



NSET
Disaster Resilient Communities in Nepal

NSET Annual Report 2023



June 2023



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

Cover Photo (Back)
Glimpses of NSET Activities

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MESSAGE FROM THE PRESIDENT

We feel proud that NSET is completing 30 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's 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 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 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. 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 proud at the level of trust that NSET has built up with 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 their organizations.

We reassure our friends and well-wishers that we will continue to serve the nation by continuing doing 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	4
NSET Accomplishments of the year 2023.....	7
2 Efforts on Building Code Enforcement and Multi Hazard Risk Management.....	9
3 Build Back Better: Assisting Post Earthquake Reconstruction in Nepal.....	15
4 Making Resilient Communities: NSET's Community Centered DRR Efforts.....	18
5 Making Resilient Schools: Efforts on School Safety in Nepal.....	28
6 Enhancing Preparedness and Emergency Response Capacity	35
7 Research and Development: Use of Science & Technology in Resilience Building.....	39
8 Major Events of the year.....	46
9 Sharing and Cross Learning.....	50
10 Monitoring, Evaluation and Learning.....	53
11 Our Current status.....	57



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.

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.

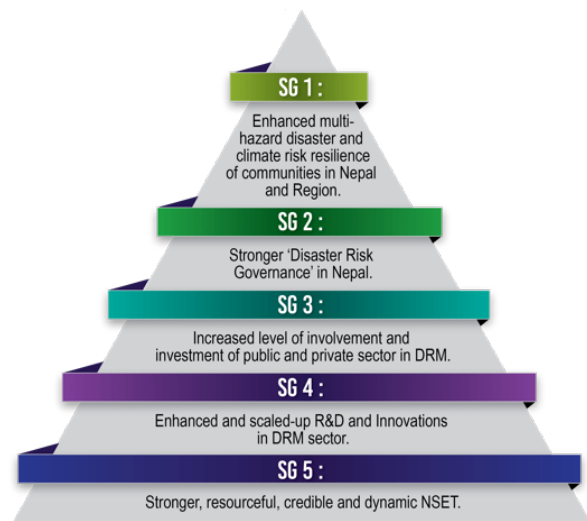
NSET was founded by a group of professionals on June 18, 1993 with the vision of contributing to build "Earthquake Safe Communities in Nepal by 2020". An interim Management Committee was then formed comprising eminent persons Mr. Shiva Bahadur Pradhanang as President, Mr. Amod Mani Dixit as General Secretary; 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.

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".

We have identified 5 strategically prioritized goals (SG) that we shall strive to achieve by 2030. NSET now focuses on the following strategic objectives which are connected to our strategic priorities:

- **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.



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.

1.1 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

1.2 Current Affiliations/Involvements

NSET is contributing at local, national and international level on disaster risk reduction efforts and initiatives: 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; Founder Member, International Live Lessons Transfer Network (TeLLNet); 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 ACCOMPLISHMENTS OF THE YEAR 2023





2 EFFORTS ON BUILDING CODE ENFORCEMENT AND MULTI HAZARD RISK MANAGEMENT

Even though Nepal is urbanizing rapidly in the last few years, it is still predominantly a rural country. Of the 753 local government units, 460 are rural municipalities. In the context of urban municipalities, various efforts and initiatives have already been in place to make them resilient to disasters. However, very few interventions have been made on disaster risk reduction and resilience building of rural municipalities in Nepal. An urgent need has been felt to demonstrate model works and develop organized approaches to build community resilience in rural areas in Nepal. 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 continues to be working in collaboration with more and more urban as well as rural municipalities for this cause.

2.1 Assisting rural municipalities in building resilience

To support in establishing model for resilient rural community through safer building practices and preparedness, Technical Support for Resilient Communities (TESREC), “My Village is Resilient” program was envisioned and implemented in 7 Rural Municipalities, of Nepal during October 1, 2019, to September 30, 2022, with the funding support from United States Agency for International Development/Bureau of Humanitarian Assistance (USAID/BHA). Through the program, NSET sought to build upon the efforts and achievements of building code support programs and intended 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 for rural areas.



The 7 municipalities where the program was implemented were Tamakoshi Rural Municipality, Dolakha, Bagmati Province, Babai Rural Municipality, Dang and Baijanath Rural Municipality, Banke, Lumbini Province, Simta Rural Municipality, Surkhet and Sinja Rural Municipality, Jumla, Karnali Province, Kailari Rural Municipality and Chure Rural Municipality, Kailali, Sudurpaschim Province. The major accomplishments of the TESREC program have been given below.

There were two major components; first component was about establishing framework and systems for ensuring safer building construction in Rural Municipalities;

and second component was about developing a model disaster resilient community - “My Village is Resilient”, that piloted in 3 communities.

The program worked in 3 thematic areas; Building and infrastructures regulation, multi-hazard risk assessment and planning; and Preparedness and response planning with cross-cutting themes.

2.2 Major Accomplishments

2.2.1 Establish framework and systems for ensuring safer building construction in Rural Municipalities

NSET implemented TESREC program assisted the program municipalities to develop standard guidelines, norms, and training curricula. It mainly helped improve institutional system of the rural municipalities, process for risk-based planning and enforcement of Nepal National Building Code through establishment of the system of Building Permit System. Likewise, the mechanism of Building Inventory in Simta, Kailari and Tamakoshi Rural Municipalities was developed.

Similarly, one of the major problems of rural municipalities was availability of limited number of qualified technical manpower and limited access to qualified engineers for earthquake-resistant design of buildings. In this context, the program assisted municipalities to finalize the model building catalogue which contains the model designs for such most prevailing building typologies, and people can directly use it for building permit process and construction. In addition to this, the project provided support to initiate the building permit system in all seven rural municipalities by assisting in developing building permit application forms. Risk Sensitive Land Use Plan (RSLUP) was also prepared for Tamakoshi Rural Municipality based on the Multi-Hazard Risk Assessment of the study area.

Further, with view to transfer the technical knowledge and skills to the construction workers including masons and engineers regarding retrofitting and to demonstrate the technology to the locals, technicians, masons and other stakeholders regarding its construction techniques and methodology, a model retrofitting of a building in Simta Rural Municipality was also done. A building was retrofitted as a part of On-the-Job Training (OJT) where a total of 8 masons were trained Through OJT, one individual house, one guard house and one WASH infrastructure were also constructed. Apart from this, one low-strength masonry rural building in Dang was retrofitted with the technical support from NSET using jacketing technique.

The program also provided technical support to program rural municipalities in strengthening governance, capacity enhancement of construction stakeholders, awareness promotion to community members on disaster risk reduction and management. For this, it deployed Civil Engineers to their respective field stations. They worked closely with the rural municipalities office for establishing framework and systems for ensuring safer building constructions in the rural municipalities.

2.2.2 Establish Framework and Foundation for Model Disaster Resilient Community

One of the major objectives of the TESREC program was to develop three communities as a Model Disaster-Resilient Community. As part of Developing model disaster resilient communities, three communities: Malu Khola, Thigni and Mohanpur were identified and developed as model resilient communities. Three social development officers were deployed at three model communities for conducting and assisting activities of multi-hazard, preparedness and building code implementation for developing resilient community.

Multi-hazard risk assessment of Malukhola of Tamakoshi, Thigni of Simta and Mohanpur of Kailari rural municipalities were done. In Malukhola and Thigni, risk assessments were done for main hazards like earthquake, fire, landslide, and flood. In Mohanpur, risk assessment was done for Earthquake and Flood. A detailed study on multi hazard and risk assessment was carried out and hazard and risk map of the community was also prepared. Risk Reduction and Preparedness

activities for community resilience were accomplished in Malukhola and Mohanpur. River training activity with a view to prevent and mitigate the problem of flash floods and general flood control, as well as in other activities such as ensuring safe passage of a flood were accomplished. As part of the activity, a Detailed Project Report (DPR) of the river training activities was developed for Mohanpur. Similarly, a DPR report has also been developed for river training activities of Malukhola in Tamakoshi Rural Municipality and as per the report, a catch dam has been designed and the construction works are to be done by rural municipality. Likewise, to prevent consequences created by the unmanaged storm drainage along the road, construction of cross drainage in Malu Khola road was planned and prepared design of it. The Division Road Office, Charikot, Dolakha to conduct the activity while locals to carry out routine maintenance and cleanup activities.



MoU between Kailari Rural Municipality and NSET

As per the guidance from government of Nepal, the volunteers' group was established at all three model villages. The program assisted three rural municipalities: Tamakoshi, Simta and Kailari Rural Municipalities in identifying the open space in their respective municipalities as the area can be utilized as place for evacuation of disaster victims, distribution of relief materials as well as an emergency shelters for displaced people. As part of disaster preparedness activity, community level disaster simulation exercises conducted in the three-model disaster resilient villages/communities.

Altogether 9 simulation exercises were done where 305 people got benefited. A container each with basic emergency response and rescue materials was prepositioned in Malukhola of Tamakoshi, Thigni of Simta and Mohanpur of Kailari Rural Municipalities. These containers were placed in such a way that the materials get easily accessible during disaster and the place is comparatively most safe from hazards. Further one each Community Disaster Learning Center (CDLC) was established in Tamakoshi, Simta and Kailari Rural Municipalities. CDLC is an informal learning center where local people can get basic information regarding local hazards, disaster risks, measures to risk reduction, preparedness and response and enhance their knowledge. One community learning center committee has been formed in all the model villages for smooth functioning of the learning center.

2.2.3 Enhance Capacity of Stakeholders towards Achieving Community Resilience

NSET, Numerous training programs for masons, engineers, political leaders, community members, elected leaders, municipal staff and others on safer construction and multi-hazard risk management were conducted under the program. All training was conducted in leadership of respective municipalities and guidance of MoFAGA. Capacity enhancement of six local radio partners of program municipalities was done.



Photo caption ????

Three training workshops were conducted for 12 radio program producers. Further, a significant number of people were sensitized on multi-hazard risk reduction and management through five orientation programs for political leaders of the program municipalities.

To enhance the knowledge of political leaders, series of orientation program on safer building construction, multi-hazard risk reduction, management and disaster resilience for the political leaders and municipal staffs of seven Rural Municipalities were conducted. A total of 319 political leaders oriented on community resilience and safer construction and 1,055 people benefitted through disaster awareness, programs, meetings, and workshops.

With the view to enhance the knowledge regarding compliance of Building Permit System in rural Municipality, series of orientation programs for the community people/ house owners of all the 7 Rural Municipalities were conducted under the program. Altogether 68 orientation programs were organized where a total of 2350 community members/ house owners got orientated from all wards of Babai, Kailari, Chure and Sinja Rural Municipality.

Similarly, mason trainings on earthquake resistant building construction for rural and urban buildings were conducted in each program rural municipalities with view to impart basic knowledge and skills required for construction of Earthquake Resistant (ER) houses to masons. 487 construction workers from program municipalities were trained through 14 trainings on earthquake resistant building construction for rural and urban buildings.



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Four days emergency response trainings were conducted to the volunteers of model disaster resilient communities on Basic Emergency Medical Response (BEMR), Community Search and Rescue (CSAR) and Damage Assessment Training (DAT). Altogether, 210 community people were trained in CSAR and BEMR courses from three rural municipalities.

Two workshops for local leaders were conducted in Tamakoshi and Simta Rural Municipalities to enhance the understanding of local leaders on the concept of disaster risk reduction in relation to risk, vulnerability and hazards, multi-hazard risk assessments process and its outputs and help formulate the appropriate strategies for multi hazard vulnerability and risk reduction and mainstream disaster risk reduction into municipal development plan.

A total of Five training workshops for Municipal Engineers/Sub-engineers of program municipalities were organized to enhance the knowledge on Building Code implementation and Building Permit System. 124 engineers were trained in safer construction practices. Training on building inventory survey was conducted for 22 local surveyors. Meanwhile a refresher course was also conducted for the masons who were trained previously by program.

2.2.4 Policy Documents, Training Courses, and IEC Materials

NSET Various Policy Documents and Guidelines, Training Courses and Information Education and Communication (IEC) Materials have been developed under the program. A total of 15 number of hazard risk reduction plans, strategies, policies, disaster preparedness and contingency plans have been developed. The lists of some of them are as follows.

- Standards and Guidelines for Building Permit System
- Building Permit Procedure for Retrofitting,
- Guideline for Multi-Hazard Risk Assessment and Training,
- Emergency Preparedness and Response Plan for Rural Municipalities,

- Volunteer Mobilization Guideline,
- Guidelines for identification of open Spaces for Disaster Response,
- Guidelines for Disaster Simulation Exercise
- Guidelines for Preposition of Contingencies
- Operation Manuals for Disaster Community Learning Centre
- Building By-Laws and Risk Sensitive Land Use Plan
- Curriculum for Contractor Training
- Curriculum for Masons training
- Curriculum for Earthquake Resistant Design Training for Engineers
- Curriculum on Building Code Implementation Training

3 BUILD BACK BETTER: ASSISTING POST EARTHQUAKE RECONSTRUCTION IN NEPAL

3.1 Providing Socio Technical Assistance program for Doti Earthquake Recovery and Reconstruction

The recovery and reconstruction activities after the Gorkha Earthquake were successfully implemented. There was international attention and support for post disaster need assessment, planning, recovery, and reconstruction due to nation level disaster. But for moderate and small earthquakes, the mechanism for recovery and reconstruction activities is still not in place. The recovery and reconstruction activities in the recent Lamjung and Khotang Earthquakes are examples. But the National Disaster Risk Reduction and Management Authority (NDRRMA) is initiating to set mechanism for post disaster need assessment, recovery, and reconstruction with involvement of local government and organizations after Doti Earthquake.

