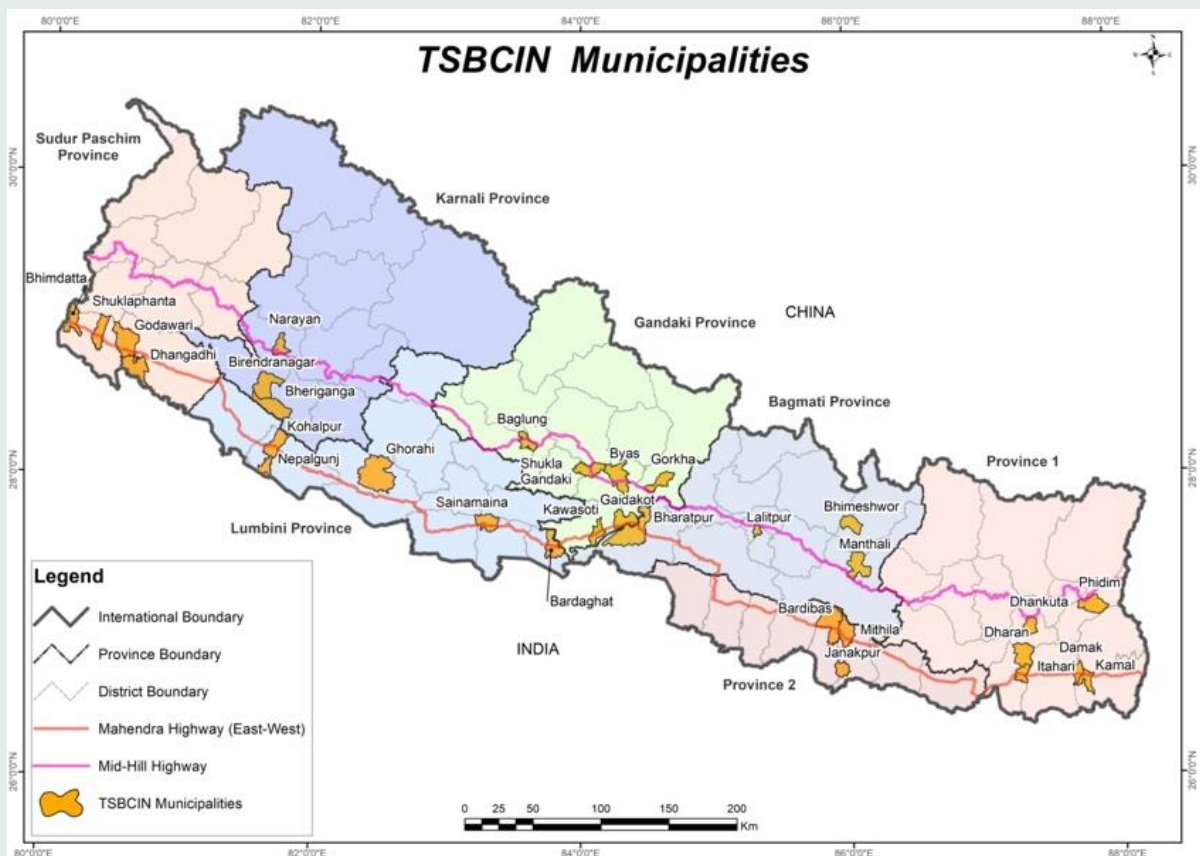
3. TECHNICAL SUPPORT ON FOR BUILDING CODE IMPLEMENTATION FOR MAKING RESILIENT CITIES

NSET has been working to assist municipalities in Nepal in enhancing their capacities to appropriately develop and adequately administer the building permit and control systems to ensure improved seismic performance of all new buildings.

NSET implemented “Technical Support to the Municipalities for Building Code Implementation in Nepal (TSBCIN)” program, with the support from USAID/BHA, in 30 municipalities during 2017-2020. The goal of the program was to build disaster resilient urban communities in Nepal through awareness, capacity enhancement, institutionalization, and networking efforts.

NSET implemented Building Code Implementation Program in Municipalities of Nepal (BCIPN) with support from USAID/OFDA during 2012-2016 that provided technical support to municipalities to implement the National Building Code (NBC). BCIPN was successful in developing and piloting methodologies for building code compliance in 30 municipalities and urbanizing settlements of Nepal. TSBCIN builds upon experiences and achievements made from BCIPN and all BCI efforts implemented by NSET.

The program has been completed in December 2020.



Major Accomplishments

A. Awareness raising on safer construction

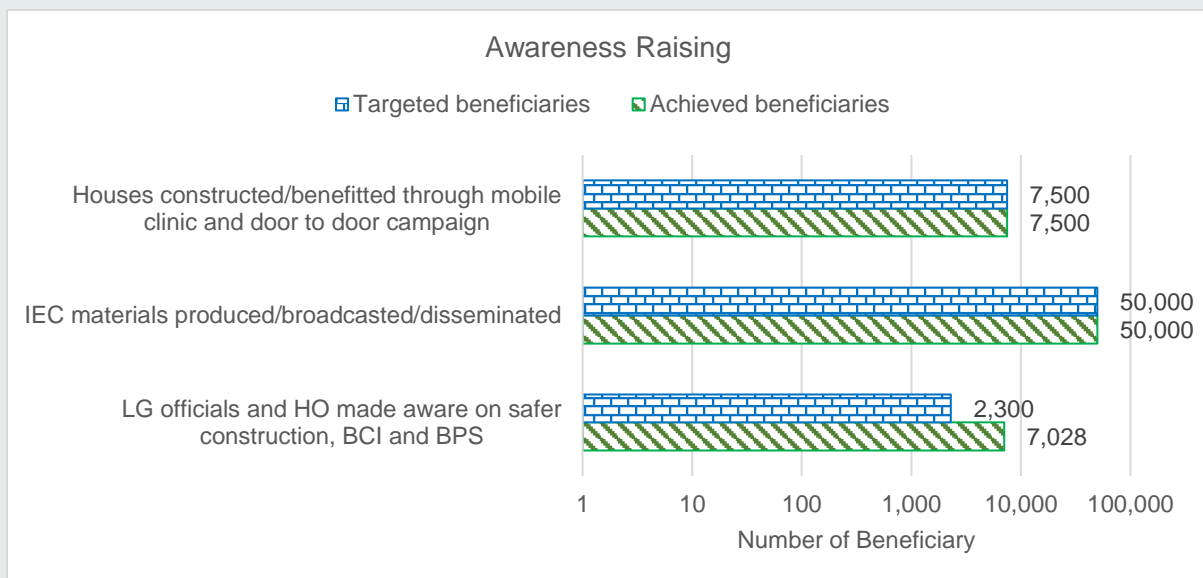
NSET conducted orientations for municipal staff, social and political leaders, community people and technical students in municipalities. Earthquake mobile clinic (EMC) conducted to provide technical assistance in construction sites. Radio program episodes and messages produced and aired from local radio stations.



Interaction with house-owner during Mobile Clinic



House-owner orientation on earthquake safer building



Awareness Raising under NSET implemented TSBCIN program



There are so many house owners who have built houses without approving the building drawings. They might have constructed their houses in cheap cost but their houses will not be strong enough to save their lives during earthquakes. I have followed all the municipality rules and am very much satisfied with it.

Ram Narayan Mandal, House-owner, Janakpur Sub-Metropolitan City

B. Capacity Enhancement of Construction Stakeholders

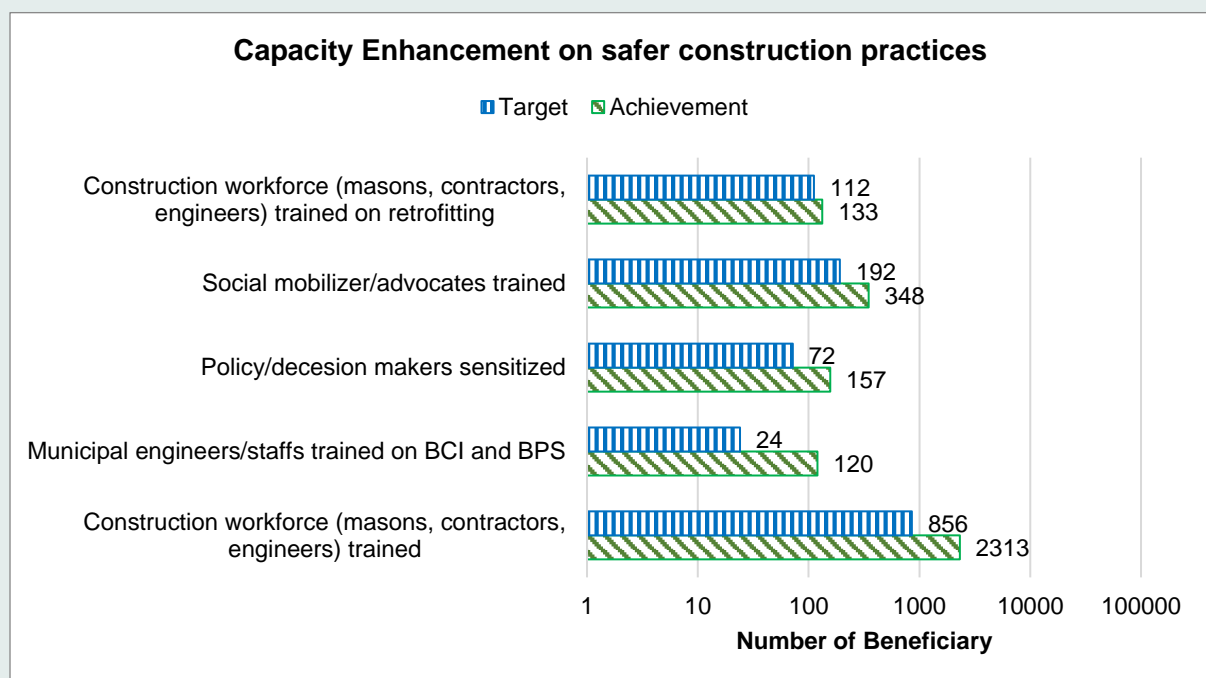
NSET conducted training programs for masons, engineers, and contractors; namely mason training courses on earthquake resistant construction, On-the-Job training (OJT) on retrofitting, Refresher courses for masons, Contractors' training courses, Training courses for engineers on earthquake resistant design (basic and advanced level), Training courses on advanced earthquake resistant building design targeting civil engineers, structural engineers, and architects in the program municipalities, Training for engineers on basic retrofitting design, Training for engineers on advanced retrofitting design, Refresher courses on Building Code Implementation (BCI) Training courses for municipal engineers on Building Permit System (BPS), Training workshops for local government leaders: Mayors, Deputy Mayors, Chief Administration Officers, and Engineers, Training course for social mobilizers and journalists.