3.1.1 Goal and Objectives

The goal of this program is to resume basic services by rebuilding damage houses and infrastructures due to Doti and Bajura Earthquake hit at the western Nepal in Nov 2022 and Feb 2023 by providing socio-technical support to house-owner and local government. The objectives this project are to enhance the knowledge of house-owner on safer building construction and reconstruction policy through community orientation, enhance the capacity of construction technician on safer building construction, retrofitting and reconstruction policy, provide door-to-door technical assistance to house-owners for safe building construction and housing grant processing, assist local government and district administration office on building compliance and inspection mechanism for grant processing and support vulnerable households to rebuild the damaged house.

3.1.2 Activities and Methodologies

Awareness raising, capacity building and institutionalization are the key interventions required for effective recovery and reconstruction. Political leaders, municipal officials, local organizations, affected individuals need to understand the recovery and reconstructions process, safer building construction methods, and government grant mechanism. Following are the key activities to implement under proposed program and proposed methodology:

3.1.3 Develop Technical Design and Standards

Recovery and Reconstruction policy poster: 2,500 copies

The components of recovery and reconstruction policies are housing recovery grants, compliance and inspection mechanisms, and socio-technical assistance. These existing policies need to be disseminated to affected communities and individuals for safer construction and timely reconstruction. The poster is planned to be developed in Nepali language with simple, clear and concise system. We believe this poster will increase the rate of reconstruction of housing. 2,500 copies of the poster will be printed and disseminated to affected individuals during community orientations.

Design and Installation of hoarding boards: 2

Information on ways of safer reconstruction will be disseminated through the installation of hoarding boards. Altogether 2 hoarding boards will be installed at municipal office and most

affected ward office. The information on the hoarding board will support the house owners and the community people as a whole for safer construction of houses.

Permanent house designs: 2 designs

The permanent house design used in rural context will be shared with communities from pool of resources and government design catalogue. If there is need of different of vernacular model, then project will develop a model design.

3.1.4 Advocacy and Coordination

Advocacy and coordination meetings with all three tiers of government, National Disaster Risk Reduction and Management Authority (NDRRMA) and other government agencies will be organized to facilitate the reconstruction of Purbichauki rural municipality. The meetings are planned to share information on the progress and status of reconstruction efforts, identify gaps or challenges in the process, and work collaboratively to develop solutions.

Awareness Campaign

The awareness campaign is planned for information dissemination on safer building construction and government grant distribution. This will enhance the rate of reconstruction along with safe buildings. The awareness campaign is planned to be carried out on affected communities of Purbichauki rural municipality on leadership of wards representative by the socio-technical assistance team. At least 20 community awareness programs will be conducted in this project. During the awareness campaign the socially backward, marginalized, and vulnerable groups will be mapped to support possible activities.

3.1.5 Training and Capacity Building

Following training are planned to enhance the capacity of local individuals through the local organization.

OJT for Transitional Houses

Two 15 days On-the-Job Training (OJT) is planned for transitional houses. The OJT is planned for transitional houses of socially backward, marginalised, and vulnerable individual. The project will facilitate to receive transitional shelter support grant and support for construction technician through OJT. 10 masons will be trained through OJT during the construction of 2 transitional houses. These masons will support construction of other 10 transitional houses in the communities. The transitional houses will be constructed based on the existing standards.

Masons Training

Sixty masons will be trained during two mason trainings for rural building based on the DUDBC curriculum. The objectives of training are to enhance the capacity of masons on construction of earthquake resistant rural buildings, at the same time increase their livelihood opportunity as certified skilled masons. This is a seven-day skill building training, where teaching methodology has a combination of 50% theoretical and 50% practical sessions. The target participants are the affected individuals of Purbichauki communities.

These trained masons are the changemaker for reconstruction of 60 earthquake resistant buildings at Purbichauki rural municipality.

OJT for Retrofitting

Two 45 days On-the-Job Training (OJT) is planned for retrofitting of two buildings. Houses of socially backward, marginalized, and vulnerable individuals will be considered for retrofitting. The project will facilitate construction technician to receive housing reconstruction grant and support through OJT. 16 masons are planned to be trained through OJT during the retrofitting of 2 houses.

These masons will support retrofitting of other 10 houses in the communities. The retrofitting houses will be designed and constructed based on the DUDBC standard.

3.1.6 Door-to-door Technical Assistance to House-owners

The approach for Doti earthquake recovery and reconstruction is owner driven reconstruction, where houseowner's decisions on design and construction are integrated for resilient building. On this approach, the house owner needs continuous technical support for safer building construction. A team of civil engineer and social mobilizer are envisioned for socio-technical assistance. 2 such teams will be mobilized for assistance. This socio-technical team will communicate and assist house owners on technical matters in a simple, clear and concise manner. This team will also assist house owners in receiving the government grant on first, second and final tranche. The door-to-door technical assistance is planned for transition shelter, reconstruction and retrofitting of houses. Relatively more time and technical support is planned for the female headed households, socially backward, marginalised and vulnerable individuals.

3.1.7 Assist on Compliance and Inspection Mechanism

The district team of proposed project will assist the Doti District Administration office and Purbichowki rural municipality office for the housing recovery grants. The grants contain transitional shelter support, housing reconstruction, relocation, and vulnerable support grant. The team will also assist on the compliance and inspection mechanism by local government and district administration office.

4 MAKING RESILIENT COMMUNITIES: NSET'S COMMUNITY CENTERED 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.

4.1 Efforts on Preparedness and planning for the mountain hazard and risk chain in Nepal through Sajag-Nepal project

Sajag-Nepal: Planning and preparedness for the mountain hazard and risk chain in Nepal is a research project funded by UK Global Challenges Research Fund: Multi-Hazards and Systemic Risks. Sajag-Nepal with multi-disciplinary project team 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 consortium includes the National Disaster Risk Reduction and Management Authority (NDRRMA), Ministry of Home Affairs (MoHA) of the Government of Nepal, Durham University, Northumbria University, University of Canterbury, Newcastle University, National Society for Earthquake Technology Nepal (NSET), Social Science Baha, University of Oxford, Asian Disaster Reduction and Response Network (ADRRN), Tribhuvan University, University of Bristol, UN Resident Coordinator Office (UN-RCO) & Humanitarian Country Team (HCT), University of Auckland, University of British Columbia, BBC Media Action and International Federation of Red Cross and Red Crescent Societies (IFRC).

Durham University is the lead of the project, serving as the primary organization responsible for its overall coordination and management. NSET works as the role in-country secretariat for Nepal, facilitating and support the project's activities within the country. The project aims to improve decision-making and preparedness in order to mitigate the impacts and reduce the risks from the mountain hazard chain in Nepal. The major objectives of the research projects are to Contextualize the contemporary multi-hazard and systemic risk landscape in Nepal, and develop the first national-scale multi-hazard inventory (support NDRRMA and palikas), Develop national-scale preparedness plans for earthquake-related multi-hazards (support GoN/UN RCO), Develop national- and municipality-scale plans for seasonal, monsoon-related multi-hazards (support GoN/UN RCO and palikas) and Develop new ways to embed local, natural, and social scientific knowledge of the mountain hazard and risk chain in preparedness and response..

4.1.1 Major Accomplishments

Collaboration and engagement

The Sajag-Nepal has been working in collaboration engagement with various organizations and institutions with view to fulfil its objectives. As part of the Sajag-Nepal project, NSET played a facilitative role in collaboration with the NDRRMA, Department of Hydrology and Meteorology (DHM), and the UNRCO to contribute scientific evidence and risk information regarding landslides for the development (or preparation) of the 2023 Monsoon Response and Preparedness Plan. During the period, Sajag Nepal held meeting with National Disaster Risk Reduction and Management Authority (NDRRMA) to share the multi-hazard ensemble result focusing on the impact of earthquake and landslide on the building and to explore its potential to be used by the NDRRMA for the development of emergency response and preparedness plan.



Photo caption ????

- With an objective of introducing the brief update of Sajag Nepal and its ongoing activities and to explore the use of CBDRM platform to disseminate the project outcome at local level as a linkage between the disaster policy, program, and planning, a meeting with A meeting of Sajag-Nepal, MoFAGA and IFRC was held on April 2023.
- Series of meetings were conducted with Department of Hydrology and Meteorology (DHM) with an objective to explore the possibility of partnership between DHM and Sajag-Nepal aiming to use the outcome of the project and contribute multi-hazard risk model in the IBF and effective monsoon forecast and explore the possible collaborations.
- NDRRMA led the meeting of the Sajag-Nepal team and National Statistics Office (NSO) was held on April 2023 to discuss on the possibility of using the 2021 Census data in the multi-hazard risk model being developed by the project.
- Sajag-Nepal's research was shared with District Disaster Reduction and Management Committee (DDRMC), Kavre .
- Two rounds of follow-up workshops were conducted in September 2022, and April 2023 with Humanitarian Cluster and HCT
- Sajag-Nepal team got an opportunity to be part of the one-day Provincial Humanitarian Coordination and Contingency Planning Workshop at provincial headquarter of Lumbini Province.
- Sajag-Nepal team members conducted a session at the Regional Humanitarian Partnership Week in Bangkok to share the project activities and discuss on the challenges, and achievements of a wide range of organizations who are concerned with disaster risk reduction and humanitarian response across the Asia-Pacific region.



Photo caption ????

4.1.2 Research and Data Collection

- **Drone Survey:** The UAV survey of the landslide monitoring stations in Tharlagang (area: 0.686 sq. km) and Gothepuran (0.552 sq. km) of Temal Rural Municipality was conducted from May 9 - 13, 2023. The data collected from these stations will be used for research purposes and to help local communities and authorities understand the local hazards.



- **Installation of slope monitoring instruments:** To understand the linkage between monsoon rainfall and slope stability, slope stability monitoring equipment was installed in four case-study municipalities in September 2022. The equipment includes acoustic sensors, rainfall, temperature, and soil-moisture sensors, and a data logger for near real-time data transmission via web. Data collection is ongoing.
- **3D participatory mapping:** Participatory mapping at Kodari was done to track the mobility of the individual in the hazard-prone area. In the survey general trend of mobility according to age, occupation, gender, and seasonality was visualized. Also, from the map of knowledge, a way of representing the local knowledge on soil, rock, landslide early warning signs, precipitation, and river discharge was recorded.

- National scale landslide inventory: Using Sentinel-2 satellite images, under the Sajag-Nepal, landslide inventories of 300 grids across Nepal is being created. The time span covers 6 post monsoon events from 2016 to 2021. These inventories include the location, size, year of initiation including other information of each landslide.

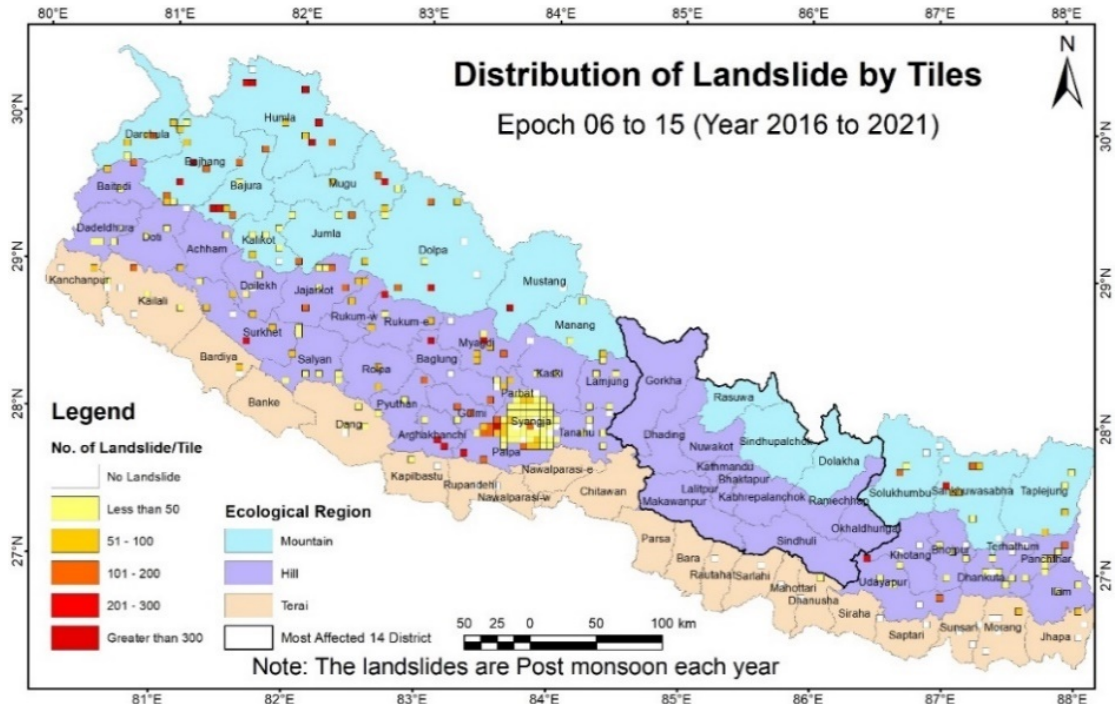


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- **Landslide Database and Monsoon 2022 impact information collection:** The database of the 100 major landslide (2018- 2021) across Nepal with respect to the fatality rate has been prepared. The attributes such location, time of the event, triggering factor, casualties, missing, injured, damage to the structure etc. were collected. Similarly, the landslide events of 2022 were mapped along with the GPS locations. In total 183 landslide events resulted in 99 casualties and damage to more than a thousand houses. Along with this a database of 100 landslide events (2018-2021) based on ranked impact (Fatalities). This includes the collation of contextual information from media reports/local records. Further the GPS location and detail of these landslide areas were tracked and verified with the ward representatives.