Discussion During Mason Training



Group work during Media Training



Capacity Enhancement under NSET implemented TSBCIN program



Prior to joining the mason profession, I was just a housewife. My entire family was dependent on my husband's income. However, it was not enough to fulfill the family needs including educating children. Therefore, I also started working as laborer in construction sites so that all the family expenses are easily met. When I started working, it helped my husband and family to tackle financial burden. Two years before, I got an opportunity to sit in a mason training conducted by Godavari Municipality. I am trained mason now and getting work more easily. It has helped me to find jobs with higher daily wage.

Pema Chaudhary, Mason, Godavari Municipality-Western Nepal



A training on construction of Earthquake Resistance Building transformed his personal and professional life as it helped him make name, fame and money. After the training, he is feeling very proud of being a mason and has expressed commitment to continue this profession as long as he can.

"The mason training has not only changed my perspective towards mason's profession, but also changed my approach about the construction practice. Since it also promotes safe construction practice, I realized that my profession plays vital role by saving the lives of thousands of people during the earthquake."

Santa Bahadur Kumal, Mason, Gaindakot

C. Institutionalization of the efforts

To improve institutional systems on aspects of building code implementation and resilience building, various consultation meetings and workshops on BCI held at local, province and national level, BCI guidelines, manuals, and checklists developed; and support provided in different aspects namely design of typical buildings in hilly areas, building inventory data survey (BIDS), risk sensitive land use planning (RSLUP), developing mobile application/video to support BPS.



Institutionalization efforts under NSET implemented TSBCIN program

Vyas Municipality paves long term efforts to improve seismic safety of Building Structures



A view to Vyas Municipality, Tanahu.

Nepal is at high risk to earthquakes, and effective enforcement of Building Code is necessary to reduce the impending earthquake risk in the country. Vyas Municipality initiated the Building Code Implementation (BCI) with the development of earthquake scenario in 2007, that helped in raising public awareness. Then followed various mass awareness programs in the area. Vyas declared National Building Code mandatory in Vyas in 2011. According to Mr. Rabindra Mul, Senior Municipal Engineer, mason

training, engineers' trainings and orientations for house-owners and communities were conducted massively since then.

Vyas Municipality went on developing systems of awareness raising, capacity building and also drafted and implemented building permit systems as well as procedural documents. In these efforts, NSET provided technical assistance, strategic guidance, and various support to the Municipality through various programs implemented by the organization including TSBCIN.



Mason Training session conducted in Vyas Municipality, in Vyas, Tanahu.

Now, Building Code Implementation has been ensured through 14-steps Supervision from consultant and monitoring from Municipality in 3-steps. The reward and punishment mechanism initiated evaluating the performance of masons and consultants. As per record of fiscal year 2017/2018, total 709 number of houses were permitted for construction by Municipality which is around 93% of the building constructed in Municipality. In 2019-2020 alone, 450 new buildings were constructed with permits.

Currently there are 20059 building stock in the Municipality. Till date, Municipality has provided earthquake resistant mason trainings to 520 masons while a total 174 consultant engineers have been trained so far. Nowadays, most of the newly constructed buildings are Reinforced Cement Concrete (RCC) type.

Vyas Municipality has learned important lessons from its efforts. "BCI is not only a technical but also a social issue. It can't be implemented without the trust of community. It needs to be complemented by at least one percent of Municipality's budget per annum" said, Mayor Mr. Baikuntha Neupane.



A team of engineers from Vyas Municipality monitor a map of a house as part field monitoring in Tanahu.

Vyas Municipality aims to continue awareness promotion and capacity building programs. It also aspires to accelerate proper site supervision activities and monitoring systems. Further, the Municipality is planning to incorporate mainstream Earthquake Risk Reduction in Municipality Plans and Policies and implement building permit software to digitize Building Permit System.

D. Collaboration and networking with different stakeholders

NSET conducted activities related to building cooperation among all stakeholders such as local CBOs/NGOs, professional societies, municipalities, academic institutions, local media, volunteers for effective support for building code implementation. NSET collaborated with various NGOs, professional societies and social activists including Disaster Management Network of Nepal (DiMANN), Institute for Social and Environmental Transition - Nepal (ISET), Nepal Geological Society (NGS), Nepal Engineers' Association (NEA), American Society of Nepalese Engineers, Teach for Nepal, Social Welfare Council (SWC) on various activities related to the program objectives.



Retrofitting Building Observation by Province Minister, Mayor and other Delegates



Memorandum of Understanding with Mid-western University Surkhet



Participants of Training for Mayors, Deputy Mayors and Municipal officers on DRR and Building code implementation



Community level Awareness Program

Scaling up Seismic Retrofitting of Residential Buildings through Local Government Regulatory System

Retrofitting is one of the established key measures to minimize the prevalent earthquake risk. NSET has been working to develop institutional mechanism to promote and implement seismic retrofitting of residential buildings. NSET implemented “**Scaling up Seismic Retrofitting of Residential Buildings through the Local Government Regulatory System**” in Ghorahi Sub-Metropolitan City (GSMC) and Tulsipur Sub-Metropolitan City (TSMC) of Dang District in Lumbini Province. The program was implemented under the grant from **USAID’s Improved Disaster Risk Management Project - Tayar Nepal** in 2020-2021.

Accomplishments

Seismic retrofitting of residential buildings through house-owners’ engagement

NSET, through Tayar Nepal project retrofitted 3 buildings and handed over to houseowners.

Tika Bahadur Biswokarma and his wife Pabitra Serpaili from Ghorahi Sub Metropolitan City –13 have an adobe building that was cracked after 2015 Gorkha earthquake, NSET supported retrofit the house.



Retrofit of building 1: before, during and after

Kamala Chand is a Single mother from Ghorahi Sub-Municipal City -6. She had a one-storey pillar-system house which NSET retrofitted with a vertical strip (splint and bandage) method.



Retrofit of building 2: before, during and after

Bharat Sharma is from Tulsipur Sub-Municipal City. NSET, through Tayar Nepal project, supported retrofit his pillar-system house.



Retrofit of building 3: before, during and after

A. Awareness and capacity building at local level

Awareness on retrofit

Orientations conducted in communities. IEC materials produced and distributed.



Capacity building on retrofitting: NSET conducted contractors' training, on-the-job mason training (OJT) on retrofitting of residential house, social mobilizer training, engineers training on retrofit design of buildings and engineers training on seismic vulnerability assessment of buildings.



On the Job Training (OJT) for mason

Efforts on institutionalizing seismic retrofit

Collaboration with local government for institutionalizing retrofitting process:

In collaboration with GSMC and TSMC, NSET conducted efforts on institutionalizing retrofit in the municipalities.

Synergy amongst local government and key stakeholders: To develop synergy among local governments and key stakeholders, a retrofitting support group of engineering consultant, social mobilisers and masons have been formed.



A shake table demonstration, organized in Ghorahi Sub-Metropolitan City-15.

4. COMMUNITY-LED DRR EFFORTS

Communities have their roles in disaster risk management efforts in all stages; before, during, after to post-disaster situation. NSET has been working together with communities on multi hazard risk reduction and building community resilience.

Efforts on Landslide Management in Nepal's Hill Areas

NSET implemented “Risk-informed landslide management in Nepal’s hill areas (Pratibadhha)” program in 4 municipalities, Bigu and Tamakoshi Rural Municipalities in Dolakha district, and Barhabise Municipality and Bhotekoshi Rural Municipality in Sindhupalchowk district.

The project was implemented in association with People in Need (PIN), Scot Wilson Nepal (SWN), Durham University (DU) and Northumbria University (NU), and with the support from ECHO.

The project aimed to work in the grass root level to enhance the understanding of local communities regarding landslide risks and the relations with human activities.

Key activities are:

- Community orientations,
- Ward and Municipal level workshops, and
- Production and Dissemination of awareness materials including live landslide demonstrator.

Major Accomplishments

A. Live Demonstration Model (LDEM) for Landslides

Community interactions using LDEM: NSET carried out landslides demonstrations in the communities. The demonstrations were based on two empirical demonstration models which helped in visualizing rotational landslide and rain induced landslides. Considering the sensitivity of risk communication, and to ensure uniformity in imparting messages, the demonstrations were conducted based on manual prepared.



Rain Induced Landslide Demonstration



Rotational Landslide Demonstration

B. Community Interaction and Workshop

Community level Participatory Workshop: NSET organized community-based awareness campaigns and demonstrations to cater members from key nodes of communities like schools, youth groups, forest user groups and LDMC's to help them understand physical phenomenon of landslides, risk they pose and their interrelation with human activities.



Members of the community observe landslide demonstration in Bhotekoshi Municipality Sindhupalchowk.

Ward level Workshop: The live demonstration and Participatory 3-dimensional model (P3DM) conducted for members of local authorities and other key members of community.



Participatory 3-D Model workshop held in Bigu

- **Meeting with Elected Representatives and LDMC:** NSET engaged with local authorities, representatives of LDMC, members of user groups, students, teachers, and local politicians through series of participatory workshops. P3DM as an innovative

tool helped in discussing hazards, vulnerability, and risk information in an interactive and illustrative manner.



Participants of workshop observe 3-D model

IEC materials on Awareness Raising and Advocacy: IEC materials comprised key messages on landslide, its risk and risk reduction measures, response and preparedness consolidated in the form of landslide calendar. Further, the calendar contains space to fill list of emergency numbers, contact list of key personals and list of possible works that can be done at month for disaster preparedness.

Municipal level workshops: NSET conducted municipal level workshops with the view to discuss the major findings and issues consolidated while conducting ward level workshops, and helping the municipality use P3DM for planning development works and identify key projects. with displaced population

Working with Displaced Population

NSET has worked with displaced population at Namuna Tole Community, Gairigaun in Kathmandu Metropolitan City. The efforts are through “Making Displacement Safer (MDS)” project that NSET started implementing in March 2021.

Making Displacement Safer is a global project implemented by Global Networks of Civil Society Organizations for Disaster Reduction (GNDR) in 11 countries with financial assistance from USAID’s Bureau of Humanitarian Assistance (BHA).

The project aimed to contribute to the substantial reduction of disaster risks and losses in lives, livelihoods and assets, for displaced populations in urban areas.

Accomplishments

A. Eco-mapping and social-mapping of a settlement

NSET has conducted eco-mapping and social mapping at “Namuna Tole”. The mapping was done for 100 households. The community, settled in 1988, is facing severe problem due to the river embankment work that is under construction.



Namuna Tole of KMC 9 shaded with blue, orange and green



View of one of the lanes in the Project area

B. Consultation and Interaction with Stakeholders

Consultation meetings and interactions held in communities that discussed on action plans. Focused Group Discussion (FGD) held to sensitize the participants on the possibility of assessing the hazard, risk, vulnerability and capacity of the community to plan for disaster risk reduction.

NSET distributed relief materials including minimum required food or nonfood items for the most affected families by a flash flood at Namuna Tole. The heavy rain in the Bagmati water shed area in the early morning of September 6, 2021, resulted in a flash flood in the area.



Interaction program held with community members of Namuna Tole



MoU signed between NSET and Kadambari College

Small Scale Mitigation Works in Communities

NSET has implemented small scale mitigation works in different communities as identified through community level action planning workshops under Views from the Frontline (VFL 2019) process.