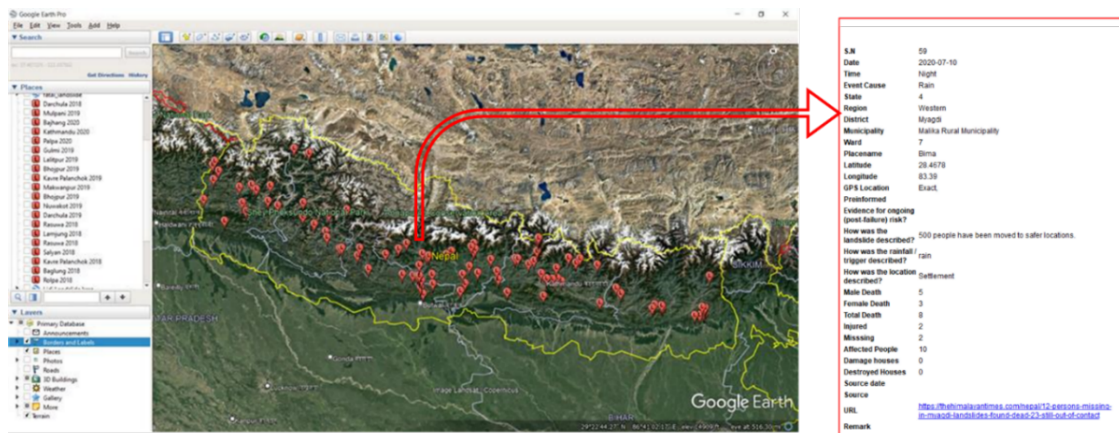


Image Caption ???

- Semi-Automated Landslide Mapping: Research to develop automated methods to categorize multi-hazard inventory by hazard type and mechanism is ongoing. An approach to clustering landslides manually has already been developed that involves manual inspection, selection and editing attribute of selected polygons. In this method spatial clusters of landslides are visually detected in GIS software like QGIS.

4.2 Making Displacement Safer: Locally led Solutions for Displaced Populations in Urban Areas

NSET implemented “Making Displacement Safer: Locally led Solutions for Displaced Populations in Urban Areas (MDS Nepal)” project, a global project implemented by Global Networks of Civil Society Organizations for Disaster Reduction (GNDR) in eleven countries with financial assistance from USAID’s Bureau of Humanitarian Assistance (BHA). The project was aimed to increase understanding of the unique disaster challenges for displaced populations in urban areas, increase the number of innovative approaches for reducing the vulnerability of displaced populations in urban areas; and see the approaches and stakeholder roles for reducing the vulnerability of displaced populations in urban areas are institutionalized in national and international systems.

NSET has selected Namuna tole, a small community at Ward number 9 Sinamangal of Kathmandu Metropolitan City as a pilot program site in consultation with the MDS National advisory committee. This is a community of 80 household families displaced from various remote areas of Nepal due to disaster, conflict, in search of better livelihood, education and health. The community, settled in 1988, is facing severe problems due to the river embankment work that is under construction. Stakeholder mapping, focus groups discussions gathering of case studies, along with ‘Views from the Frontline Lite’ (VFL) survey, Urban Living Lab process and the implementation of risk mitigation activities has been carried out in the community.



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



View of one of the lanes in the Project area

4.3 Accomplishments

- A. **Views from the Frontline Lite:** Views from the Frontline Lite process was used to prepare the local action plans and implement the resilience-building actions. Through the VFL process, local vulnerable groups were involved during the monitoring surveys and the local risk assessments. Orientation for enumerators, data Collection and Data submission on dashboard and consolidation were done. Orientation program conducted for relevant staff and enumerator based on the VFL procedure. The enumerators have collected data through “Individual Survey form” from the identified individuals, Civil Society (CS), Local Government (LG) based on the sample survey size in the Communities. The collected survey data were entered into the data tool provided by GNDR dashboard. The sample size was 250 people.

Conclusion of the findings of Survey

The community-level survey showed flash floods as the most significant threat followed by an earthquake and poor sanitation resulting in the destruction of shelter and loss of assets. These threats must be tackled with simultaneous support from all the stakeholders. However, weak governance and lack of adequate awareness program has been one of the major barriers that have been hindering the process. Disaster has resulted in displacement of community and loss of property and lives. Displaced people are rarely consulted in designing policies & plans to reduce disaster risk, accessing financial resources and timely & usable information to help them reduce risks they face. Involvement of Local Government in DRR, Awareness raising, training, creating livelihood opportunities, building partnership with the CSOs/NGOs and allocation of budget on DRR were identified as the actions to reduce the threat. Access to information, proper communication and social cohesion can be the factors to facilitate inclusion of communities to access resource & usable information to reduce disaster risks. Proper facilities and information can help the people with disabilities to be a part of the design process.

- B. **Other research techniques:** Stakeholder Mappings (formation of National Advisory Committee, Coordination Committee, collaboration with Kadambari Memorial College), Focus Group Discussion, Case Studies, Policy Analysis and Capacity Gap Assessment were the other

research techniques undertaken as part of project. Local and national policies related to displaced populations in urban areas were reviewed.

C. Consultations and interactions with stakeholders

- D. Multi stake holder interaction with alternative tools and techniques facilitates to evolve better sustainable solutions for a complex issue. NSET also 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.



E. Findings and conclusions

Findings: The problems identified by the community members through focus VFL Lite, frequent multiple interactions and focus group discussions were:

- Need to construct drainage.
- Need to construct the road.
- The roofing sheets should be replaced.
- The high-tension line above the community either needs to be realigned or insulated.
- Each household family should have an individual pipeline for drinking water.
- Need to reconstruct the Club Building
- We must get the land ownership title.
- The Threat to evacuate should be avoided.
- Frequent multistakeholder interaction based on the components and methodology of Urban Living Lab was able to come up with the following innovative solutions.
- Improve physical infrastructure.
- Enhance disaster preparedness and response capacity.
- Enhance income generation with vocational training programs.
- Collective effort for improving the social harmony and dignity of the community.

Conclusions : For a community of displaced populations living in harsh conditions with no physical infrastructure and basic services, disaster risk reduction and preparedness is not a priority. Making the community realize the importance and effectiveness of disaster risk reduction and disaster resilience is possible with rigorous formal and informal interactions at frequent intervals. A disaster event is more effective in internalizing the importance of disaster preparedness and response. Multi stake holder interaction with alternative tools and techniques facilitates to evolve better sustainable solutions for a complex issue.

F. Innovative solutions evolved through the Urban Living Lab at Namuna Tole

a) Improved Basic infrastructure: The community members were facing problems of clogged drainage and damaged road. Improving road condition without repairing the drainage had no significance so the community members contributed to cover the cost of repairing the drainage system. The project fund was used in flat brick pavement on the 300-meter-long internal lane of the community.

b) Enhanced Disaster Risk Reduction and Preparedness: Community level Search and Rescue training was organized to provide optimum theoretical knowledge and practical skill on emergency response. In addition, Fire response training was also organized. Coincidentally one of the houses caught fire after some weeks of training. The community was able to respond promptly as they were trained on the fire response skills. A set of tools and equipment is also prepositioned in Namuna tole which will be maintained by the Nava Yuva Club in coordination with the trained community volunteers along with the community members.

c) Income Generation Activities: Two training programs were organized under this activity. Eleven people participated in the Professional Development Training: Housekeeping and Caregiver Training.

4.3.1 Small scale mitigation works done in different communities

Views from the Frontline 2019 (VFL 2019) has been conducted to assess the impacts of implementation of SFDRR from the CSO perspective. VFL 2019 is the largest independent global review of disaster risk reduction at the local level which aims to strengthen the inclusion and collaboration between at-risk people, civil society and governments in the design and implementation of policies and practices to reduce risks and strengthen resilience.

In one hand, respective governments of the countries adhering SFDRR monitor and evaluate impacts of DRR activities implemented every year. Such government-led evaluation largely presents the assessment from the government perspectives. Whereas, on the other hand, GNDR assists the CSOs of the countries following SFDRR to assess the impacts of DRR activities from the civil society perspectives.

NSET has been serving as the National Coordinating Organization (NCO) for Nepal and has mobilized four Partner Organizations (POs) for VFL 2019. The objectives of VFL 2019 are to assess the status and impacts of implementation of SFDRR from the prospects of Civil Society and Identification, prioritization, planning and implementation of small-scale mitigation activities in the VFL communities.

A National Advisory Board has been formulated to provide overall directions and to coordinate with local, provincial, and federal government institution whenever required. 15 communities each from one of the wards of 15 municipalities spread over four provinces of Nepal have been selected for the implementation of VFL-2019. These communities represent all three geographic regions of Nepal and are representative of communities with different effects of existing major hazards, urbanization, and level of disaster risk reduction (DRR) intervention in the communities.

Four POs working in the selected 4 Risk zones of Nepal were selected out of seven applicants upon consultation with the National Advisory Committee (NAC) members. NAC members and VFL team of NSET were part of the evaluation team. The POs were oriented on VFL process, the survey, and the survey implementation process, prioritization of the survey findings deriving the conclusions through a series of orientation and training programs.

In each community, a random sample of households were selected for interviews. The number of households to be randomly selected in each community were determined by calculating the sample size; approximately 10% of the total population of that community. 10 local government representatives and 10 local CSO representatives were interviewed along with 5 focus group discussions with different target groups such as women, elderly, disabled, children etc.

A total of 5119 respondents participated in the random household survey, 150 respondents from LG, 150 from CSOs and 82 respondents participated in the community consultations. Collected data were then entered into the Survey Gizmo by NCO/NSET and then checked and validated for final analysis.

4.4 Accomplishments

- Formation of VFL National Advisory Committee; Selection of the Risk Areas (Koshi, Bagmati, Gandaki and Karnali) and Call for the Partner Organizations (POs) and Selection of the POs and National Training for the POs done.
- POs mobilized their enumerators and data were collected from the 15 selected communities (7 rural and 8 urban communities). The collected data were then entered into the Survey Gizmo by NCO/NSET and then checked and validated for final analysis.
- Findings at the Community and National level were drawn.
- Findings and result of the VFL 2019 shared in the national coordination workshop.
- Local Action Plans of all the 15 communities where VFL surveys was undertaken was developed and done the Conduction of Local Action Planning Workshops with the participation of an average of 15-20 participants in each workshop.
- Conduction of the multi stakeholder workshop done. Altogether 28 participants comprising of NAC members, GNDR members in Nepal, few key members of DIMANN and other existing networks in Nepal participated. Following the presentation on VFL findings, the four Partner Organizations (POs), namely, FAYA, FIRDO, FSCN and Nava Prabhat, implementing VFL-2019 in their areas also shared their experiences.
- Prioritized conclusions and issues Identified and Local actions initiated in 15 selected communities. Reconstruction and Relocation were identified as the recommended major actions to mitigate the risk. Capacity building on preparedness and emergency response capacity conducted as the risk mitigation activities.
- Local Action Planning carried out in each of the 15 communities. Local Action Plans of all the 15 communities where VFL surveys was undertaken was developed. "Local Action Planning workshop" had been conducted in various municipalities to develop the action plan on different dates and time. These workshops were organized by the respective partner organizations (POs) in coordination with the municipality ward office. NSET professionals were also present in some of the workshops to support and monitor POs. The main objective of the workshop was to brief on Views from the frontline 2019, to share the VFL survey findings and conclusions at the local level; and develop the action plan for the existing risk reduction activities.

Local Action Planning in communities

Community	Actions Taken
Vyas Municipality	Construction of Intake, and boundary around intake, Repair and maintenance of 100 metres pipe of Khakauli Moretar drinking water scheme.
Galyang Municipality	Construction of boundary wall in the existing open toilet and setting up seven stand hand wash station in Satya Sheela Secondary School • Construction of 15 m long masonry wall • Wire mesh boundary wall with steel frames for the toilet • Five stand hand wash station adjacent to the toilet block 4.
Gandaki Rural Municipality	Water supply connection to 75 households from Pankhola Drinking Water Supply Scheme. • Rehabilitation of drinking water supply distribution pipeline system. (32 mm HDPE pipe 800 mtrs. and 20 mm HDPE pipe 300 mtrs.)
Kamal Rural Municipality	Gabion box embankment in the confluence of Dhyangri Khola

Community	Actions Taken
Khumbu Pasang Rural Municipality	- Capacity building activities including DRR workshop on Disaster Management - Mass awareness -orientation activities in the community - Selected participants from mass orientation will help in conducting further awareness programs. - Certain selected participants from all orientations will be involved in the workshop. - Prepare Hazard Map with participants involvements. - Hazard map, prepared by participants involvement will be kept in ward office -1, of Pasanglhamu rural municipality.
Udaypur Gadhi Rural Municipality	Gabion box embankment on the confluence of Jethi and Baidnath Khola
Triyuga Municipality	Kalikhola small irrigation program
Kalinchok Rural Municipality	Gabion wall fill up around the water tank being constructed nearby Sub-Health post (Landslide Risk Mitigation) at Chhipung. <i>Construction of Protection Wall from Landslide.</i>
Changunarayan Municipality	Evacuation route/ Railing installation and foot trail construction and drainage management at Pariyartole and chareli
Chandragiri Municipality	Gabion walls fill up around the water tank and plantation around the tank at Imukhel and Jokhal
Lalitpur Metropolitan City	Installation of Pipeline which will be used in drinking water and in case of fire emergencies at Prayagpokhari and lagankhel
Sinja Rural Municipality	Construction of Check dam at Bistabada Construction and Installation of Gabion Boxes Community people will be safe from the flood as well as landslide
Chandannath Municipality	Plantation on tentative 10 Ropani uncultivated landslide-prone areas at Talium
Chaukune Rural Municipality	Toilet construction along with WASH facilities in Ghatgaun Distribution of hygiene promotion materials
Birendranagar Municipality	Safe drinking water promotion along with WASH facilities at Ghusra

- Multi-stakeholders' workshop organized in Lalitpur as part of Views from the Frontline 2019 program on August 5, 2022 to share, receive feedback on the National Advocacy plan and validate.