VFL 2019 is a forward-looking monitoring process implemented by Global Networks of Civil Society Organizations for Disaster Reduction (GNDR) that supports inclusive people-centered approaches to DRR. It has been designed to support the local implementation of the Sendai Framework for DRR. NSET is taking lead to implement this initiative in Nepal.



Participants of local action planning workshop, Jumla

Accomplishments

A. Implementation of Community Level Local Action Plan

Various community level action plans have been implemented under Views from the Frontline (VFL). As part of it, the embankment of gabion box in the confluence of Dhyangri and Kamal Khola of Kamal Rural Municipality, Jhapa has been done. Similar work has been done on the confluence of Jethi and Baidnath Khola of Udaypurgadhi Rural Municipality, Udayapur. Likewise, Kalikhola small irrigation program has been accomplished in Triyuga Municipality, Udayapur. Construction of an intake of 100meters pipe of Khakauli Moretac drinking water scheme was carried out in Vyas Municipality, Tanahun. Also, small landslide mitigation activities are done in Chandragiri Municipality, Kathmandu and Kalinchowk Rural Municipality, Dolakha.

B. Capacity building of Local communities at Pasanglhamu RM, Solukhumbu

Capacity building of local communities of Kharikhola, in Khumbu Pasanglhamu Rural Municipality, Solukhumbu on Disaster Risk Management initiated. Capacity Building of the Kharikhola inhabitants includes a series of mass awareness programs in the community at the first stage.



Participants of Disaster Risk Reduction and Management orientation program held in Pasanglhamu RM

Developing Landslide Inventory for Nepal

NSET has manually mapped landslide inventory for 14 different epochs. They were mapped independently from satellite images of each epoch respectively. Each mapped landslide polygon from every epoch needs to be linked to individual landslides cluster so that we can analyze changes in landslides through time. Data validation of the landslide inventory has been done to recheck the landslide dataset for errors due to misinterpretation of satellite imagery during digitization. Further study included derivation and analysis of the landslide attributes.

NSET has been working on this mapping task under Sajag-Nepal project. Sajag-Nepal is a research project funded by UK Global Challenges Research Fund is designed as an equitable partnership between practitioners, government, and academics from Nepal, the UK, Canada, and New Zealand, with shared interests in and responsibilities for improving disaster risk management in Nepal. The project partners include NDRRMA/MoHA, Government of Nepal, Durham University, Northumbria University, University of Canterbury, Newcastle University, NSET, Social Science Baha, DFID, University of Oxford, Asian Disaster Reduction and Response Network (ADRRN), Tribhuvan University, University of Bristol, UN Nepal (RCO & HCT), University of Auckland, University of British Columbia, BBC Media Action and Flowminder. NSET serves as the secretariate for Nepal.

5. EFFORTS FOR MAKING RESILIENT SCHOOLS

NSET pioneered School Earthquake Safety Program (SESP) in Nepal. NSET initiated this signature program in 1997 with model retrofitting works of a school building in Bhaktapur.

SESP aimed at improving the safety of schools in Nepal by working with communities to make school buildings safer, train staff and students in earthquake safety, and train local masons in earthquake resistant building practices. In doing so, NSET jointly worked with then Department of Education (DoE) and various national and international funding partners.

NSET continues working in education sector under the guidance of Center for Education and Human Resource Development (CEHRD) and in collaboration with various partners.

Promoting Safer Schools in Nepal

NSET continues to conduct school focused activities with the view to enhance seismic safety and disaster preparedness in schools. NSET worked together with Save the Children and Arup international in a consortium led by Crown Agents for implementing a Foreign, Commonwealth and Development Office (FCDO) funded project “Nepal Safer Schools Project (NSSP)” in Western Nepal. The NSSP aimed to help more than 200 schools and communities in Nepal become resilient to disasters. The NSSP is a part of FCDO’s wider ‘Strengthening Disaster Resilience in Nepal’ programme that seeks to build the resilience of vulnerable people and reduce the impact of natural hazards in Nepal.

The NSSP operated during 2018-2021.



A school being retrofitted under the NSSP



Students participate in a simulation exercise as part of preparation against earthquakes

Accomplishments

KEY PROJECT NUMBERS	
4,125	Students and teachers attending safer schools
97	Classrooms retrofitted or rebuilt to improve earthquake resilience*
355	Masons trained
497	Teachers trained in school safety
48	School-level Complaint Response Mechanisms (CRM) put in place
5	Municipalities supported in integrating DRR into the local curriculum, and support for integrating DRR content into the national-level Grade I curriculum
17	50
Municipal-Level Education Contingency Plans prepared	School Improvement Plans drafted or updated to include DRR components
* 4 classrooms were retrofitted in schools outside of the project with technical support from NSSP, driven by demand from the schools	

A. Enhancing disaster resilience in schools

Under the NSSP program, NSET worked closely with 52 schools and contributed to improve school safety through a range of activities that follows the Government of Nepal's Comprehensive School Safety Minimum Package requirements. This included training of focal teachers on school safety; support in conducting Vulnerability and Capacity Assessments (VCAs) and incorporating Disaster Risk Reduction (DRR) components into School Improvement Plans; and making schools physical infrastructure safer, including a trial of retrofit methodologies on four schools in Achham, Bardiya, and Surkhet.

B. Response to COVID-19

During the COVID period, the NSSP helped school communities respond to Covid-19. This included improving school WASH facilities to help mitigate the spread of the virus; supporting distance education initiatives to keep children learning while schools were closed; distributing

NFIs including masks, non-contact infrared thermometers, and additional WASH items like handwashing soap and disinfectant; and training teachers in Psychosocial First Aid to help them identify children and community members in need of additional support. NSSP construction activities for retrofitting and WASH were also oriented to prioritize engagement of workers from economically vulnerable backgrounds, to help mitigate the immense impact Covid-19 has had on livelihoods in the NSSP project areas.

Times when we were happy!

A. Munamaya is happy with disable-friendly toilets in school



Munamaya Budha

Munamaya Budha from Patarasi Rural Municipality – 1, Jumla district has physical disability. She is now 13 years old and studies in Grade 7 in Janata Technical School, Mahatgaun. There is residential arrangement for students with physical disability. There are 4 toilets in the schools but none of them were disability friendly. Munamaya and her friends living there were facing trouble in using normal toilets. The lack of hand washing facilities made sanitation very poor. Munamaya had problem also to use kitchen.

Nepal Safer Schools Project (NSSP) identified the problem and worked to solve it. With the project support, children and disability friendly toilets and hand-washing facilities have been constructed. The facilities have now been handed over to school.

Munamaya feels more comfortable to use the facilities. Munamaya says “now I don’t need any help to go to the toilet”, she adds, “I can also wash my hands very comfortably. I am happy with this”. Like Munamaya, all 53 students who have physical disability are feeling comfortable to use these facilities.

B. A happy couple engaged in construction work in local school



Ms. Tulsi Giri and Mr. Mohan Giri from Birendranagar Municipality Ward No. 2, Thiuri is now involved in the construction work at the local school. Nepal Safer Schools Project planned to implement retrofit works in Saraswati Basic School located at Ward No. 2, Rakaspaila of Birendranagar Municipality in Surkhet district. Tulsi sits in School Management Committee also. As she learned about the plan, she wished her couple would engage in the job available locally. Based on the set criteria, they got opportunity.

The couple got involved in NSSP construction activities since the beginning of works there.

Tulsi says, “I am happy that we got opportunity to work in our own local school. Its so close to my home and I have time to take care of my kids too.”

Mohan adds, “For me its pleasing to get employed locally, secondly I got trained on retrofit works and also participated in mason training. This program has given me multiple benefits.”

The couple has earned around NPR 200,000 for the period of almost a year. NSSP makes payments in their bank account which is safe and transparent.

Earlier, the couple had to rush for daily wage works. They don’t have enough land to do agriculture. They had no regular source of income. Mohan worked as labor for many years. Since 9 years, he has been working as mason. Tulsi has been working as labor since the past 7 years.



Masonry work in disaster-friendly toilets construction



Retrofit works in School building

Supporting Recovery after COVID-19 Crisis in Education Sector

UNICEF, in collaboration with European Union (EU), has established a standby partnership with the Civil Society Organizations; Mercy Corps and NSET to provide technical assistance to the Ministry of Education, Science and Technology (MoEST) and Central for Education and Human Resource Development (CEHRD) to implement **"Supporting the response to the COVID-19 crisis in the education sector: Strengthening Education Clusters at Federal, Provincial and Local Governments"** program.

This initiative aims to strengthen cluster coordination and response mechanism to support local governments and schools for COVID-19 response to recovery and other interventions for preparedness and resilience for learning continuity, ensuring an adequate capacity for management and coordination during the response/early recovery of education services from the COVID-19 period in local governments.

Under the program, NSET is working to help various aspects, such as enhance operation of Nepal Education Clusters in federal, provincial and local level, increase capacity of the education cluster members to align COVID-19 response support, enhance capacity of LGs to develop and implement need-based and evidence-based interventions, support recovery of learning loss and acceleration of learning, enhance capacity of Provincial- and Local Governments (PGs - LGs) on education cluster coordination, strengthen capacity of PGs and LGs in their roles to support schools on planning of emergency response and safe reopening, enhance capacity of the school education sector, at central and local levels, to develop and implement a roadmap for the recovery of learning loss, strengthen capacity of LGs to initiate education sector COVID-19 response planning in a gender responsive, inclusive and sustainable manner interventions and others.

Construction of prototype school block with isolated foundation



Glimpse from one stakeholder meeting

SET is implementing a research project "Seismic Safety and Resilience of Schools in Nepal (SAFER)" collaborating with the University of Bristol and other partners. As an extension of SAFER and field level testing of the project, to construct a base-isolation building. The aim is to exploit the scientific outcomes of the GCRF-funded SAFER project in Nepal and construct, a prototype school block that is resting on low-cost seismically isolated foundation. NSET is now implementing prototype construction activity in a school at

Kageshwori Manohara Municipality, Kathmandu, under the guidance of and in close coordination with the municipality, the ward and the school.

The construction of a prototype school block that is resting on low-cost seismically isolated foundation is now undergoing. The unique proposition of a sliding foundation that needs to be free from debris and moisture invasion required lots of discussion and revision of designs among project partners including ARUP, University of Bristol and NSET. Cost fluctuation for construction materials due to unforeseen international political conflicts has been a challenge.

Seismic Vulnerability Assessment of Schools

NSET collaborated with Geo-Hazard International (GHI) to conduct training for engineers on seismic vulnerability assessment of school and supported to conduct assessment. Activities started in May 2021 where NSET and GHI teams are considering if “earthquake desks” are viable and feasible for Nepali school children. NSET and GHI teams visited schools from different provinces to learn the status of desks and benches being used and collected the impression of schools regarding feasibility of earthquake desks. Team also visited desk manufacturers.