5 MAKING RESILIENT SCHOOLS: EFFORTS ON SCHOOL SAFETY IN NEPAL

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

5.1 Supporting response to the COVID-19 crisis in education sector

COVID 19 pandemic significantly disrupted education services and severely impacted the learning outcome of all students from pre-school to grade 12 due to prolonged closure of schools. Government of Nepal has envisioned the mobilization of clusters in any types of disasters and take education cluster lead by Ministry of Education, Science and Technology (MOEST) to ensure continuity of learning guided as per National Disaster Response Framework (NDRF) 2075.

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

The overall goal of this partnership is to reduce disparities in educational outcomes for children in basic and secondary education during the emergencies /early recovery and school reopening in the Nepal education sector. The objectives to strengthen Nepal Education Cluster (NEC) coordination and response mechanism at federal, provincial, and local levels, supporting schools for overall preparedness, response, and resilience, ensuring learning continuity, enhance Local Government (LG) management and coordination of the response/ early recovery of education services from the COVID-19 period and improve and targeted support of acceleration of learning for school-going children, especially vulnerable/ at risk students in the early grades (1-3), facilitating recovery.

The Program Covers MoEST/CEHRD, Education Cluster and Stakeholders at Federal level, all 7 provinces at Provincial level and 80 local governments of 3 provinces (Madhesh, Karnali, and Sudur Paschim) and 300 schools at school Level. However, NSET is involved only on four provinces: Koshi, Madhesh, Bagmati and Gandaki Provinces and 50 Municipalities/Rural Municipalities and 221 schools in Madhesh province.

5.1.1 Major Accomplishments

A. Cluster coordination and monitoring mechanism

- Development and Localization of Education Cluster Guidance

Under the project, one Federal, 4 Provincial, 50 Local education cluster guidance have been developed. A final copy of Nepal Education Cluster Guidance Document submitted to Government of Nepal, Ministry of Education, Science and Technology, Center for Education and Human Resource Development (CEHRD) for endorsement process. Likewise, a final copy of Nepal Education Cluster Guidance Document shared among key Provincial Level stakeholders in 3 days training on cluster coordination and reporting whereas the document was shared among LG Level stakeholders in two days training on cluster coordination and reporting.

- Update of Nepal Education Cluster Contingency Plan

The project has updated one Federal and 4 Provincial Nepal Education Cluster Contingency plans. A final copy of Federal DPRP 2079 was endorsed. Provincial Level DPRPs of Koshi, Madhesh, Bagmati and Gandaki Provinces were also endorsed.

- Mobilization of Provincial Cluster Coordinator (TA) support Staff

After being mobilized, the four Provincial Cluster Coordinators supported on various aspects including technical backstopping to Ministry of Social Development and Education Development Directorate to strengthen Education Cluster in respective provinces, Coordination and facilitating with Education Cluster member organizations and bridging between Government agencies and CSOs for effective response to education need in emergencies.

The Provincial Cluster Coordinator facilitated to disseminate the developed Nepal Education Cluster Guidance Document through training targeted to responsible professionals at Provincial Level and LG Level and supported in cluster formation in 50 LGs.

Further they worked on updating Provincial Education plan and COVID-19 response plan by forming TWS, supported to develop Province Education Cluster Portal and managed education related information, facilitated in conducting Cluster/ CSOs meeting in regular basis, collected 4w information and compilation of responses of cluster members at province level, prepared a list of contact information of elected presidents of LGs, collected of data of schools prone to flood, facilitated in conducting provincial level consultation workshops on Nepal Education Cluster Guidance Document and worked in the preparation of DPRP at provincial level.

B. Cluster coordination and monitoring mechanism: Capacity development of Provincial-and Local Governments on education cluster coordination and reporting

Under this, a total of 20 key officials at provincial level trained where 17 males and 4 females participants from Koshi Province (3), Madhesh Province (12), Bagmati Province (3) and Gandaki Province (3) participated the training. Likewise, 99 responsible officers at local level were also trained from four events held at Bardibas, one in Simara, one in Rautahat and one in Lahan. There were two participants from each LG: one was from the education committee of LG and the next was from education section of LG.

C. Coordination and collaboration among education cluster members on reporting mechanism

A total of 24 Coordination meetings with NGOs/CSOs were held under the project in which seven meetings were at federal level while 17 meetings were at Province level. Likewise, four provincial and local cluster reports were generated from Nepal Education Cluster portal for 4W. Similarly, Four information management support staff were mobilized at in Koshi Province, Madhesh Province, Bagmati Province and Gandaki Province, one at each province with the view to Technical backstopping to Ministry of Social Development and Education Development

Directorate to strengthen Education Cluster in respective provinces, collect 4w information and compilation of responses of cluster members at province level, prepare a list of contact information of elected presidents of LGs, collect data of schools prone to flood. In Madhesh Province, IMISO supported linking LG Level web portal to provincial level education portal.

D. Capacity development of PGs and LGs to support schools on the planning of emergency response and safe school reopening.

Under this, responsible officers from PG/LG were oriented to develop emergency response planning modules for education sector plan development guidelines. Altogether 18 workshops were conducted for 50 LGs. The participants were 8 from each LG representing the Education Section, Education Committee, Planning Section and Disaster Management Committee. Whereas from schools were Head Teacher, School Management Committee, Parents Teacher Association and School DRR Focal Teacher.

E. Development of Comprehensive strategy on recovery of learning loss for the school education

Altogether 50 Local Governments (LGs) have implemented the Learning Continuity Campaign in Madhesh Province. Repositories of Self Learning Materials were established in 14 LGs. The distribution of self-learning materials to 221 program schools of 14 LGs were done, whereas samples of each class were placed at the established repository in each LG. LCC Coordinator along with respective PCC visited 221 Schools. They did the advocacy on the importance of alternative teaching methods to fill gap of learning loss. LG officials of 50 LGs were capacitated on cluster coordination and reporting. Education Clusters were formed in 50 LGs, which have been supporting in conducting activities that promote Learning Continuity activities. Key officials from 50 LGs were oriented on Recovery and Acceleration Learning (ReAL) Plan. Key officials from 50 LGs were oriented on welcome to school campaign.



Reading Fair

Likewise, 2-day learning continuity and parenting education training have been completed successfully. A total of 676 (460 male and 216 female) participants enhanced knowledge and skill on learning continuity. Orientation of one day on tele-teaching and orientation of one day on parenting education were combined and delivered as '2-day orientation on learning continuity and parenting education' to the participants of focused schools. Similarly, 2-day learning continuity and parenting education have been completed successfully. A total of 676 (460 male and 216 female) participants enhanced knowledge and skill on learning continuity. 25 events of 2-day capacity-building training for teachers on psychosocial support delivered successfully to 668 participants (

397M and 271F). From each of 221 program schools, Head Teacher, Focal Teacher, and a female teacher attended the training program.

F. Enhancement of knowledge/skills to respond to COVID-19 in the education sector inclusively and sustainably

The content on CSS, CEE and inclusive education was covered in one-day orientation on cluster formation, reporting to LG officials. Education Plans in 5 LGs were developed from scratch including CSS, CEE and IE component, whereas Education Plans of 17 LGs have been updated to include Climate Energy and Environment. In the remaining 22 LGs, World Education updated Education Plans including CSS, CEE and IE component.

G. Acceleration of learning for students that have experienced the disproportional loss of learning

A total of 92 key officials from 50 LGs were oriented on Recovery Acceleration Learning (ReAL) Plan, out of which 9 were females. The number of participants could not meet as planned. The reasons behind are:

- Some of LGs have only Education Officer and Planning Officer, so it was not possible to participate two participants from each LG as planned.
- Because of ongoing SEE Exams, Education Officer were engaged in monitoring SEE Exams.

5.2 Seismic vulnerability assessment of schools

NSET collaborated with Geo-Hazard International (GHI) is constructing an earthquake resistant model school building as a demonstration project in Godawari Municipality, Kailali District, Sudurpaschim Province of Nepal. The program is being funded by multiple donors to GHI. The project will focus on improving earthquake safety in Godawari by training local masons to build an earthquake-resistant four-room RC-framed building in Godawari. The project will also support the school in developing a school disaster management plan.

5.2.1 Accomplishments

- Stone laying program of Shree Laxmi Secondary School was completed.



- Mason training program has been conducted to the group of masons involved in the construction of Shree Laxmi Secondary School during April 24th to 30th, 2023 and construction process of four-room building is underway.



5.3 Construction of prototype school block with isolated foundation



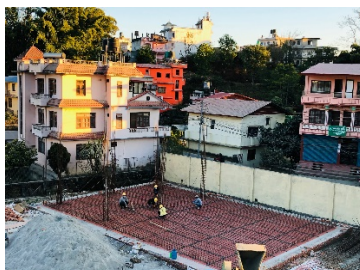
1. Laying of Lower PVC



2. Filler sand laid on top of PVC



3. Laying of upper PVC



4. Placement of raft foundation reinforcement

NSET 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, in collaboration with Kageshwori Manohara municipality, NSET is involved in Construction of a prototype school block that is resting on low-cost seismically isolated foundation with funding support from the University of Bristol, United Kingdom. The project aims 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.

The is a unique and one-of-a-kind novel project called as "Safer Build" which aims to pilot a low-cost base isolation system. The close coordination with the concerned municipality (Kageshwori Manohara), the ward and the school were key in securing the optimum location for the school block construction.

The purpose of this construction is for base isolated building design using a sliding foundation system and execution of those for low-rise unreinforced masonry (URM) and Reinforced Concrete school buildings in Nepal.

The PVC-sand-PVC (PVC-s) base isolation system in design and construction which has been developed as part of the Seismic Safety and Resilience of Schools in Nepal (SAFER) project funded by EPSRC. The system has been verified for a two-storey building, based on the fundamental principle that the PVC-s sliding capability essentially acts as a “fuse” when the earthquake spectral acceleration is such that the friction force at the PVC-s layer is exceeded.

PVC-s base isolation system will be activated when the spectral acceleration exceeds the friction force at the sliding surface. The aim is that the above threshold is approximately between 0.20g and 0.25g, which is close to the level of the design earthquake in many seismic regions. PVC-s base isolation system limits the load transfer to the building above it to the friction force in between the two PVC sheets. Since the friction coefficient is aimed to be between 0.20 and 0.25, the seismic force acting on the structure will be limited to maximum 0.25g for any level of hazard.

The main sliding plane consists of two PVC sheets and an “optimum” amount of sand in between them which termed a “PVC sandwich” (PVC-s) (Fig 1). This ‘sand-wich’ filler sand acts as a solid lubricant and must be of a very low surface density.

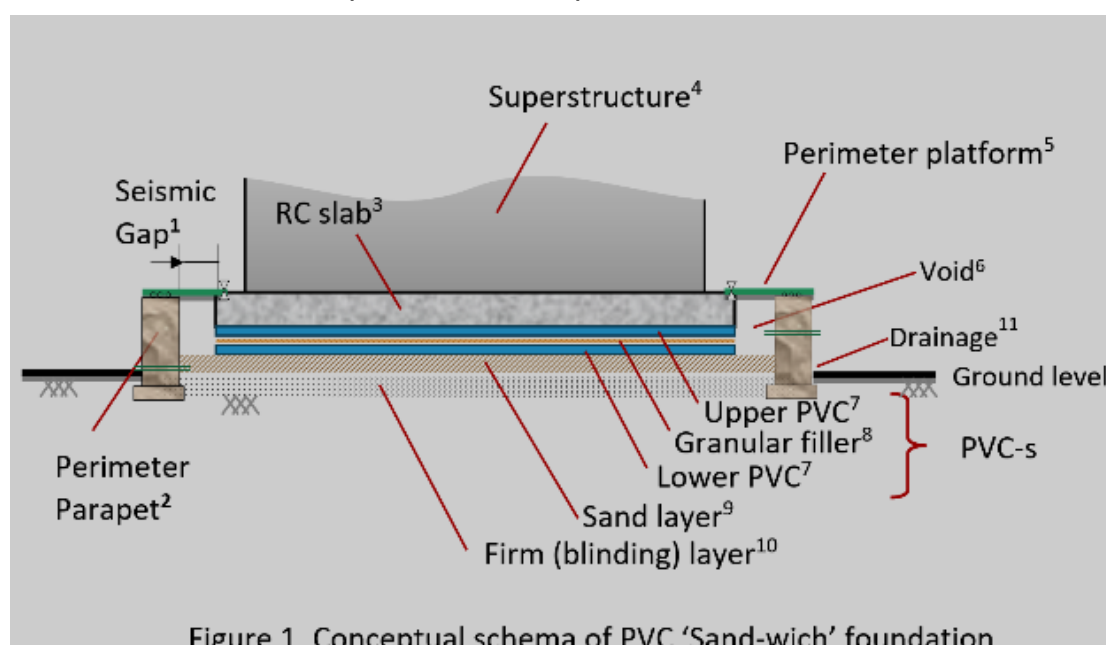


Figure 1, Conceptual schema of PVC 'Sand-wich' foundation

The upper PVC-sheet is just below the RC slab of the building and the lower PVC-sheet is laid on top of a compacted firm sand layer. This layer of sand can be treated as a back-up system, which will only be activated if the main sliding plane is not mobilized, and the ground acceleration exceeds the design value.