Front view of Bangalamukhi Radhakrishna Tharu Ma Vi at Gulariya of Bardiya being retrofitted under NSSP project.

6. ENHANCING PREPAREDNESS AND EMERGENCY RESPONSE CAPACITY IN NEPAL AND THE REGION

NSET works for enhancing disaster preparedness and emergency response capacity at various levels in Nepal and the region. Such works include developing innovative concepts and imparting skills and knowledge to enhance disaster preparedness and emergency response capacity in institutions and the communities. NSET is involved to conduct earthquake orientations, provide basic search and rescue trainings for community and institutional levels, and manage advanced level search and rescue trainings to building and enhancing emergency response capacity at institutional level.

Efforts to enhance emergency response capacity in Nepal and the region

Recently concluded Program for Enhancement of Emergency Response (PEER) stage 4 was one of the pioneer programs that contributed to enhance emergency response capacity in Nepal and the region.

PEER was implemented in the 1980/1990s in Latin America and the Caribbean by USAID/OFDA as an Urban Search and Rescue (USAR) program, and the South Pacific, and it was then brought to Asia in 1998. The PEER is basically a training program with funding support from USAID/BHA.

First phase of PEER was implemented from 1998-2003 and introduced in the region by ADPC in four countries namely Indonesia, India, Nepal, and the Philippines. Thereafter, PEER program was implemented by NSET. NSET conducted PEER program from 2003 to 2021 in various phases. PEER Stage IV (2014-2021) has been completed in September 2021. NSET implemented the program in four South Asian countries, namely, Bangladesh, India, Nepal and Pakistan, with participation of Afghanistan, Bhutan, Maldives and Sri Lanka in selected regional events.

Under the PEER Stage 4, the core trainings provided are: Medical First Responder (MFR), Collapsed Structure Search and Rescue (CSSR), Community Action for Disaster Response (CADRE), Hospital Preparedness for Emergencies (HOPE), Swift Water Rescue (SWR), and instructor development streams for MFR, CSSR, CADRE and HOPE courses.

Accomplishments

A. Development of Online Refresher Courses



Online Course review meeting for CADRE, MFR and Hope

NSET organized PEER Regional Online Course Review Workshop for developing online refresher courses for Community Action for Disaster Response (CADRE), Medical First Responder (MFR) and Hospital Preparedness for Emergency Response (HOPE).



Online CADRE Refresher course meeting

NSET then conducted CADRE, MFR and HOPE online refresher courses at regional level, with participation of PEER graduates from Bangladesh, India, Nepal and Pakistan. The PEER online refresher courses aimed to review the key concepts and skills in the CADRE, MFR and HOPE basic courses, and provide relevant updates including messaging on the ongoing COVID-19 and response under current pandemic condition. A total of 11 online refresher courses conducted from October 2020 to January 2021.

B. Training Courses in Physical Presence and Hybrid Model



HOPE Course conducted by UNDP

NSET continued conducting training courses in PEER countries.

NSET, in collaboration with Punjab Emergency Service (PES) Rescue 1122, conducted Training for Instructors (TFI) in Pakistan. The course was delivered through blended learning due to restrictions and safety precautions for COVID-19 pandemic.

CADRE Training for Instructors/ Instructors' Workshop conducted at National Disaster Response Force (NDRF), Mundali in August 2021.

NSET facilitated Hospital Preparedness for Emergencies (HOPE) course organized by NDRRMA and funded by UNDP for the doctors and nurses from various hospitals in Kathmandu valley.

C. Sharing on PEER progress with government authority and stakeholders

NSET conducted meetings with NDRRMA and other stakeholders periodically to brief PEER progress.

NSET also created sharing platforms to discuss relevant issues among the key stakeholders. National Webinar was organized in September 2020 to share NSET implemented PEER activities and other works related to prevention, control and response to COVID-19 in Nepal. Health Emergency Operation Center/Ministry of Health and Population (HEOC/MoHP), National Disaster Risk Reduction and Management Authority (NDRRMA), COVID Crisis Management Committee (CCMC), Asian Disaster Preparedness Center (ADPC) and NSET shared their status and updates.



Webinar organized to present summary of findings and gaps and challenges in existing policies and guidelines in the context of COVID-19 response in Nepal.

NSET organized national webinar in June 2021 with the view to present summary of findings and report on the gaps and challenges in existing policies and guidelines in the context of COVID-19 response in Nepal and collectively explore possible strategies and action plan options for addressing the identified gaps/challenges in responding to COVID-19. Professionals from various agencies and sections put forward insights and ideas.

D. Equipment support for response agencies, emergency operation centers and hospitals

Emergency response training equipment from USAID's PEER program handed over to national disaster response agencies in Nepal. Mr. Anil Pokhrel, Executive Chief of National Disaster Risk Reduction and Management Authority (NDRRMA), in a program organized at Singha Durbar on April 5, 2022, handed over training equipment sets for Medical First Response (MFR), Collapsed Structure Search and Rescue (CSSR) and Community Action for Disaster Response (CADRE) to Nepali Army, Nepal Police, Armed Police Force and Nepal Red Cross Society.



Equipment Handover Ceremony



Equipment Handover to NDRRMA



Equipment Handover to Nepali Army



Equipment Handover to Nepal Police



Equipment Handover to Armed Police Force



Equipment Handover to Nepal Red Cross Society

As a felt need in COVID-19 situation, NSET initiated modification in program activities and managed information and communication technologies (ICT) equipment sets and distributed to Health Emergency Operation Center (HEOC), Ministry of Health and Population (MOHP), Provincial Health Operation Centers (PHEOCs) and Local Emergency Operation Centers (LEOCs).



LEOC, Vyas Municipality, Gandaki Province



LEOC, Mahalaxmi Municipality, Province I



PHEOC, Karnali Province



PHEOC, Province No. I



LEOC, Baijanath Rural Municipality, Lumbini Province



LEOC, Simta Rural Municipality, Karnali Province

NSET provided some in-kind assistance support to selected ambulance groups of government hospitals for strengthening rapid and appropriate pre-hospital care (e.g., AED and other lifesaving equipment). Ambulance & hospital equipment handed over to district hospitals in Sindhupalchowk and Baitadi.

For more detail on PEER accomplishments, please refer **PEER BOOK**.



Orientation and information sharing on COVID-19

In the context of COVID -19 pandemic, NSET conducted various in-house sessions focusing on basic information, safety and prevention measure to be followed based on the findings, publications and advisories from WHO and other global experts to orient its staff and members.



In-house sessions focusing on basic information, safety and prevention measures against Covid-19.

Earthquake orientations and Preparedness Trainings

CSAR, DAT, BEMR & CPR-T Trainings

NSET has been conducting earthquake orientations and trainings for communities and organizations on community search and rescue (CSAR), basic emergency medical response (BEMR), damage assessment training (DAT). Also, the courses are packaged into Community Preparedness and Response Training (CPR-T). More than 25, 000 people from communities have benefitted so far from such programs.

The CSAR training aims to develop the capacity of communities, schools, and organizations for performing search and rescue operations mainly on searching, locating and extricating victims on the surface and/or who are lightly trapped. CSAR includes the skills for systematic search in safe structures, rescue of lightly trapped victims, extinguishing initial fire and lifting, stabilizing, and moving heavy loads.

The BEMR training provides knowledge on prehospital treatment for bleeding, burns, fractures, shock, choking and CPR. The trained responders bridge the gap between immediate prehospital care and hospital- based treatment.

DAT provides information and knowledge to conduct rapid damage assessment of damaged houses to determine whether the structure is safe to enter and operate search and rescue activities. DAT incorporates the knowledge and skills to identify general building types, distinguish structural and non-structural systems of the buildings and to know the level of damage of the buildings.

CPR-T includes orientation, CSAR, BEMR, DAT and simulations.

Orientations for Security persons on DRR basics

NSET facilitated visits by Nepal Police and Armed Police Force, Nepal. During Disaster Management Training of security forces, there is a learning visit to NSET as part of the regular curriculum. NSET facilitates theory session and demonstrates response equipment for the training participants.



Visiting Nepali Police team at NSET



Visiting Armed Police Force team at NSET

7. USE OF SCIENCE & TECHNOLOGY IN RESILIENCE BUILDING

NSET has been linking science and technology (S&T) with people's real-life situations in the areas of disaster risk reduction and management. NSET's role in earthquake risk management is best placed to bridge academia, governments and communities. NSET emphasizes the research and development (R&D) as one of the key components of its works.

Tests focused on Seismic Safety and Resilience of Schools

NSET conducted pulldown tests of stone-in-mud masonry walls.

Pulldown test (3rd phase) of stone-in-mud masonry walls held NSET premises in August 2020 provided insight on the lateral load behavior of low strength masonry walls and helped verify the results for the non-retrofitted wall test performed in 2020. The pulldown test (4th phase) of stone-in-mud masonry walls was held in April 2021. The results of the non-retrofitted walls were verified in the previous tests. This test aimed at verifying the result for the retrofitted walls. The results of this test helped learn about the variation and similarities in behavior of retrofitted wall, depending on the detailing of retrofitting interventions.

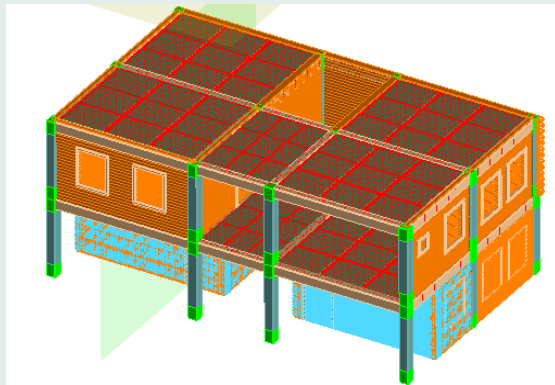


Pull down test of Retrofitted Stone-in-Mud Masonry Walls

The tests were carried on under Seismic Safety and Resilience of Schools in Nepal (SAFER) project. NSET, as a consortium partner along with University of Bristol, University of Southampton, Arup International Development (UK), Save the Children (UK), Kathmandu University (Nepal), Tribhuvan University (Nepal), EISPD (Nepal), University of SUNY at Buffalo (USA), California Institute of Technology (USA), University of Roma-Tre (Italy), Fuzhou University (China), has implemented the SAFER project.

Development of Fragility Functions for Structures in Tomorrow's Kathmandu

NSET is involved in 'Tomorrow's Cities', a research-based project. Using advanced software employing the state-of-the-art Applied Element Method (AEM), research on the fragility functions for tomorrow's Kathmandu is being developed. This research is expected to provide an idea on how the picture of structural fragility looks like on the study region of Khokana.