A low-cost base isolation system has already been constructed as part of the pilot program.

5.4 Detail rapid visual assessment of school buildings of Uttargaya Secondary School, Nuwakot

Rapid Vulnerability Assessment (RVA) that was conducted in six school blocks: Block A, B, C, D, E, and F along with a Toilet Block of Uttargaya Public English Secondary School at Bidur-10, Angitar, Nuwakot. RVA is the initial phase for determining feasibility of retrofit. Under RVA, data for determining the vulnerability of the building is collected. The data collected is then further analyzed in terms of exposure to hazards such as earthquake, flood, landslide, along with vulnerability of the building, leading to the need for detailed vulnerability assessment and retrofit design.

This is under El Comedor Estudiantil Giordano Liva Project. El Comedor Estudiantil Giordano Liva will execute its further activities in the selected school blocks on the basis of recommendation given in this RVA report.



Photo Caption ????

6 ENHANCING PREPAREDNESS AND EMERGENCY RESPONSE CAPACITY

NSET works for enhancing disaster preparedness and emergency response capacity at various levels in Nepal and the region. Such work includes developing innovative concepts and imparting skills and knowledge to enhance disaster preparedness and emergency response capacity in institutions and 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.

6.1 Efforts to enhance emergency response capacity of Municipalities.

With view to assist the Government of Nepal to enhance the disaster risk management governance at federal, provincial, and local levels, Consortium of National Society for Earthquake Technology-Nepal, Lutheran World Federation and Practical Action Consulting jointly implemented a project: Implementation of Disaster Risk Management Localization Training at 702 Local Level of Nepal at all provinces of Nepal.

This project was part of USAID's Bureau for Humanitarian Assistance (BHA) funded project, BHA supported International Organization for Migration with phase II 'Promoting Action for Disaster Risk Governance and Working to Achieve Preparedness for Risk Reduction through Technical Assistance in Nepal (PARIWARTAN)' project. It was designed to continue the momentum and build upon learning and foundations established by phase I.

Activities in Province I and Sudur Paschim were led by LWF, activities in Lumbini and Karnali Province was led by PAC and activities in Madhesh, Bagmati and Gandaki Province was led by NSET. NSET led the overall project on behalf of the consortium. 702 DRRM training was rolled out from the date of project implementation till 7th December 2022.

The consortium worked in close coordination amongst themselves and other relevant stakeholders too. The consortium has had series of meetings with stakeholders like the project advisory committee, MoFAGA, NARMIN, MUAN and IOM to discuss and update the work plan and to seek guidance on program implementation.

The project worked to support in strengthening the legal framework of both the provincial and local levels considering the roles and responsibilities of the federal, provincial as well as local governments for effective and efficient disaster prevention, preparedness, response, and recovery activities.

The participants of the two-day DRRM training comprised elected representatives, members of municipal council and government officials working in the respective municipality. The participants of 3 days CPR-T were municipal officials, technical professionals, municipal police who were nominated by municipality to participate in the training.

6.1.1 Major Accomplishments

A. Established coordination mechanism at all level

Under this, various activities including project inspection meetings at federal, and provincial were held. Federal to provincial level coordination meetings (pre and post) with federal level ministries and stakeholders were also organized. Similarly, provincial to local coordination meetings (pre and

post) with provincial level ministries and stakeholders were also organized. Likewise, a coordination meeting (pre and post) with NARMN and MUAN was also executed.

B. Enhanced local government capacity in DRRM

Under the output 2, several activities including, advertisement and hiring of DRM Trainer, P-ToT orientation for project hired DRM trainer, Identification and selection of participants for local level DRRM training, local level DRRM training for elected representatives and government officials, Joint monitoring visit (GO, IOM and partner) during roll out of DRRM training and training impact assessment in all the provinces were done by project staff team.

C. Engage local governments for DRM localization.

Under this, basically three activities were organized, namely, meeting with local level focal persons, develop and roll-out standardized checklist to be used by trained officials and mapping of existing DRRM policies.

Number of trainings that were rolled out in different provinces along with number of participants and their gender

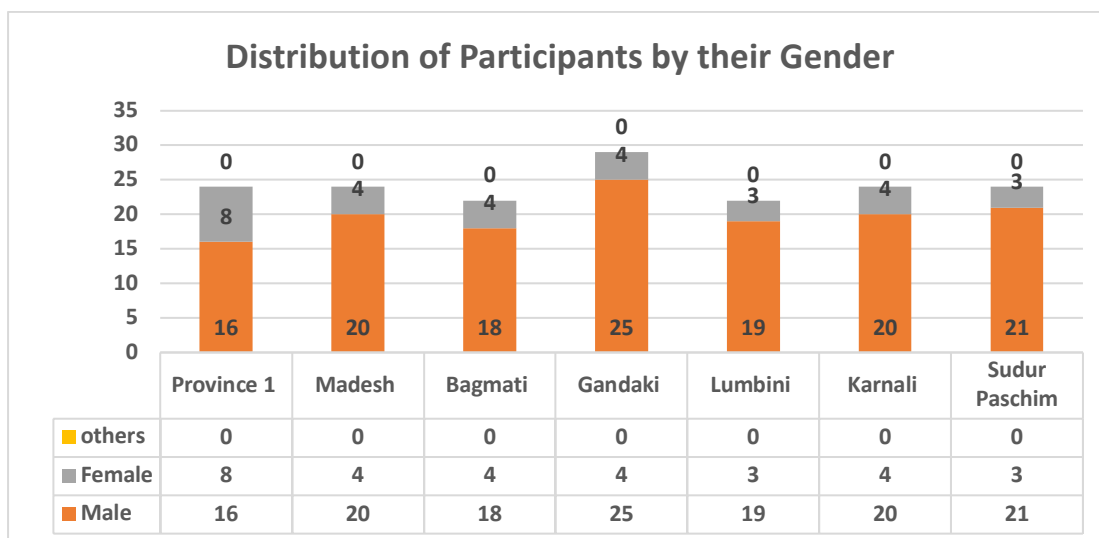
Province	Total No. of trainings	Total No. of participants	Male	Female
Province 1	135	3581	2637	944
Madhesh	134	4373	3396	977
Bagmati	111	3459	2501	958
Gandaki	82	2055	1550	505
Lumbini	104	2575	1999	576
Karnali	57	1540	1202	338
Sudur paschim	79	2321	1748	573
Total	702	19904	15033	4871

D. Community preparedness and response training (CPR-T):

Apart from the trainings that were rolled out in different provinces, a total of seven Community Preparedness and Response Training (CPR-T) were piloted in 7 different provinces. The municipal units were selected based on their willingness to implement DRRM activities. Municipalities nominated members of LDMC's, officials related to DRRM in three-day CPR-T.



Group exercise on basic emergency medical response



E. Impact

With the project working to enhance and strengthen DRR governance of local levels it is believed that the action will be beneficial and helpful to the local level and ultimately will support in enhancing the DRR governance in coming days. With the end of the project several changes have been witnessed in regards to local government investing on DRRM activities and policies. Some of such success stories have been documented, which will be helpful in showcasing good practices to other municipal units which can be replicated in the long run. The first training which was kicked off immediately after the local elections was influential enough to help local authorities realise the importance of LEOC and hence, the municipal council of Chandragiri prepared and endorsed Local Emergency Operating Centre. The SOP preparation was supported by the project team who also served as the training facilitator.

The action plan which was prepared by the training participants by the end of the training is essential in following up with the local authorities in long run and will work as an advocacy tool to follow up with the local authorities towards their commitment. The DRRM training has strengthened the capacity of local level in regard to DRR governance whose impacts can be seen in the annual plan that will be made by the local government. Practically after a training is completed in certain local level, the project team won't be physically visiting the municipal unit but the consortium in long run will follow up with the municipal units in regards to the commitments they have made during the training.

Local authorities, after the training are aware of opportunities and possibilities for working on DRRM to make their communities safer. Consortium, after analysing and synthesizing action plans made by the local government have piloted some activities which has addressed the demand of technical support to local government to some extent. Further, these activities have helped local government to add a steppingstone in regards to implementation of DRRM activities.

6.2 School focused earthquake preparedness efforts conducted in Kailash Rural Municipality, Bagmati Province

Earthquake preparedness efforts have been conducted in schools in Kailash Rural Municipality, Bagmati Province. Shangri-La Development Association (SDA), with the technical support from National Society for Earthquake Technology-Nepal (NSET), conducted sessions on earthquake preparedness & risk reduction and evacuation drill events during Feb25-Mar4, 2023.

Orientation sessions in Kalika Basic School, Praja Utthan Basic School, Deutis Basic School, Nandikeshar Basic School, Bawani Secondary School. Also, a session on the same theme conducted

in Kailash Rural Municipality. The events were focused to students, teachers, community peoples, security force, rural municipal authorities, and staff & representatives of Kailash Rural Municipality. Also, earthquake evacuation drill was done in each event. NSET instructors facilitated the orientations and drills.

The activities have contributed to make participants aware of earthquake hazard and risks in Nepal and preparedness measures to adopt, and also encouraged to initiate the institutionalization of a system of periodic simulation exercises and drills in Kailash Rural Municipality.

The need is now to continue and institutionalize the efforts for which the local government and schools have shown their interest and commitment.



7 RESEARCH AND DEVELOPMENT: 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 research and development (R&D) as one of the key components of its work.

7.1 Making seismic risk modeling and risk assessment through FORCE project

Project Kick off Workshop conducted in Kathmandu: Need for and importance of seismic risk modeling and risk assessment highlighted

Issues related to seismic risk modeling and forecasting future risk have been discussed at the workshop on "Forecasting and Communicating Earthquake Risk (FORCE)" held in Kathmandu on Feb 24, 2023. Speakers at the program highlighted the need for and importance of seismic risk modeling and risk assessment in the context of Nepal.



The half-day workshop was jointly organized by National Disaster Risk Reduction and Management Authority (NDRRMA), Global Earthquake Model (GEM) and NSET under the FORCE project with the support from USAID/BHA.

Addressing the workshop, Mr. Rameshwor Marhatta, Joint Secretary from NDRRMA highlighted the importance of joint efforts of government, partner agencies and civil society organizations in reducing the impending earthquake risks in Nepal.

Mr. Santosh Gyawali from USAID/BHA shared that the technology brought in by GEM in Nepal would be of great help for the country. "As the earthquake risk reduction efforts including risk assessment works need to be done collectively and jointly, this initiative is expected to contribute much," Mr. Gyawali added.

Mr. Surya Narayan Shrestha, Executive Director of NSET briefed on the objectives of the program and shared, "assessment of earthquake risk is extremely important for several purposes as it gives us ideas on how much there will be seismic force, damage caused, casualties and loss of assets in case there is an earthquake".

Two presentations were shared on the occasion. Ms. Catalina Yepes Estrada, Seismic Risk Modeller and Mr. Alejandro José Calderón Carpio, Seismic Risk Engineer from GEM jointly presented on "Need of Earthquake Risk Assessment and the FORCE project".

Dr. Gopi Krishna Basyal from NSET briefly presented on "Earthquake Risk Assessment in Nepal".



Following the presentation, a group discussion was organized where participants enquired queries and shared their feedback and suggestions on planned activities. There were a total of 41 participants from various institutions/organizations.



7.2 Efforts of making resilient New Cities

Tomorrow's Cities (TC) is the UK Research and Innovation (UKRI) Global Challenges Research Fund (GCRF) Urban Disaster Risk Hub-a global interdisciplinary research hub with the aims to support the delivery of the United Nation's Sustainable Development Goals and priorities 1 to 3 of the Sendai Framework for Disaster Risk Reduction (DRR) 2015-2030. The goal of Tomorrow's Cities Research Hub is to catalyze a transition from crisis management to multi-hazard risk-informed planning and decision-making that strengthens the voice and capacity of the urban poor in tomorrow's cities through the Tomorrow's Cities Decision Support Environment (TCDSE).

A training course has been designed with the view to enhancing the capacity of experts and different stakeholders in new cities on TCDSE approach, methodology, process, and tools. The main objective of the training course is to enhance the capacity of city professionals on Risk Based Urban Planning and Development using the TCDSE model and continue its legacy in the long run.

7.2.1 Facilitating Seismology Field work

On August 2022, Tomorrow's Cities NSET team facilitated selection of sites and conduction of field tests that contributed to seismic hazard assessment as part of Work Package 3. The University of Edinburgh team and the Institute of Engineering (IOE) team used portable 3 component smart seismic sensors and broadband sensors for measuring seismic response. Several sites around Khokana and Lalitpur area were selected including the Pulchowk Campus Cricket Ground, the paddy fields of Khokana and the Community football ground at Sainbu Awasi Bhainsepati.

7.2.2 Tomorrow's Cities All Hub Meeting, Kathmandu



Principle Investigator John McCloskey Addressing the participants.

The event was conducted on Oct 31- Nov 4, 2022, discussed technical updates, legacy support, and exit strategies for the four hub cities. Collaboration between city and international teams, cross-disciplinary and cross-city working, and knowledge sharing with new cities were identified as key factors for success.

7.2.3 Reconnaissance Survey at Sinamangal Informal Settlement for Flood Vulnerability Survey

As part of the survey for a novel component-based vulnerability function development, a reconnaissance and trial survey were conducted at Sinamangal informal settlement called Namuna basti in Kathmandu on Nov 2, 2022. The survey form drafted by NSET in discussion with national and international partners was trialed in the survey with 3 informal blocks being surveyed.



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7.2.4 Survey of 100 buildings for developing component-based impact models for flooding

Survey of 50 buildings in the formal settlements in Samakhushi KMC – 26 and Madhyapur Thimi MTM-4 was conducted on Jan 2023 – Feb 2023. The surveyors carried out a study of 25 buildings each at the flood affected zones of Thimi and Samakhushi. Similarly, a survey of 50 buildings in the informal settlements collectively in Kageshwori Manohara -9 and Bansighat KMC-II was carried out in February.



Pilot Reconnaissance for Flood Fragility Survey

7.2.5 Risk Agreement Workshop in Kathmandu

The risk agreement workshop was organized in Kathmandu as part of work package 4 of the Tomorrow's Cities Decision Support Environment for Khokana on February 17-18, 2023. An extensive exercise was carried out in the individual level and disaggregated groups of the Khokana community that included, ward group, marginalized, women, ward level disaster management committee. The individual and group perception on impact priority was collected through a serious game.



Group Discussions for Impact Priority Selection

7.2.6 Publication of booklet for construction of earthquake resistant traditional buildings in Khokana

At the request of the ward chief of Ward No. 21, Khokana himself, the team of Tomorrow's Cities prepared a booklet for earthquake resistant buildings to be constructed in the new plots of Khokana Lalitpur on February 18, 2023. These buildings comply with the newly published National Building Code (2020) while maintaining the traditional newari outlook. Three separate booklets were prepared for buildings to be constructed on 4, 5 and 5 anna plots, which included complete set of structural, architectural, sanitary, and electrical drawings set.



Booklet for construction of earthquake resistant traditional buildings in Khokana published

7.2.7 Exhibition of the 3D model buildings

The 3D model of Khokana was also presented to the participants on February 18, 2023 where they discussed the possible sites of hazard and mitigation methods in their future city. The model will be submitted to the Khokana community with future scenarios overlayed on top of these models such that the community can have informed discussion on the implication of these scenarios and planning options on disaster risk.



WDMC members discussing on possible hazard sites in the 3D model

7.2.8 Internal Sharing with NSET Senior Management

An internal sharing workshop was organized by the TC team of NSET to share progress, receive feedback and guidance from the senior team of NSET and plan for the upcoming year ahead. The capacity strengthening program and the material developed was also shared in detail in the workshop held March 27, 2023.



Internal Sharing Workshop of Tomorrow's Cities with senior team of NSET

7.2.9 International Meeting at Edinburgh, UK

Tomorrow's Cities organized a 5-day planning and dissemination meeting at Peebles, Edinburgh during April 17-21, 2023, that was participated by more than 40 members from the hub including the capacity strengthening module leads from the NSET. The meeting was focused on detailed planning of activities for the upcoming year in two new cities: Rapti in Nepal and Nablus in Palestine and finalization of the developed curricula and course materials on capacity strengthening.



Attendees of the International Meeting at Edinburgh from across the Hub

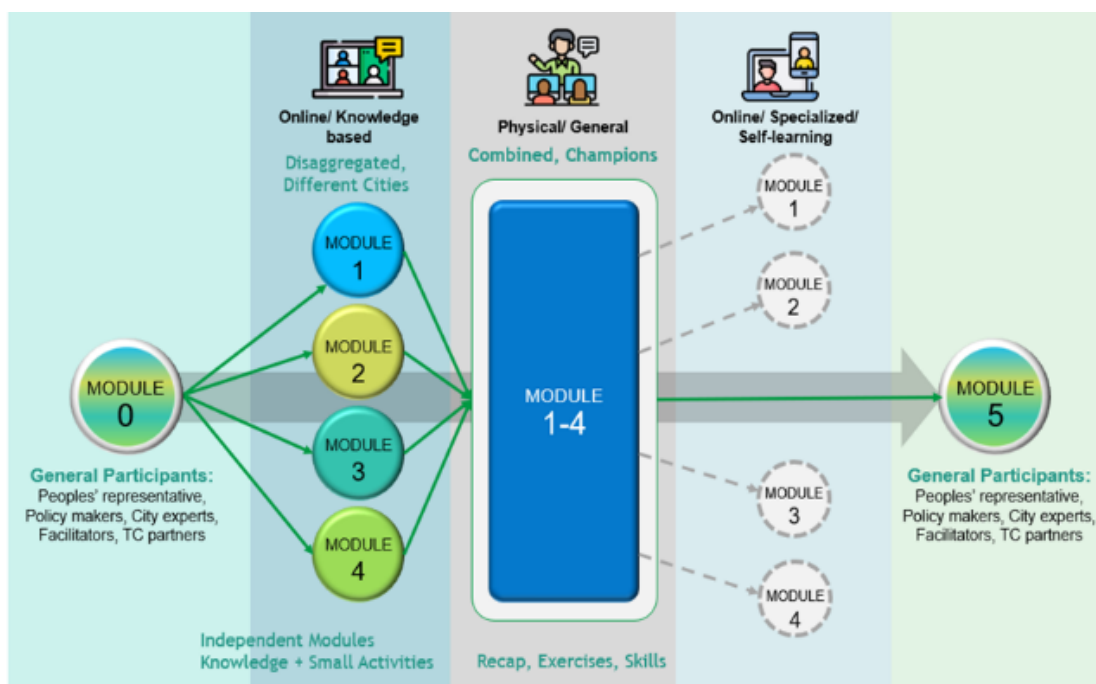
7.2.10 City Scoping workshop and MoU Signing ceremony with Rapti City

Tomorrow's Cities research project joined hands with Provincial Infrastructure Development Authority (PIDA), Lumbini Province, Nepal for the implementation of project activities in Rapti, the Provincial Headquarters. CEO Chhabi Raj Pokharel from PIDA and Prof. John Mand from the project team signed MoU in presence of Mr. Indrajit Tharu, Member of Provincial Assembly and witnessed by Mayor of Shitaganga Municipality and Chairs from Rapti & Gadhawa Rural Municipalities on May 11, 2023. The MoU aimed to jointly work for making Tomorrow's Rapti disaster resilient.



MoU signed between Provincial Infrastructure Development Authority (PIDA) and Tomorrow's Cities

7.2.11 Capacity Strengthening Program Under Tomorrow's Cities



Modular structure of the training course

To capacitate the cities/urban areas in utilizing the novel Decision Support Environment developed as part of Tomorrow's Cities and expand its reach, institutionalization of developed TCDSE is required through standardized training and awareness programs. The cities/urban areas can then adapt the framework in their own versions based on scenarios specific to them and can ultimately self-sustain. With this aim, TCDSE course has been developed in collaboration with national and international partners to train the city professionals from various disciplines, and/ or institutions together. In addition, the training will also help to standardize the inputs, processes, and outcomes of TCDSE. The program has been categorized into different modules based on those work packages of TCDSE as following:

Module 0 (M0)- City Scoping and Set-up based on WP0.

Module 1 (M1)- Future visioning based on WP1.

Module 2 (M2)- Visioning scenarios based on WP2.

Module 3 (M3)- Multi hazard Physical and Social Impact Assessment based on WP3.

Module 4 (M4)- Risk agreement based on WP4.

Module 5 (M5)- Institutionalization based on WP5.

The main objective of the training course is to enhance the capacity of city professionals on Risk Based Urban Planning and Development using the TCDSE model and continue its legacy in the long run.

8 MAJOR EVENTS OF THE YEAR

8.1 NSET marked 29 years of its journey

National Society for Earthquake Technology–Nepal (NSET) has marked 29 years of its journey with various sharing and learning events. NSET, established in 1993 with its mission to support enhance seismic safety of Nepali communities, observes the day on June 18 every year. This year, NSET marked the day as 'A Day to Reaffirm the Commitments to Disaster Resilience'. NSET's new Strategic Plan 2021-2030, that has revised its vision, mission and strategic objectives, envisions to contribute to build disaster resilience of Nepali communities. NSET, in Sep 2021, has launched 10 -Year Strategic Plan that has been prepared with a clear thirst and commitment for growth and efficiency in its overall performance and impact to the society. Owing to COVID-19 pandemic situation, NSET had marked occasion virtually in last two years, and this year, a formal event was organized at its office premises to mark the day.

Addressing the brief ceremony, NSET President Dr. Amod Mani Dixit shared the key achievements and learnings of the NSET in the past 29 years. Highlighting how NSET was conceived 29 years back, Dr. Dixit stated that NSET expanded its scope of work, from earthquake to multi-hazard, to make its activities coherent with the international priorities. "Although, NSET has broadened its scope of work, but it has not changed its approach as it will continue to move ahead with guidance and support from various tiers of governments, their departments and divisions," Dr. Dixit remarked.

Mr. Surya Narayan Shrestha, NSET Executive Director, briefly highlighted need and context of crafting NSET's new vision, mission and objectives. "After reviewing the NSET's works, achievements and challenges faced in the period of past 3 decades, we have come up with new strategic plan envisioning Disaster Resilient Communities in Nepal by 2050," Mr. Shrestha stated. He further highlighted the achievements and lessons of the past one year 2021-2022. "As of today, NSET has reached up to 66 districts nationally and 10 countries internationally. It has covered 51 Municipalities/Rural Municipalities, more than 350 schools and contributed in the safer construction of approximately 50,000 houses. Likewise, we have directly reached to 850 thousands people," he shared.

On the occasion, few of the invited guests also spoke and extended their wishes NSET for yet more impactful journey ahead.

Former Minister and DRR Expert Dr. Ganagalal Tuladhar congratulated NSET for nearly 3-decade long journey with numerous DRR initiatives and efforts. Dr. Tuladhar wished NSET for its expanded scope of works in the days ahead.

Deputy Director General of Department of Urban Development and Building Construction (DUDBC) Mr. Chakrawarti Kantha appreciated NSET's efforts on building technical capacity and enhancing safer construction practices in Nepal.

Member Secretary of Social Welfare Council Mr. Manoj Bhatta expressed happiness to witness NSET as an exemplary institution contributing to the safety and resilience of our communities. Mr. Santosh Gyawali from USAID appreciated NSET efforts and wished for NSET's journey ahead to expand and reach out to many more communities to keep them safe from multiple hazards. Dr. Raju Thapa, Acting President of DPNet Nepal advised NSET to compile its knowledge and learnings for the benefit of researchers and DRR professionals.

On the occasion, NSET's General Secretary Mr. Shreeram Singh Basnet and Deputy Executive Director Dr. Ramesh Guragain also shared their experiences and impressions based on NSET's decades long efforts.

To mark the day, in-house Ignite session was organized where NSET staff participated. Total 6 staff representing various NSET divisions shared their views on how they perceive NSET's new strategic plan and how they see they could contribute to the cause.



8.2 Earthquake Safety Day 2023

Nepal marked the 25th edition of Earthquake Safety Day (ESD) nationwide with the theme: "Earthquake Resilient Structures for Safer Lives" focusing the importance of construction of safer buildings/infrastructure for minimizing loss of lives during the earthquakes.

The National Program of the 25th ESD scheduled at Kamal Pokhari area of Kathmandu on 16 January 2023, was however, cancelled due to a Yeti Airplane crash killing 72 people onboard. Kathmandu Metropolitan City was to host the National Program. However, most of the other programs were held as per the plan.

Nepal marks ESD every year on 15 or 16 January (Magh 2 according to Nepalese Calendar) commemorating the Great Bihar-Nepal Earthquake of 1934 by organizing various activities nationwide. Government of Nepal had declared ESD in 1999 and has been observing regularly since then. Nepal Government has issued ESD Guidelines, 2014 that guides plan and execute ESD program activities more in organized and purposive ways.

The National Organizing Committee led by Ministry of Home Affairs (MoHA) and accompanied with representatives from various government and non-government agencies related to Disaster Risk Reduction, Emergency Response and Critical Facility Management organize the ESD main event every year. Two sub-committees are formed separately, one chaired by the Department of Urban Development and Building Construction (DUDBC) for Publicity Campaigns and another chaired by the host municipality for event management. The NSET serves as the Member Secretary in the committees.