Ongoing modelling works for fragility assessment of RC structures (1)



Ongoing modelling works for fragility assessment of RC structures (2)

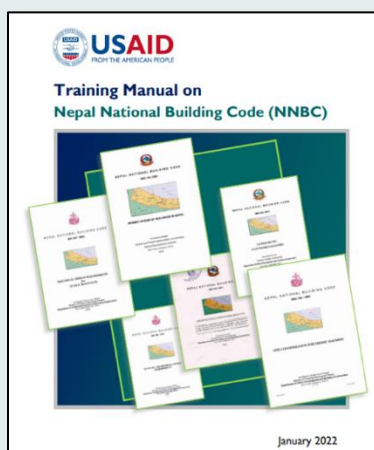
Tomorrow's Cities is the UK Research and Innovation (UKRI) Global Challenges Research Fund (GCRF) Urban Disaster Risk Hub – a five-year global interdisciplinary research hub. With 4 focus cities i.e. Nairobi, Quito, Istanbul and Kathmandu, the program aims to catalyze a transition from crisis management to multi-hazard risk-informed planning and decision-making, for cities in low-and-middle income countries. The Kathmandu city hub comprising of Tribhuvan University, Practical Action, National Society for Earthquake Technology – Nepal, South Asian Institute of Advanced Studies, Lumanti, National Disaster Risk Reduction Centre and Nepal Development Research Institute.

Under the project, NSET has carried out exposure detailing of land use plans developed by Kathmandu Valley Development Authority for the new town development area of Lalitpur. The study sites are Ward no. 21 and 22 of Lalitpur Metropolitan City (LMC).

NSET has presented the initial findings and research methodologies on the Tomorrow's Cities Project regarding earthquake risk management in cities of Tomorrow. Other presenters and speakers included representatives from SIAS, IOE-TU and Practical Action.

Development of National Building Code (NBC) Training Manual

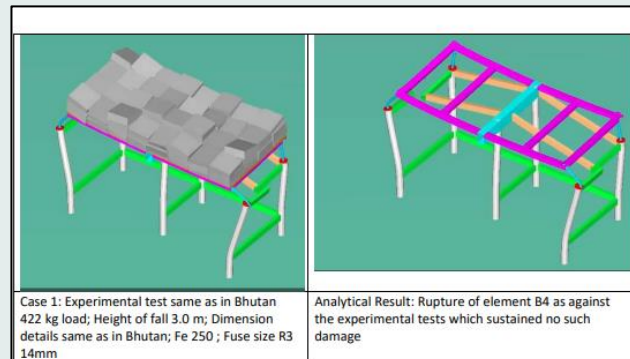
NSET has developed “Training Manual on Nepal National Building Code (NBC)” under “Development of National Building Code (NBC) Training manual and Training”, component of Tayar Nepal project to make avail standard training curricula and Ready-to-use training material on NBC. It has been developed for the Municipal Engineers and technical professionals as a target group. NSET has conducted pilot training for Bhimeshwar, Neelakantha, and Gorkha Municipalities.



Under Tayar Nepal project, NSET did detailed rapid visual assessment, design & estimation of unreinforced stone masonry in mud mortar school building and retrofitting works at Nawa Durga Basic School.

Earthquake Safe Desks for Schools

NSET collaborated with Geo-Hazard International (GHI) to conduct training for engineers on seismic vulnerability assessment of school and supported to conduct assessment. Activities started in May 2021 where NSET and GHI teams considered if “Earthquake Safe Desks” would be viable and feasible for Nepali school children.



The concept of the earthquake desks is to provide a space under the desk for children to ‘Drop, Cover and Hold On’ during earthquake. The desk is designed to withstand heavier loads of debris falling on them. These can provide increased safety until school buildings can be made seismically safer. This initial feasibility study is intended to inform the next steps.

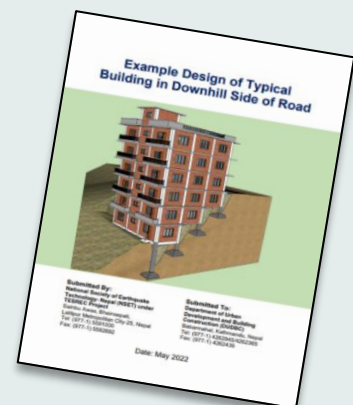
Guidelines for extension of masonry buildings

The Guideline for extension of masonry buildings, which focuses on the horizontal extension of rural masonry buildings, was developed under USAID supported and NSET implemented Baliyo Ghar program.



Design Guidelines for the Structures resting on sloping ground

NSET has developed the Design Guidelines for the behavior of structures resting on sloping ground of 45° angle. In the present study, idealization of the structure is done as per various NBC code provisions.

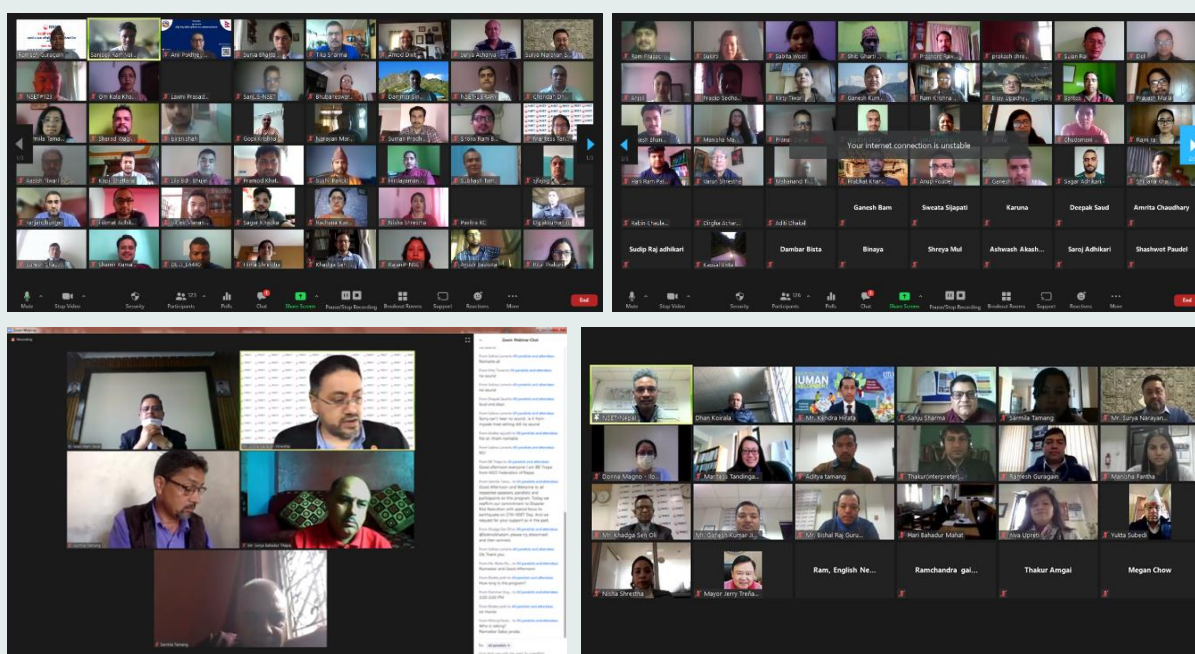


8. OTHER KEY EVENTS

NSET marked 27 years of its journey

National Society for Earthquake Technology–Nepal (NSET) marked 27 years of its journey with various sharing and learning programs during June 18-22, 2020. This year's programs, however, were organized on digital platforms due to COVID-19 pandemic.

To mark the Day, NSET hosted 'National Webinar on Multi-Hazard Risk Reduction and Preparedness Coupled with COVID-19' on June 18, 2020. Also, an International Webinar on "Addressing Multi hazard Risk in context of COVID-19: A Global Perspective" was hosted on June 22, 2020.



For more detail, visit [here](#).

Earthquake Safety Day 2021

Nepal observed the Earthquake Safety Day (ESD) nationwide with various activities on January 15, 2021 and around. This is the 23rd edition of annual Earthquake Safety Day that Nepal started in 1999 commemorating 1934 Nepal-Bihar Earthquake.

Addressing the 23rd ESD National Meeting, Prime Minister KP Sharma Oli urged all the sectors and stakeholders to come together in order to minimize the losses of human lives and assets in the earthquake and other disasters occurring in Nepal. Through a message issued, Prime Minister Oli expressed his commitment to work for the institutionalization DRR efforts in Nepal result-oriented and sustainable.

Home Minister Mr. Ram Bahadur Thapa 'Badal' urged all the stakeholders to adhere to disaster risk reduction requirements and provisions such as enhanced disaster preparedness, earthquake resilient construction practices, building code compliance and building permit process in order to keep ourselves safe from earthquakes and any other disasters in Nepal.



Madhyapur Thimi Municipality hosted the 23rd ESD National Meeting on Jan 15, 2021 at Kumari Mandir Park, Bode. NSET has been serving as the Member Secretary of ESD Organizing Committee.

Speakers from key agencies highlighted the importance of marking the Day.

23rd Earthquake Safety Day has been marked with awareness raising activities in different municipalities, district headquarters and provinces.

For more detail, visit [here](#).

NSET completes 28 years of its journey

NSET has completed 28 years of its institutional journey. To mark the Day, a virtual event had been organized on June 18, 2021, considering the current COVID-19 pandemic situation in Nepal.

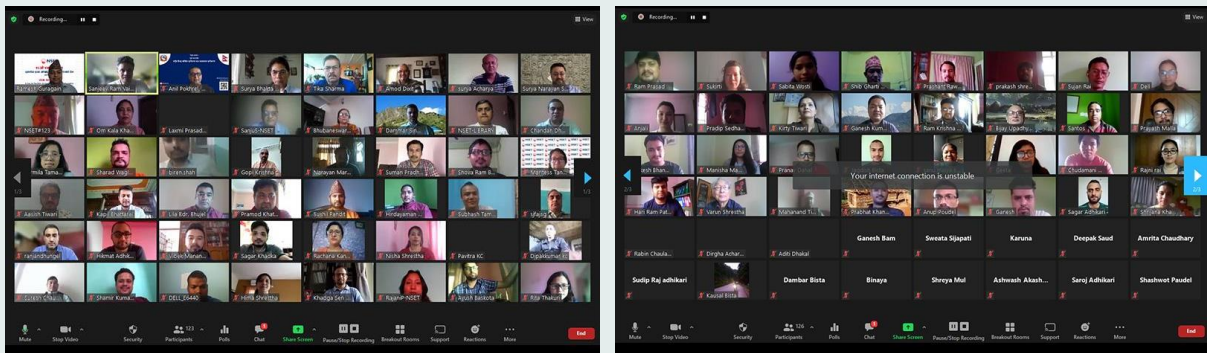
Mr. Anil Pokhrel, Executive Chief of National Disaster Risk Reduction and Management Authority (NDRRMA) in his address briefed on the current disaster situation due to floods and landslides in the various parts of the country and response efforts being conducted. Mr. Pokhrel highlighted the NDRRMA Priorities & Plan and expected roles from institutions like NSET. He also appreciated NSET endeavors and extended best wishes for the worth journey ahead.

NSET President Dr. Amod Mani Dixit shared about how NSET was conceived 28 years back paying tributes to the pioneers and founders of this institution. Dr. Dixit highlighted the major achievements and learnings of NSET during its 28 years journey. "NSET has set some of the important milestones in Disaster Risk Reduction in Nepal," Dr. Dixit mentioned. In the event, NSET Executive Director Mr. Surya Narayan Shrestha briefly presented NSET's achievements and lessons of the past one year 2020-2021.

For more detail, visit [here](#).

Baliyo Ghar Program comes to an end, National Workshop on Closing of Baliyo Ghar program held

Baliyo Ghar – the Housing Reconstruction Technical Assistance Program (HRTAP) has completed its operation. To support Government of Nepal's owner driven approach for the reconstruction of private houses damaged during 2015 Gorkha Earthquake, NSET implemented USAID's 'Baliyo Ghar' program which is a key part of the reconstruction portfolio of USAID/Nepal.



Key outcomes of Baliyo Ghar program are:

- Direct socio-technical support provided to rebuild 63,700 safer houses in the program areas,
- Orientations conducted for 146,559 persons,
- Training provided to 13,474 masons in the program districts,
- Under on-the-job training (OJT), supported rebuild 910 houses of vulnerable families identified by the government, 5430 new masons produced under 50-day long OJT, and support provided to retrofit 74 houses producing 467 masons including 15 females.

“National Workshop on Closing of Baliyo Ghar Program” has been held on Sep 24, 2021, in Kathmandu. Addressing the event, CEO Mr. Sushil Gyewali from National Reconstruction Authority (NRA) recalled the journey of Nepal’s reconstruction after 2015 Gorkha earthquake. Nepal could accomplish this responsibility so well, he remarked. CEO Gyewali appreciated USAID and NSET for all the worthy support provided, and the contribution made through Baliyo Ghar program.



On the occasion, NRA offered Letters of Appreciation to USAID and NSET. USAID and NSET also handed Letter of Acknowledgement to NRA for overall guidance and leadership in reconstruction efforts.

For more detail, visit [here](#).

Launch of NSET's 10-Year Strategic Plan

National Society for Earthquake Technology-Nepal (NSET) has launched 10-Year Strategic Plan (2021 to 2030) with an idea to ensure greater visibility in its strategic destination and the path to attain its envisioned destination through accomplishment of its mission. This 10-year strategic plan has been prepared with a clear thirst and commitment for growth and efficiency in its overall performance and impact on society.



Senior Littérateur and expert on Nepali Folk & Ethnic Cultures Prof. Tulasi Diwas and Senior Historian and Academician from Nepal Academy Prof. Dinesh Raj Panta jointly unveiled NSET's 10-Year Strategic Plan amidst a program on Sep 30, 2021, held in hybrid model in presence of a group of people attending physically and others many connecting virtually.

NSET was founded in 1993 for the broad but very explicit cause of ensuring earthquake safety in the hazard-prone urban as well as backward societies of Nepal and contributing to the regional and global level at large. Our institutional VISION which has been the pivotal inspiration of the organization till 2020 was to develop "Earthquake Safe Communities in Nepal by 2020". The new strategic plan is to further NSET's institutional course of action.

Nepal has been facing significant damages and losses due to various degrees and types of disasters. NSET has had rich experiences and lessons of working in the field of earthquake risk management in last 28 years and we believe that such experiences, knowledge, and lessons can be leveraged effectively in managing multi-hazard risks. In addition, the focus of global and national frameworks related to disaster resilience has encapsulated the aspects of multi-hazard risk management. NSET, hence envisions to widen, deepen, and scale up its area of contribution in enhancing disaster resilience of communities.

For more detail, visit [here](#).

24th Earthquake Safety Day 2022

Prime Minister Sher Bahadur Deuba has stressed the need to pay special attention to develop disaster resilient infrastructure to lessen the potential losses in future earthquakes. Addressing National Meetings of 24th Earthquake Safety Day (ESD) on 16 January 2022, virtually, Prime Minister Deuba highlighted the need of coordinated efforts of all tiers of governments to build disaster resilience of Nepali communities.

Addressing the meeting, Home Minister Balkrishna Khand stated that the construction of robust infrastructure was imperative as the country stands at high seismic risk in terms of earthquake vulnerability.



For more detail, visit [here](#).

9. NETWORKING AND COLLABORATION

Sharing information and developing & strengthening networking, cooperation and collaboration among the like-minded organizations, disaster management practitioners, policy makers and others at national, regional and international level are undoubtedly an important aspect of making resilient communities.

NSET, therefore, has been actively involved in cross learning processes since past 27 years. It has been working in partnership with many local, national and international institutions. NSET has been contributing to various initiatives at national, regional and global level as well. It also constantly participates in various regional and international meetings, workshops and seminars.

MoU signed between DUDBC and NSET for joint works



March 2021.

Nepal Government's Department of Urban Development and Building Construction (DUDBC) and NSET have signed a Memorandum of Understanding (MoU) to continue and enhance collaborative efforts on effective implementation of National Building Code (NBC) and also contribute to the areas of Risk Sensitive Land Use Plan (RSLUP) and other emerging concepts of resilient urban development.

Director General of DUDBC and Executive Director of NSET signed the memorandum in

DUDBC and NSET had first signed memorandum in 2003 for carrying joint efforts focusing on effective implementation of National Building Code in the municipalities. To continue the efforts through specific programs, DUDBC and NSET made a Memorandum of Understanding in 2012 and another in 2017 for the implementation of building code support programs. Through the programs and under the guidance of DUDBC, NSET provided technical support for building code implementation in around 50 municipalities.

Webinars organized by CityNet Nepal National Chapter



CityNet Nepal National Chapter organized a webinar on "Disaster Risk Reduction and Management (DRRM) at Cities and Lessons Learned from Responding to COVID-19" in January 2021. NSET, being the host of CityNet Nepal National Chapter, hosted the event.

CityNet is the largest association of urban stakeholders committed to sustainable development in the Asia-Pacific region.

Various participants from different Municipalities of Nepal including both the CityNet Member and member cities from Makati, Seoul, Taipei, Yokohama and Iloilo participated the 2-day International Webinar.

Non-Member Municipalities, Nepali DRR professionals and also CityNet Secretariat and member cities from Makati, Seoul, Taipei, Yokohama and Iloilo participated the 2-day International Webinar.

ADRRN Earthquake Risk Management Hub



NSET hosted a meeting of ADRRN Earthquake Risk. Management (ERM) Hub in November 2020.

The webinar concluded on the need to consolidate the learnings gathered by Disaster Risk Reduction scholars and practitioners across the region to develop better strategies and mechanism for advocacy, adoption and replication of seismic retrofitting to reduce losses during major earthquakes.

Prominent figures in the field of disaster risk management joined in the webinar held as part of ADRRN 2020 Regional Humanitarian Partnership Events hosted by the Asian Disaster Reduction and Response Network, International Council of Voluntary Agencies, United Nations Office for the Coordination of Humanitarian Affairs and Community World Service.

10. MONITORING, EVALUATION AND LEARNING

NSET tracks its program implementation and outputs systematically and measures the effectiveness of its activities. Through the M&E Unit, a systematic monitoring, evaluation and learning practice has been ensured in all programs and activities of NSET. M&E Unit has been analyzing performance and whether the targets set have been met, ensuring the five core standards of 'relevance', 'effectiveness', 'efficiency', 'impact' and 'sustainability'.

At NSET, we believe that measurement of program results and outcomes is a critical success factor on the path to achieving high quality results. Without data on our programs, we are unable to know what we should be replicating, where we should make course corrections and what learning we should disseminate.

Accomplishments

A. M&E Systems/Guidelines

NSET has developed M&E systems and guidelines and implements to measure program impacts in a systematic way.

Additionally, NSET has worked to advance its Management Information System (MIS) which is an integrated system designed to improve coordination, reporting and data management, data visualization and analysis, and intuitive data entry. The aim of this data portal is to improve access to NSET data so that it can be used for decision making and advocacy. All NSET data is being uploaded in MIS in real time system. Focus is on NSET's project indicators which are linked to NSET indicators and then to global indicators.

B. Project Specific MEL Activities

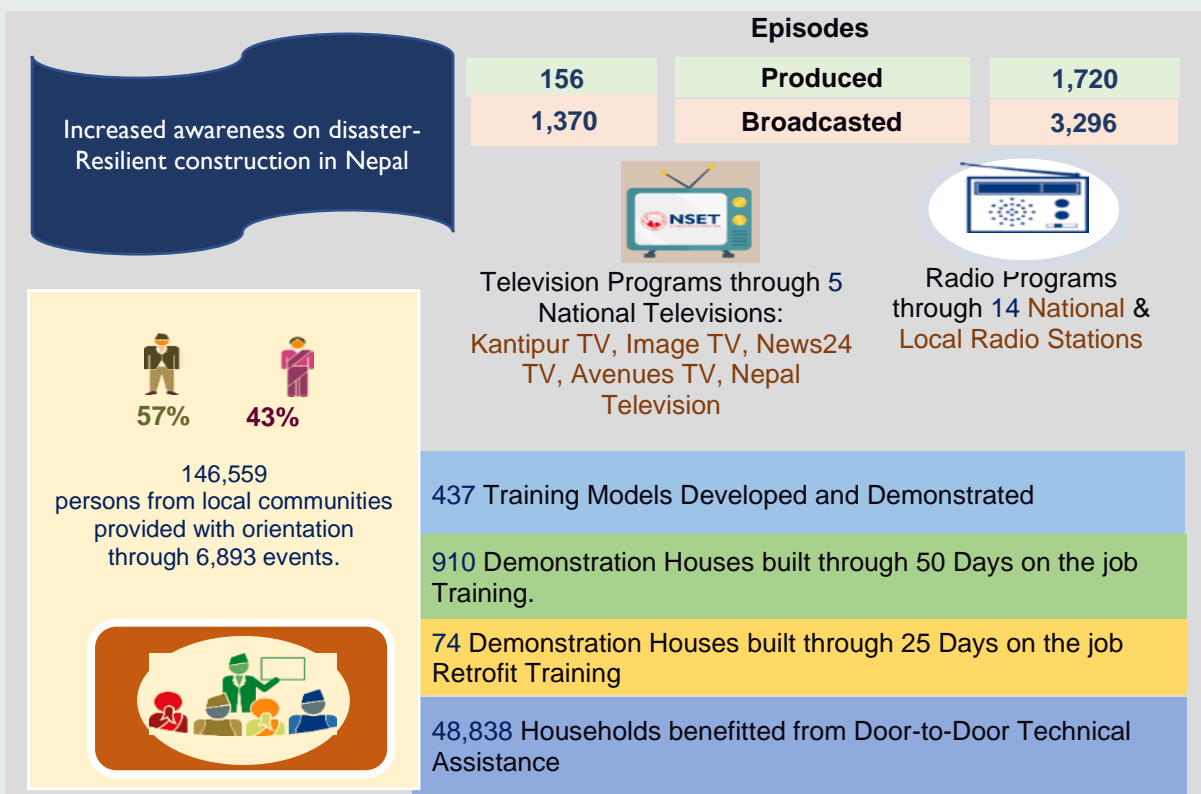
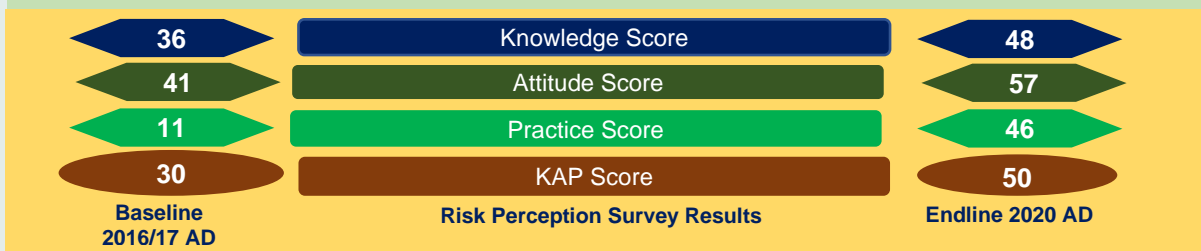
Different Monitoring and Evaluation (M&E) activities have been conducted to measure the impact of different program activities.