As a regular event of the ESD program, an Earthquake Memorial Meeting was held at the historical Earthquake Monument in Bhugol Park, Kathmandu on 16 January 2023 in presence of limited people to mark the 25th Earthquake Safety Day. The meeting extended prayers and paid tributes to those who lost their lives in past earthquakes. The event is being organized to commemorate the 1934 Great Nepal-Bihar Earthquake that had killed more than 8500 Nepali people: adding almost same number of human deaths in Bihar part of India.

Kathmandu Metropolitan City organized the Memorial Meeting. The program was attended by various personalities including Dr. Amod Mani Dixit, Chairperson of NSET; Mr. Rabin Man Shrestha, Director, Disaster Management Department, Kathmandu Metropolitan City, Mr. Surya Narayan Shrestha, Executive Director of NSET, Dr. Ramesh Guragain, Deputy Executive Director of NSET, Dr. Ganesh Kumar Jimée, Deputy Executive Director of NSET among others.

Earthquake Safety Exhibition was organized on Jan 17, 2023 in Kamalpokhari, Kathmandu. The event was concluded for one day following a Yeti Airplane crash. The event was initially planned for two days (16-17 January 2023). Various exhibitors including Nepali Army, Nepal Police, Armed Police Force, Nepal, Nepal Red Cross Society, National Disaster Risk Reduction and Management Authority (NDRRMA), Department of Urban Development and Building Construction (DUDBC), Kathmandu Metropolitan City (KMC), Environment and Public Health organization (ENPHO), Department of Geology (DoG), Nepal Ambulance Service, Disaster Preparedness Network- Nepal (DPNet-Nepal) and National Society for Earthquake Technology-Nepal (NSET) participated the events with the view to disseminate information regarding measures related to Earthquake Risk Reduction and Management with the commoner people and other DRRM stakeholders.

The exhibitors showcased their Disaster Risk Reduction and Management efforts carried out in the past year. Hundreds of visitors observed the event which was organized by Kathmandu Metropolitan City (KMC).

At the end of the event, a brief closing ceremony was organized where various dignitaries stressed the need of collaborative efforts to make Nepal resilient against future earthquakes.

Addressing the program, Ms. Sunita Dangol, Deputy Mayor of KMC, expressed her appreciation over the event. Ms. Dangol highlighted the importance of resilient infrastructure and urged everyone to focus on safer construction practices.

Mr. Anil Pokharel, Chief Executive of NDRRMA stressed that events like Earthquake Safety Day could be proved crucial as such events keep reminding us of the great loss of past earthquakes.

Mr. Surya Narayan Shrestha, Executive Director of NSET and Member Secretary of National Organizing Committee of 25th ESD, emphasized the need of constructing resilient infrastructure for building resilient society. Mr. Shrestha added that housing and other infrastructures do suffer

major damage during the earthquake and stressed the need to construct safer infrastructures which is critical for resilient and sustainable development.

To start with, Ms. Meena Sunar, Executive member, and member of Municipal Disaster Risk Management Committee of KMC welcomed the participants.

On the occasion, KMC felicitated its 3 fire fighters with cash prize of NPR15,000 for their contribution to saving the lives of people through fire response. Speakers at the closing programs handed over the certificates and prize money to them. Likewise, Certificate of appreciation were also handed over to the exhibitors.



9 SHARING AND CROSS LEARNING

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.

9.1 Rotary International District 3292 and NSET sign MOU for joint efforts

National Society for Earthquake Technology-Nepal (NSET) has joined hands with Rotary International District 3292 in coordination with the Rotary Club of Bhaisepati by signing an MOU to work together in Disaster Risk Reduction (DRR), Consultation and Exchange of Information, Capacity Building and development of Volunteers and Humanitarian Service during a disaster and humanitarian crisis.



The MOU signing ceremony took place at Hotel Greenwich on Friday, 13th January 2023.

9.2 CityNet National meeting of CityNet Nepal National Chapter(CNNC) held in Dhangadhi

The national meeting of CityNet Nepal National Chapter (CNNC) has been organized in Dhangadhi city in Nepal during 3-4 March 2023.

The meeting was conducted in two parts, wherein, the first part was a formal and second part was technical session where presentations and discussions were held. The meeting was chaired by Mayor Mina Kumari Lama from Hetauda city where Mayor Chiribabu Maharjan from Lalitpur city who is also a member of CityNet Executive Committee



delivered inaugural remarks as Chief Guest. Mayor Gopal Hamal from Dhangadhi city extended a warm welcome to all the participants. In the technical session, the presentations were made from

Tansen Municipality, Town Development Fund, CityNet and NSET; on which participants put forward their comments and additional ideas.

The 2-day meeting discussed and made decisions on the statute of the CNNC, fund establishment, operation and management procedures, and membership criteria.



The meeting has formed an ad-hoc committee of CNNC and nominated Hetauda Sub-Metropolitan City as Chair and Tansen Municipality as General Secretary. Pokhara Metropolitan City, Bharatpur Metropolitan City, Birgunj Metropolitan City, Butwal Sub-Metropolitan City, Dhangadhi Sub-Metropolitan City, Godawari Municipality and Town Development Fund (TDF) are designated as committee members.

The meeting was organized by CityNet Nepal National Chapter (CNNC) in coordination with Hetauda Sub-Metropolitan City, Tansen Municipality and NSET. Dhangadhi Sub-Metropolitan City hosted the meeting.

There were 72 participants including mayors, deputy mayors, chief administrative officers or Associate Members from Kathmandu Metropolitan City, Pokhara Metropolitan City, Bharatpur Metropolitan City, Birgunj Metropolitan City, Biratnagar Metropolitan City and other Sub-Metropolitan Cities and Municipalities.

The next meeting of the CNNC will be after 6 months hosted by Biratnagar Metropolitan City, while NSET will serve as the Secretariat of CNNC for the period.

CityNet was established in 1987, currently, CityNet has 154 cities and organizations associated as Full, Associate and Corporate members. CNNC was established in 2002.

9.3 Workshop for Improved seismic event location using the Regional Seismic Travel Time (RSTT) Method



Workshop for Improved seismic event location using the Regional Seismic Travel Time (RSTT) Method is being held during November 7–11, 2022 in Kathmandu, Nepal. Government of Nepal,

National Disaster Risk Reduction and Management Authority (NDRRMA), Department of Mines and Geology (DMG), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Lawrence Livermore National Laboratory (LLNL), and NSET are jointly organizing this workshop. There are scientists and professionals from 19 countries participating this workshop.

The Regional Seismic Travel Time (RSTT) model and method was originally developed in the late 2000s by the U.S. National Laboratories for the U.S. National Data Center (USNDC). The US provided RSTT to the Comprehensive Nuclear-Test-Ban Treaty Organization Provisional Technical Secretariat (CTBTO-PTS) in 2012 to improve data processing at the International Data Center (IDC). Since then, RSTT has undergone rigorous testing and it is now incorporated into the IDC operational system. As part of the CTBTO-PTS capacity building program, RSTT is featured in international workshops with the goal of familiarizing CTBT signatory states with technology that is used at the IDC. Workshops also help scientists in signatory states utilize RSTT for their own CTBT verification efforts, which works towards the goal of consistent data analysis in the international community.

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, 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.

10.1 Major Accomplishments

10.1.1 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.

Project Specific MEL Activities

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

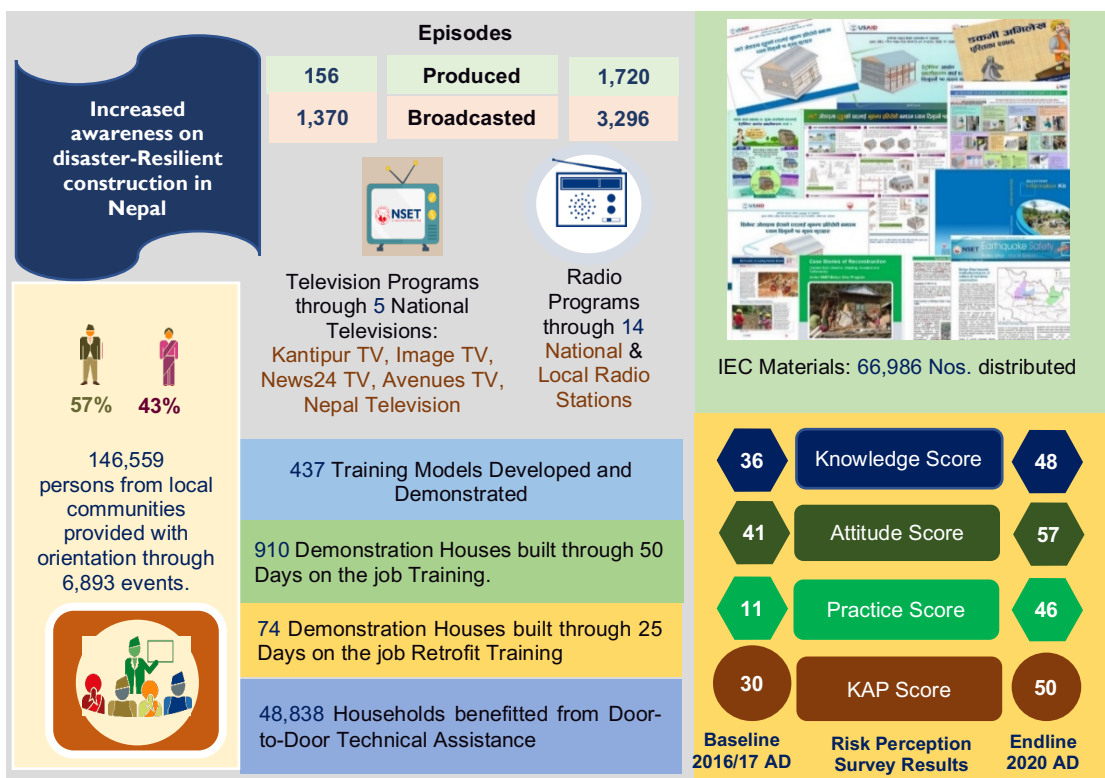
10.1.2 Final evaluation of Baliyo Ghar program

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.

NSET conducted various trainings on local capacity building to apply disaster resilient construction methods. Those training programs have been highly effective in enhancing the knowledge and skills of those involved. However, there are still areas in the future that can be improved for greater efficiency and effectiveness.

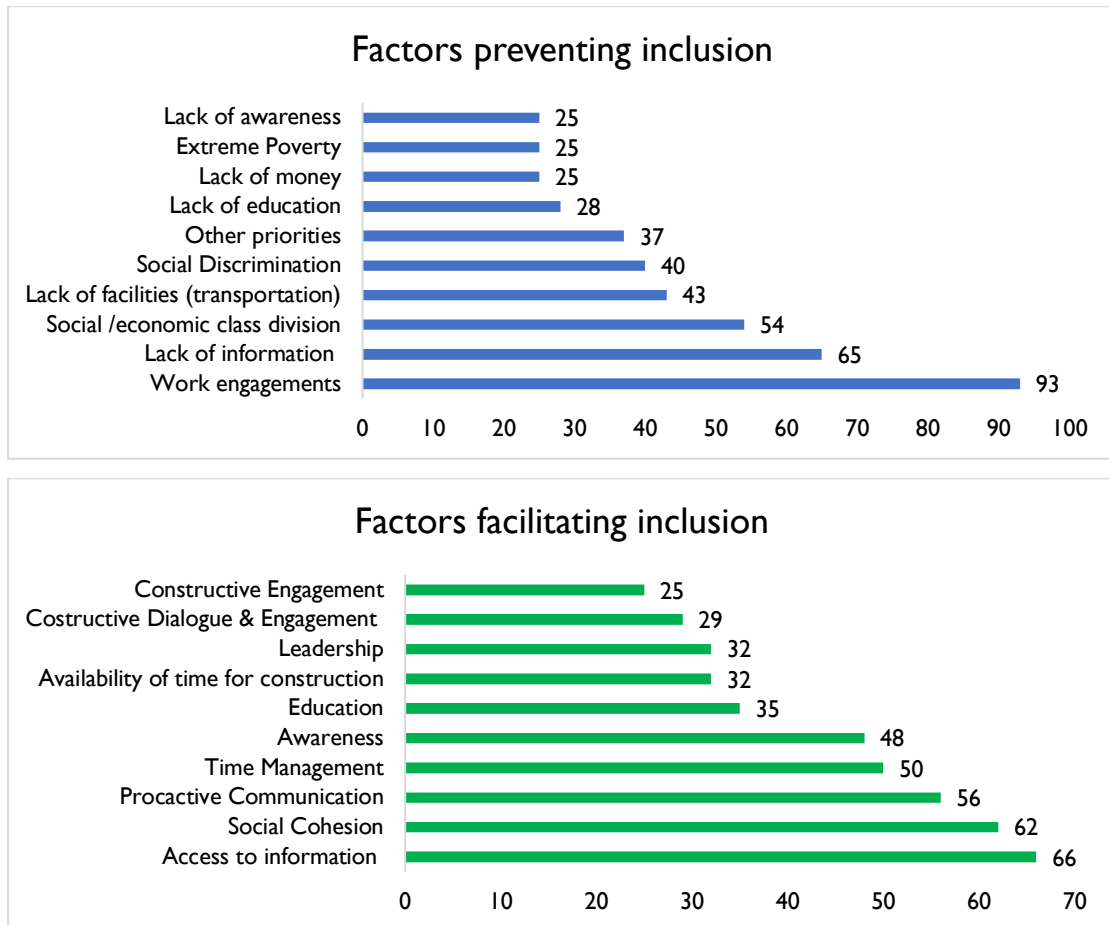


NSET conducted various awareness raising activities. Orientation on safer construction directly benefitted 146,559 persons in the earthquake affected communities.