Final evaluation of Baliyo Ghar program

NSET conducted final evaluation of Baliyo Ghar program. The evaluation employed a mixed methodology of quantitative and qualitative survey tools in an integrated design to enrich the process and provide more insightful understanding. It ranged from document review to semi-structured interviews, group discussion and field observation to a household survey carried out in each program district. Quantitative surveys like; Baseline Survey, Endline surveys on Risk Perception of the community, Mason Retention surveys, engineers training effectiveness survey, pre-test and post-test for training participants etc. were also conducted.



IEC Materials: 66,986 Nos. distributed





The overall performance and objective wise achievement of Baliyo Ghar program also evaluated by the key informants. The key informants rated overall Baliyo Ghar performance as 9 in the scale of 1 to 10. And objective-wise, the achievement in the first objective, policy support was rated as 8, the second objective capacity building was rated 9 and third objective awareness achieved a score of 9. This means the stakeholders and beneficiaries view Baliyo Ghar program as one of the very useful and successful programs in terms of influencing the reconstruction process, to help people reconstruct timely and safe manner, and to help raise awareness of the people on disaster safety and earthquake-resistant construction.

Program for Enhancement of Emergency Response (PEER IV)

NSET conducted internal evaluation of the Program for Enhancement of Emergency Response (PEER) Stage 4. The evaluation done using a mixed-methods approach that included online assessment through Kobo-Collect, semi-structured interviews and review of PEER documents. The overarching goal of PEER over the last two decades has been to reduce disaster mortality in South Asia. From the training that the graduates have attended, it was found that, they found the courses excellent than all other course that they had attended. Almost all the respondents (98%) shared that the PEER courses have brought positive changes in their professional performance.

NSET also facilitated the external evaluation of the Program for Enhancement of Emergency Response (PEER) Stage. The external evaluation of PEER Stage 4 finds that PEER has been an invaluable investment in disaster response readiness in South Asia. The evaluation included a review of PEER documents, analysis of the PEER course database, and 22 semi-structured interviews with key informants from Bangladesh, India, Nepal, and Pakistan.

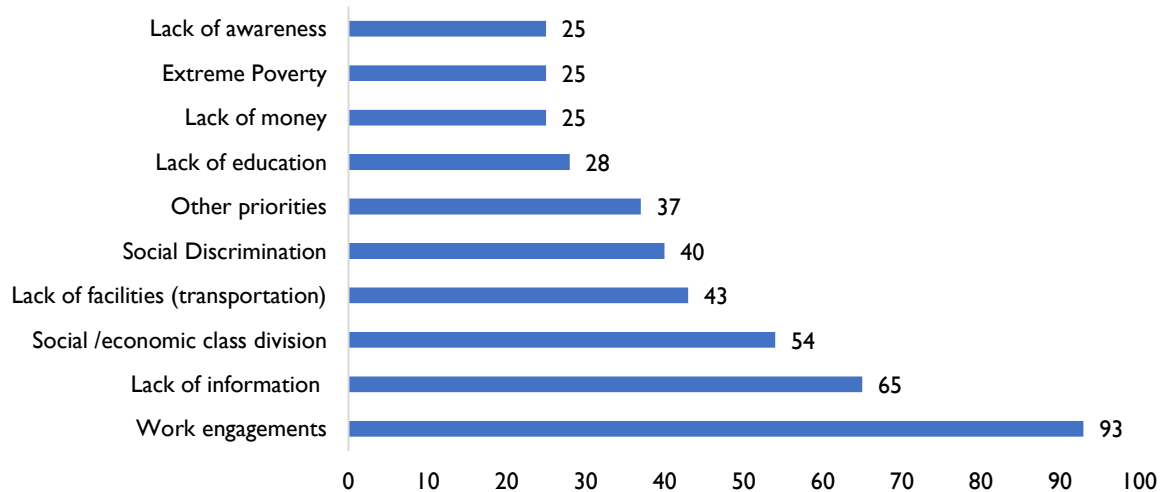
Views from Front line (VFL) Lite Survey

NSET facilitated VFL Lite Survey to measure the risk and resilience from the perspective of the local displaced communities in urban areas and other local stakeholders such as local CSOs and local government authorities. As residents of the community, the majority of the respondents (88.34%) are affected by the disaster.

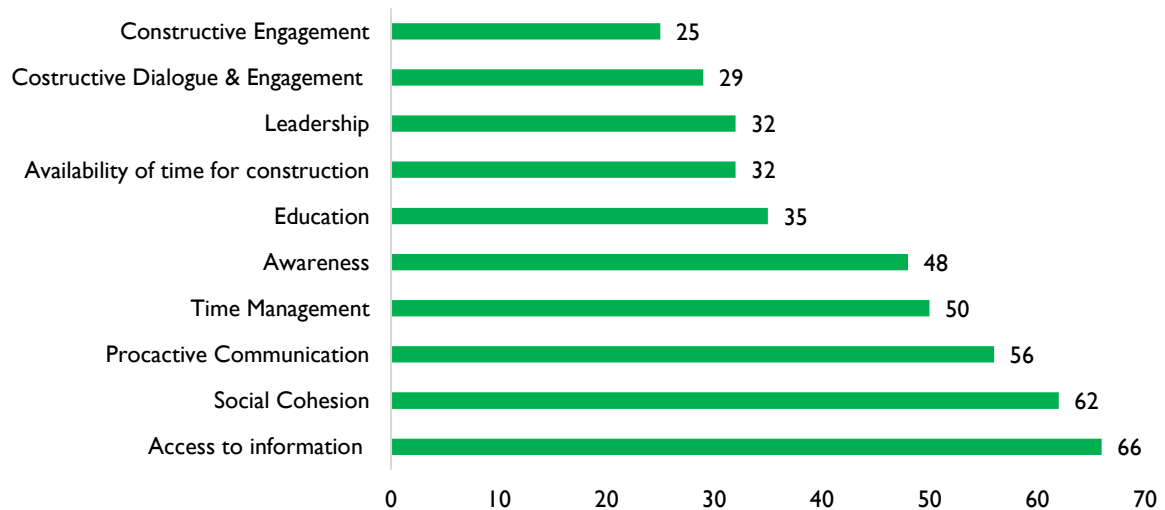
To understand the current situation of community people in disaster, Focus Group Discussion (FGD) was conducted to gather and verify the results of VFL lite survey on the perception of community-level disaster risk reduction. From the discussion it was

concluded that people living in different places migrated to “Namuna tole” in search of employment opportunities and to make life safe and sound. But community people still cannot live carefree as yearly disasters like flood occur. There is the need for more efforts on preparedness and capacity building at community level.

Factors preventing inclusion



Factors facilitating inclusion



11. OUR CURRENT STATUS

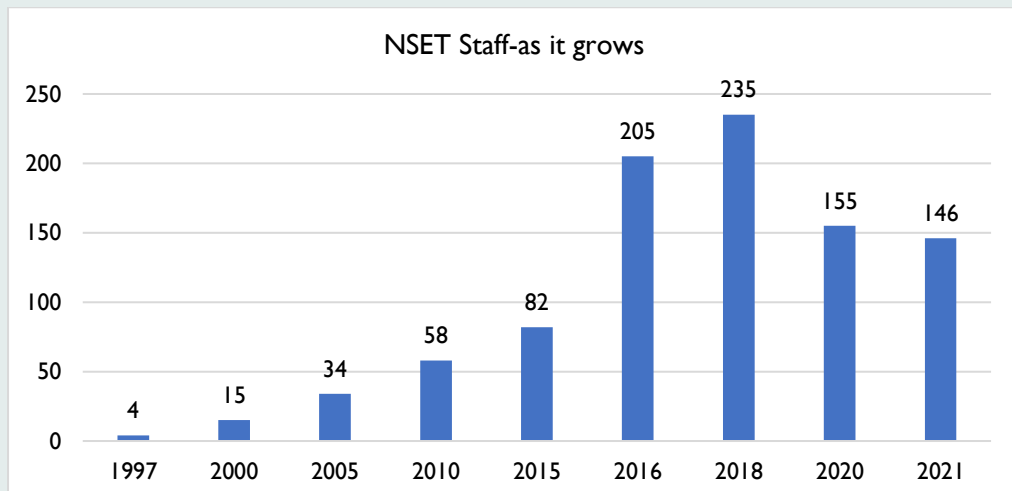
NSET completes 28 years of action

NSET that started operating with a few professionals has now completed 28 years in action. Last year, NSET marked 28th NSET Day.

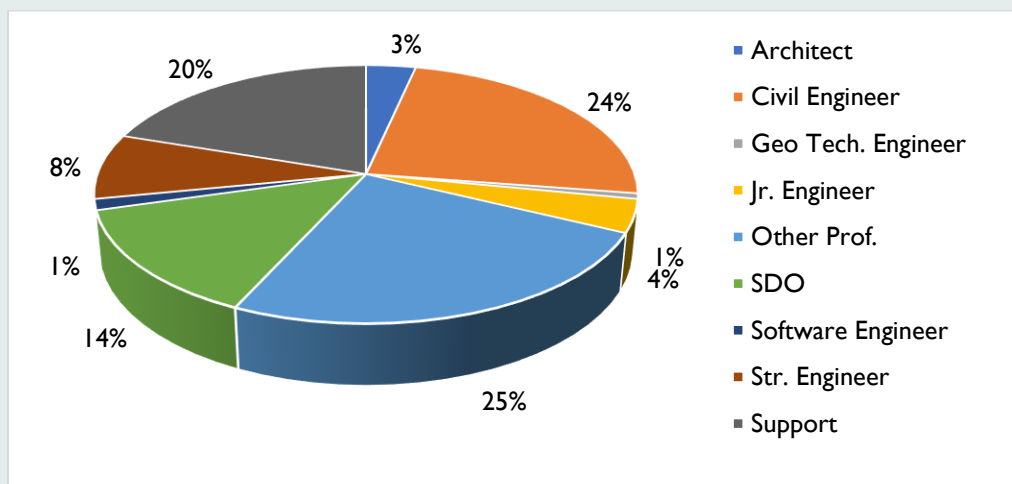
Over the years, NSET has contributed to support efforts on Earthquake Risk Management and Disaster Risk Reduction at the local and national level, and also at the regional and global levels.

NSET's 28-year long journey has been a landmark in terms of quality & effectiveness of its services to help communities and nations in building their resilience. NSET has now grown significantly with a large number of qualified professionals and with adequate physical facilities.

With a total of 4 staff back in 1997, we raised to 234 professionals and supporting staff in May 2018, and now total 146 staff who dedicatedly serve in various programs/projects across the country and beyond.



NSET Professionals



NSET's Annual General Meeting has elected New Executive Committee

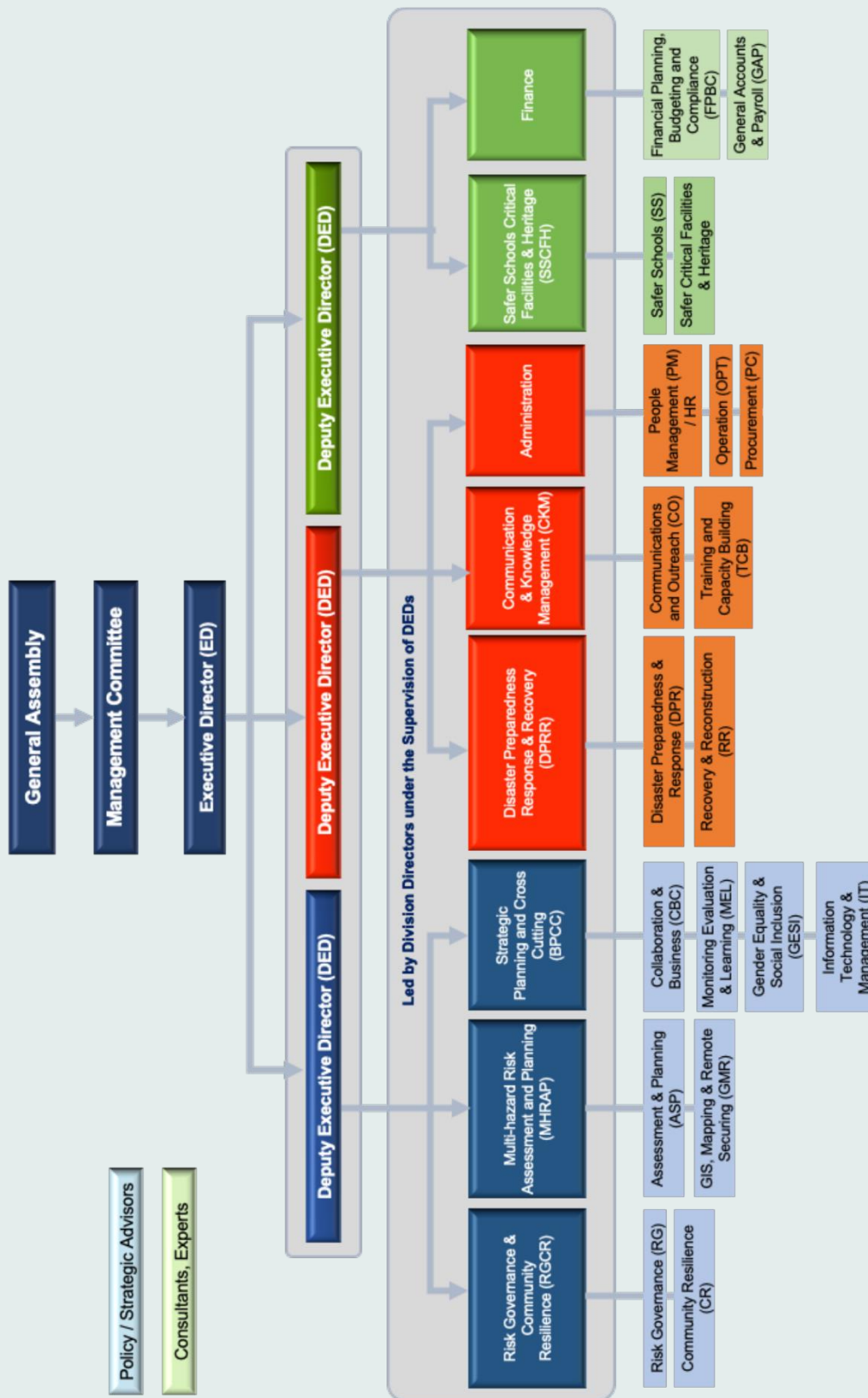


The 27th Annual General Meeting (AGM) of National Society for Earthquake Technology-Nepal (NSET) has been held on December 13, 2020. The AGM has unanimously elected new Management Committee of NSET. Dr. Amod Mani Dixit leads new Management Committee as the President, together with Mr. Shreeram Singh Basnet as the General Secretary and Mr. Surya Bhakta Sangachhe as the Treasurer. The newly elected Committee Members are Mr. Varun Prasad Shrestha (Immediate Past President), Mr. Yogeshwor K. Parajuli, Mr. Tika Sharma and Mr. Surya Prasad Acharya. Through the first meeting, the committee has nominated NSET Executive Director Mr. Surya Narayan Shrestha as a Member in Management Committee.

NSET Management Committee

President:	Dr. Amod Mani Dixit
General Secretary:	Mr. Shreeram S. Basnet
Treasurer:	Mr. Surya Bhakta Sangachhe
Members:	Mr. Varun Prasad Shrestha (<i>Immediate Past President</i>)
	Mr. Yogeshwor K. Parajuli: Member
	Mr. Tika Sharma: Member
	Mr. Surya Prasad Acharya: Member
	Mr. Surya Narayan Shrestha: Member

NSET Organogram



Income and Expenditure Statement

National Society for Earthquake Technology - Nepal

Statement of Financial Position As at July 15, 2020

Particulars	Schedule	(Amount in NRs)	
		As at July 15, 2020	As at July 16, 2019
(I) LIABILITIES & RESERVES			
(1) Fund Balance			
(a) Restricted Fund	I	4,914,392	(2,532,292)
(b) Unrestricted Fund	I	34,428,592	64,240,300
(2) Non-Current Liabilities			
(a) Loan & Borrowings	II	36,000,000	-
(b) Employee Benefit Liabilities	III	197,861,800	178,311,182
(3) Current Liabilities			
(a) Current Liabilities	IV	12,865,348	6,622,279
Total		286,070,132	246,641,468
(II) ASSETS			
(1) Non-current Assets			
(a) Fixed Assets	V	47,951,999	52,780,836
(2) Current Assets			
(a) Receivables	VI	47,818,987	43,831,464
(b) Short Term Investments	VII	90,000,000	90,000,000
(c) Cash & Cash Equivalents	VIII	100,299,146	60,029,168
Total		286,070,132	246,641,468

Significant accounting policies and other explanatory notes

XV

As per our report of even date


 Varun Prasad Shrestha
 President


 Amod Mani Dixit
 General Secretary


 Yogeshwar K. Parajuli
 Treasurer


 Sanjeev Kumar Mishra
 Partner
 PKF T R Upadhy & Co.
 Chartered Accountants




 Surya Narayan Shrestha
 Executive Director



 Suvam Prasad Gautam
 Finance Manager



Date: 10 December 2020
Place: Kathmandu, Nepal

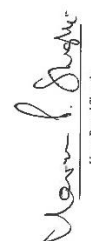
Balance Sheet

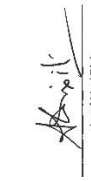
National Society for Earthquake Technology - Nepal
Statement of Income and Expenditure
for the period July 17, 2019 to July 15, 2020


Particulars	Schedule	NSET Small Projects	NSET PEER IV/USAID	NSET Balance Sheet (BTRAP) USAID	NSET TSBCIN/USAID	NSET TESREC/USAID	NSET HRRP III	NSET HRRP IV	NSET Sakura Net	NSET NSSP	Elimination of Inter-project balance	Total	Previous Year (2018/19)
Income													
Project Grant Income		121,083,321	75,595,385	106,733,238	23,738,508	9,533,575	1,245,674	11,282,473	-	45,367,859	(67,572,475)	326,007,458	549,365,273
Contribution towards Earthquake Safety Day		-	-	-	-	-	-	-	-	-	-	-	482,537
Total Income		121,083,321	75,595,385	106,733,238	23,738,508	9,533,575	1,245,674	11,282,473	-	45,367,859	(67,572,475)	326,007,458	549,787,810
Expenditures													
Administrative Expenses	IX	113,083,281	48,409,650	90,234,790	18,664,723	9,278,354	1,210,702	10,927,172	-	34,847,357	(67,615,065)	259,041,024	334,762,500
Interest Expenses	X	1,996,954	-	-	-	-	-	-	-	-	-	1,996,954	-
Event Expenses	XI	288,284	-	-	-	-	-	-	-	-	-	288,284	1,418,029
Workshop/Training/Seminar and other program costs	XII	7,864,536	26,201,520	11,954,112	4,038,819	-	-	-	-	9,535,985	-	59,610,272	155,701,739
Travel and Perdiem Expenses	XIII	1,920,564	156,625	830,352	1,047,762	255,221	34,972	355,301	-	938,973	-	5,539,820	7,361,699
Public Awareness	XIV	125,000	-	2,723,984	-	-	-	-	-	-	-	2,848,984	10,973,503
Exchange (Gain)/Loss		(41,195,798)	827,140	-	(4,796)	-	-	-	-	22,544	42,530	(3,307,880)	(439,660)
Total Expenditure		121,083,321	75,595,385	106,733,238	23,738,508	9,533,575	1,245,674	11,282,473	-	45,367,859	(67,572,475)	326,007,458	549,787,810
Surplus / (Deficit) for the year		-	-	-	-	-	-	-	-	-	-	-	-


Significant accounting policies and other explanatory notes XV


As per our report of even date

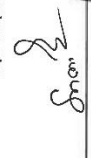

Vinay Prasad Shrestha
 President


Anand Mani Dixit
 General Secretary


Yogeshwar K. Neupane
 Treasurer


Subodhendra Shrestha
 Executive Director


Suren Prasad Gautam
 Finance Manager


Sanjeev Kumar Mishra
 Partner
 PRT P. Upadhyaya & Co.
 Chartered Accountants

Date: 10 December 2020
Place: Kathmandu, Nepal



NSET Family



NSET
Disaster Resilient Communities in Nepal

National Society for Earthquake Technology-Nepal (NSET)

House 65, CR-13, Sainbu Awas, Bhainsepati

Lalitpur Metropolitan City-25, Nepal

P.O.Box No.: 13775, Kathmandu, Nepal

Tel: (977-1) 5591000, Fax: (977-1) 5592692, 5592693, E-mail: nset@nset.org.np

Get involved! Visit the NSET website: www.nset.org.np; Follow us at