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.

10.1.3 Views from Front line (VFL) Lite survey

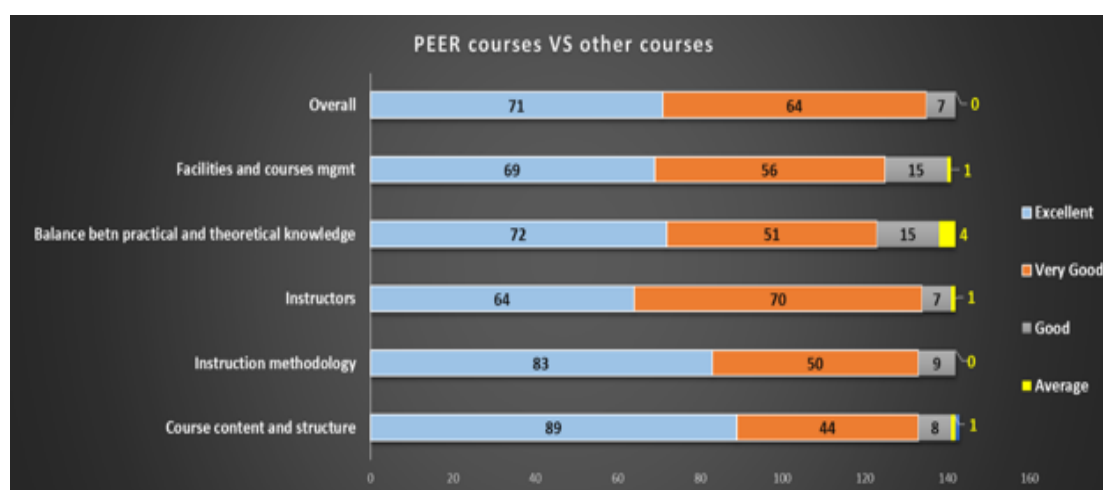


NSET facilitated VFL lite survey to measure the risk and resilience from the perspective of the local displaced communities in urban areas and other local stakeholders such as local CSOs and local government authorities. As residents of the community, the majority of the respondents (88.34%) are affected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

10.1.4 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 in 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.

II OUR CURRENT STATUS

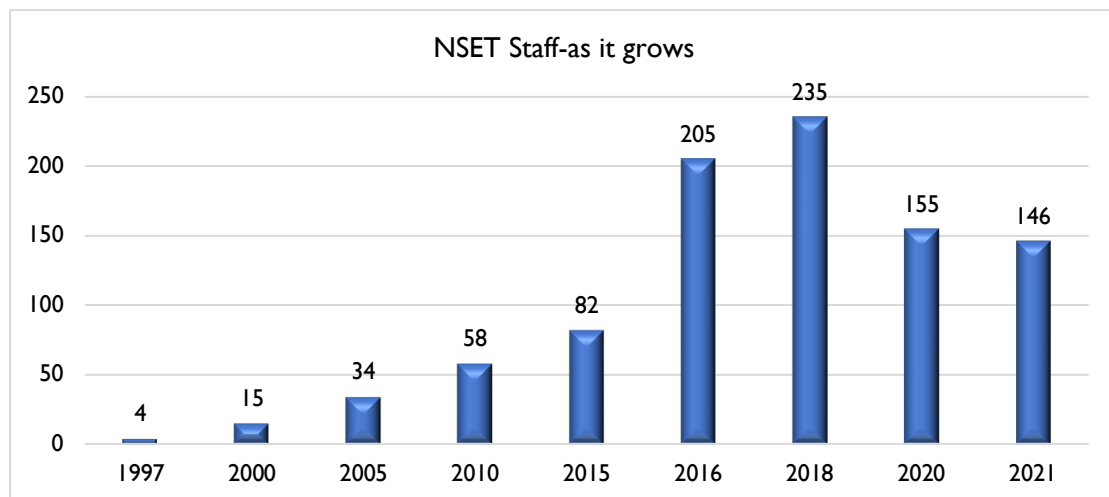
II.1 NSET completes 28 years of action

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

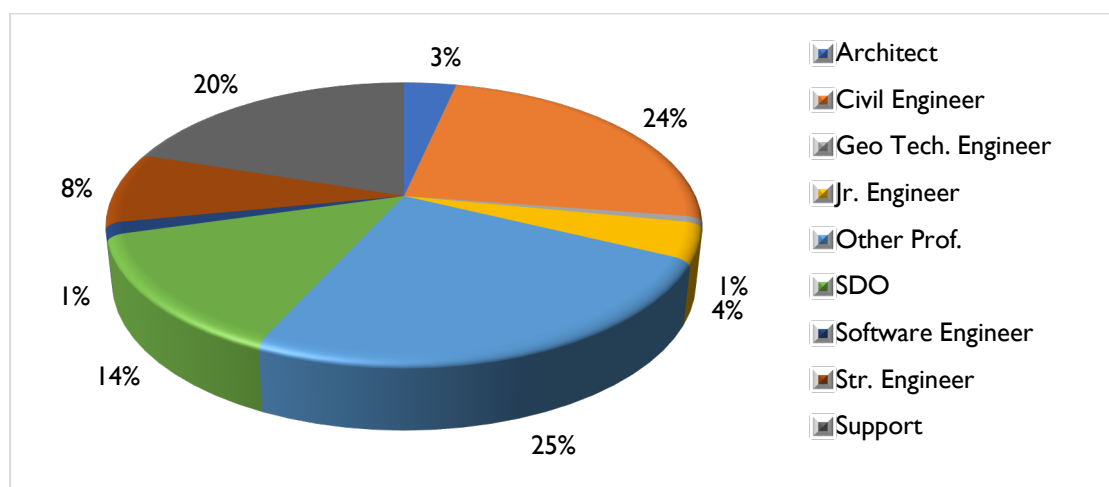
Over the years, NSET has contributed to support efforts on Earthquake Risk Management and Disaster Risk Reduction at the local and national level, and also at the regional and global levels.

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.



II.2 NSET Professionals



11.3 NSET's Annual General Meeting has elected New Executive Committee

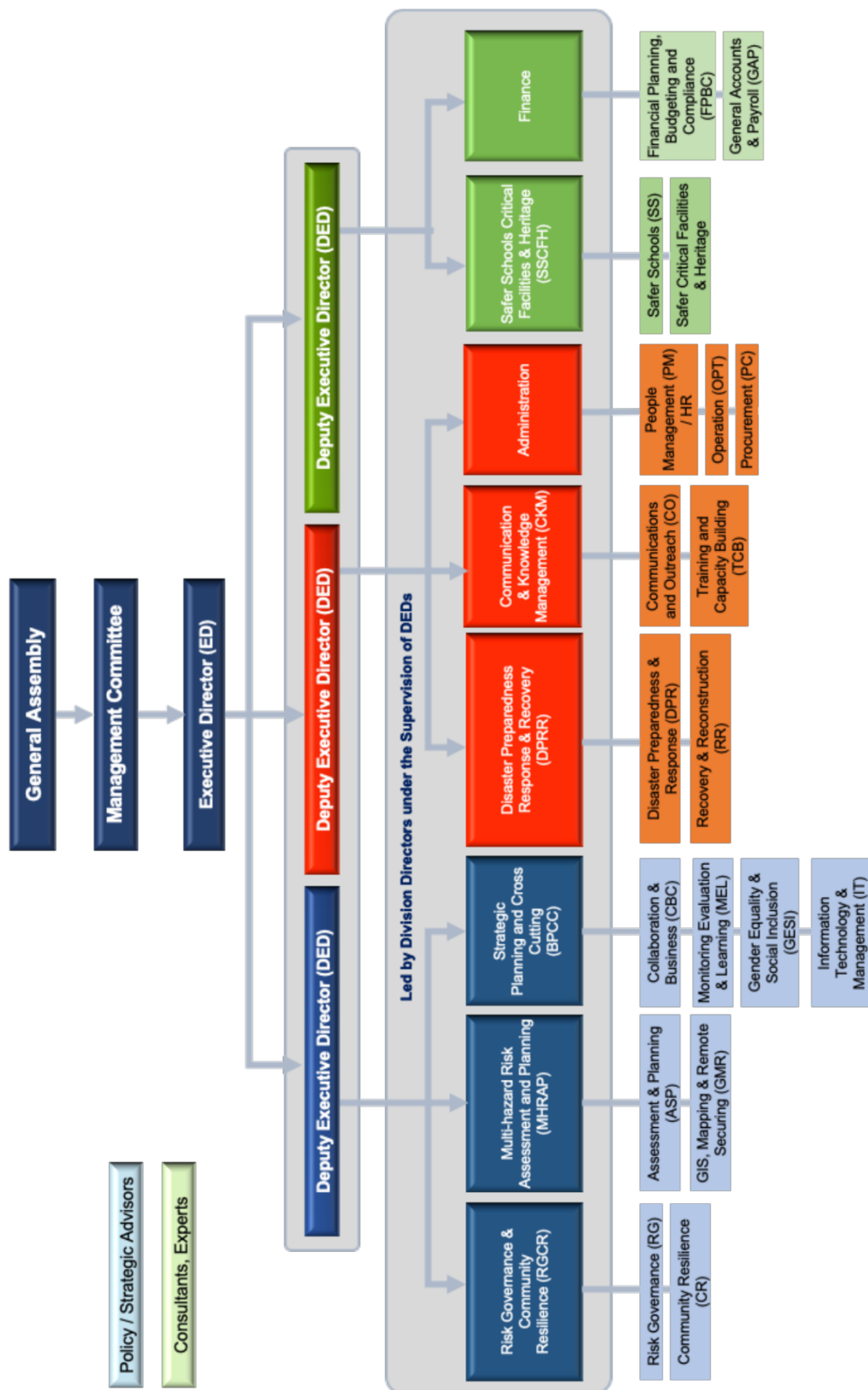


The 27th Annual General Meeting (AGM) of National Society for Earthquake Technology - Nepal (NSET) has been held on December 13, 2020. The AGM has unanimously elected new Management Committee of NSET. Dr. Amod Mani Dixit leads new Management Committee as the President, together with Mr. Shreeram Singh 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

11.4 NSET Organogram



11.5 Income and Expenditure Statement

National Society for Earthquake Technology - Nepal

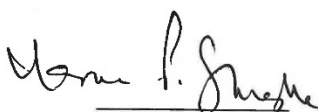
Statement of Financial Position As at July 15, 2020

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

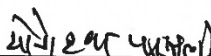
As per our report of even date



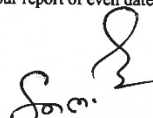
Varun Prasad Shrestha
President



Amod Mani Dixit
General Secretary

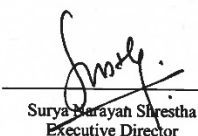


Yogeshwar K. Parajuli
Treasurer



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





Surya Narayan Shrestha
Executive Director



Suvam Prasad Gautam
Finance Manager

Date: 10 December 2020
Place: Kathmandu, Nepal

11.6 Balance Sheet

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

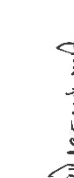
Particulars	Schedule	NSET Small Projects	NSET PEER IV/USAID	NSET Baidya Char (BRT/USAID)	NSET TSB/CIN/USAID	NSET TESREC/USAID	NSET HRP III	NSET HRP IV	NSET Sakura Net	NSET NSP	Elimination of Inter- Project balance	Total	Previous Year (2018/19)
Income													
Project Grant Income		121,083,321	75,595,285	105,733,238	23,738,408	9,533,575	1,245,674	11,282,473	-	45,567,859	(67,572,475)	336,007,458	549,365,273
Contribution towards Earthquake Safety Day		-	-	-	-	-	-	-	-	-	-	-	482,537
Total Income		121,083,321	75,595,285	105,733,238	23,738,408	9,533,575	1,245,674	11,282,473	-	45,567,859	(67,572,475)	336,007,458	549,787,810
Expenses													
Administrative Expenses	IX	113,083,281	48,409,650	99,234,790	18,664,723	9,278,354	1,210,702	10,927,172	-	34,847,357	(67,615,005)	259,341,024	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	26,301,820	11,954,112	4,030,319	-	-	-	-	9,538,985	-	59,610,272	195,780,739
Trip and Perform Expenses	XIII	1,920,564	156,675	820,352	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	10,973,303
Exchange (Gain)/Loss		(4,195,293)	827,140	-	(4,796)	-	-	-	-	22,544	42,550	(3,307,880)	(429,660)
Total Expenditure		121,083,321	75,595,285	105,733,238	23,738,408	9,533,575	1,245,674	11,282,473	-	45,567,859	(67,572,475)	336,007,458	549,787,810
Surplus / (Deficit) for the year		-	-	-	-	-	-	-	-	-	-	-	-

XV
Significant accounting policies and
other explanatory notes

As per our report of even date


 Vinod Prasad Shrestha
 President


 Anand Prasad Shrestha
 General Secretary


 Yogeshwar K. Raju
 Treasurer


 Suman Prasad Gautam
 Finance Manager


 Sanjeev Kumar Mishra
 Partner
 PKF TR Upadhyay & Co.
 Chartered Accountants

Date: 10 December 2020
Place: Kathmandu, Nepal

11.7 NSET Executive Committee (2020-2022)



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
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

