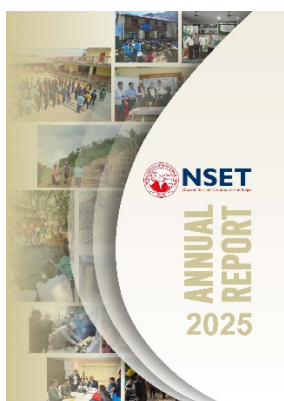




NSET

Disaster Resilient Communities in Nepal

Annual Report 2024



NSET Annual Report 2024

Cover Photo: Glips of NSET activities
and Drop layer symbol of expanded
work on multi-hazard

September 2024

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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.

We were 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, Mr. Mahesh Nakarmi, Mr. Yogeshwor Krishna Parajuli and Mr. Shreeram Singh Basnet as Members. NSET was founded 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. NSET has had rich experiences and lessons gathered from working in the field of earthquake risk management in the past 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.

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.

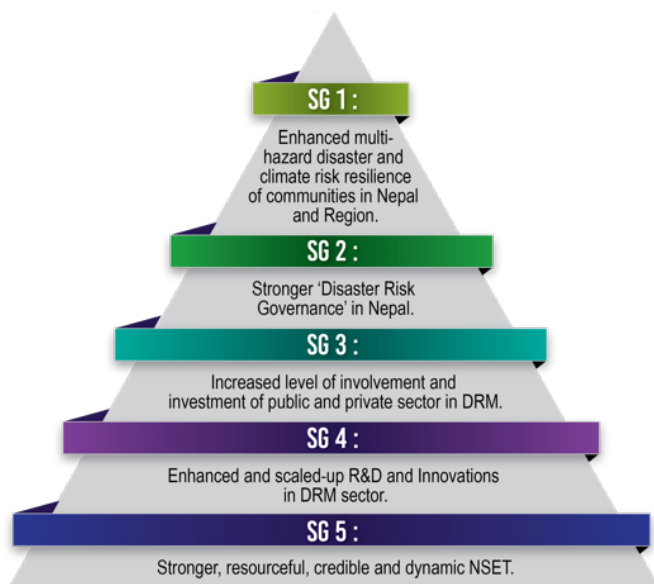
10-Year Strategic Plan (2021-2030)

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.

Consolidating the experience, knowledge, learning in disaster vulnerability reduction and preparedness to policy drafting and strategy development, and working with variety of stakeholders for more than two and half decades, NSET has now realized the need and decided, as stipulated by global thoughts, to expand its scope and works to managing multi-hazard situations, climate change adaptation and risk management, and integration of this synthesis of DRM and CRM into economic development efforts., 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 effort spearheads towards building disaster-resilient communities.

Strategic Initiatives

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

- ➔ Hazard and sector specific national programs for disaster risk management (DRM) and climate risk management (CRM)
- ➔ Specific programs targeted to various sectors of communities
- ➔ Appropriate methodologies for monitoring hazard incidents
- ➔ Objective-oriented community-based disaster risk management programs
- ➔ Local disaster and climate resilience plan and risk sensitive land use plan
- ➔ Multi-stakeholder engagement on DRM/CRM
- ➔ Collaboration in order to produce knowledge, concepts, methods and technologies related to multi-hazard and cascading disaster risk management.
- ➔ Enhanced engagement of young professionals, students, academicians, experts and practitioners on DRM/CRM
- ➔ Integrate ‘innovation’ into organizational identity, policies, processes, practices, leadership, approaches, behaviors and working environment

Current affiliations/involvements

NSET is contributing at local, national and international level on disaster risk reduction efforts and initiatives: 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 2024

Bubble infographic

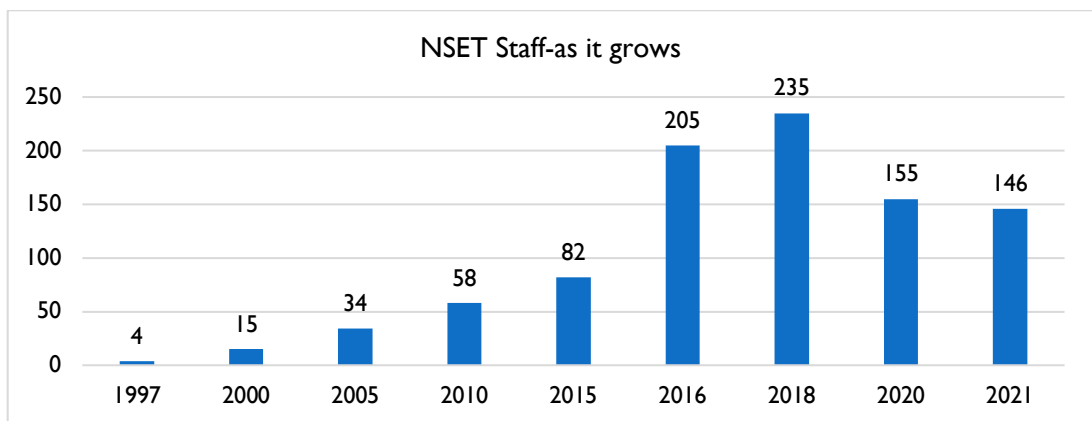
Our Human Resources

NSET, that started operating with a few professionals, has now completed 29 years in action. Last year, the NSET marked 29th NSET Day.

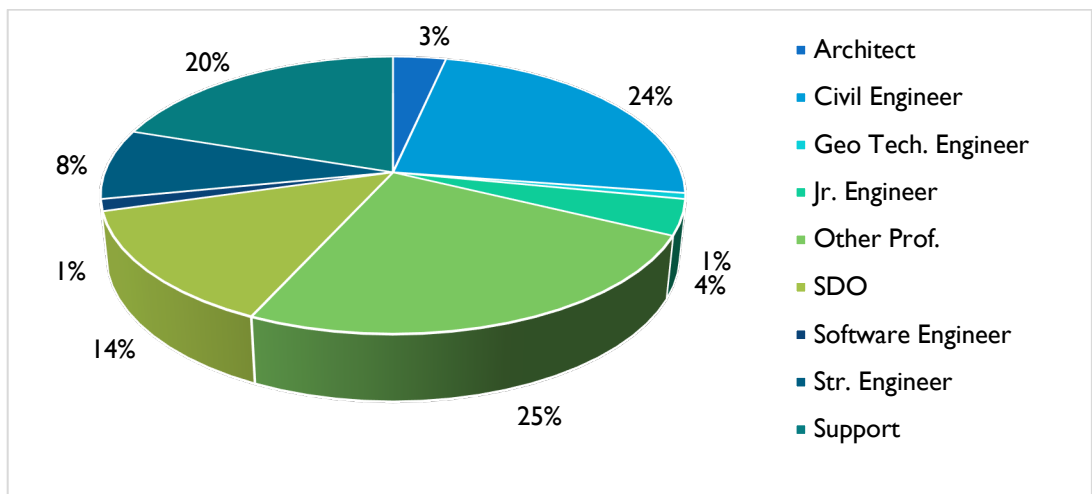
Over the years, NSET has contributed to support efforts on Earthquake Risk Management and Disaster Risk Reduction at the local and national level, and at the regional and global levels.

NSET's 29-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 234 professionals and supporting staff in May 2018, and now a total of 146 staff who dedicatedly serve in various programs/projects across the country and beyond.



NSET Professionals



GEOGRAPHIC AREA OF WORK

TO show NSET's Reach in Nepal's Map here

THEMATIC AREA OF WORK

To show NSET's Thematic Area here

NSET constitutes New Management Board (2024-2026)

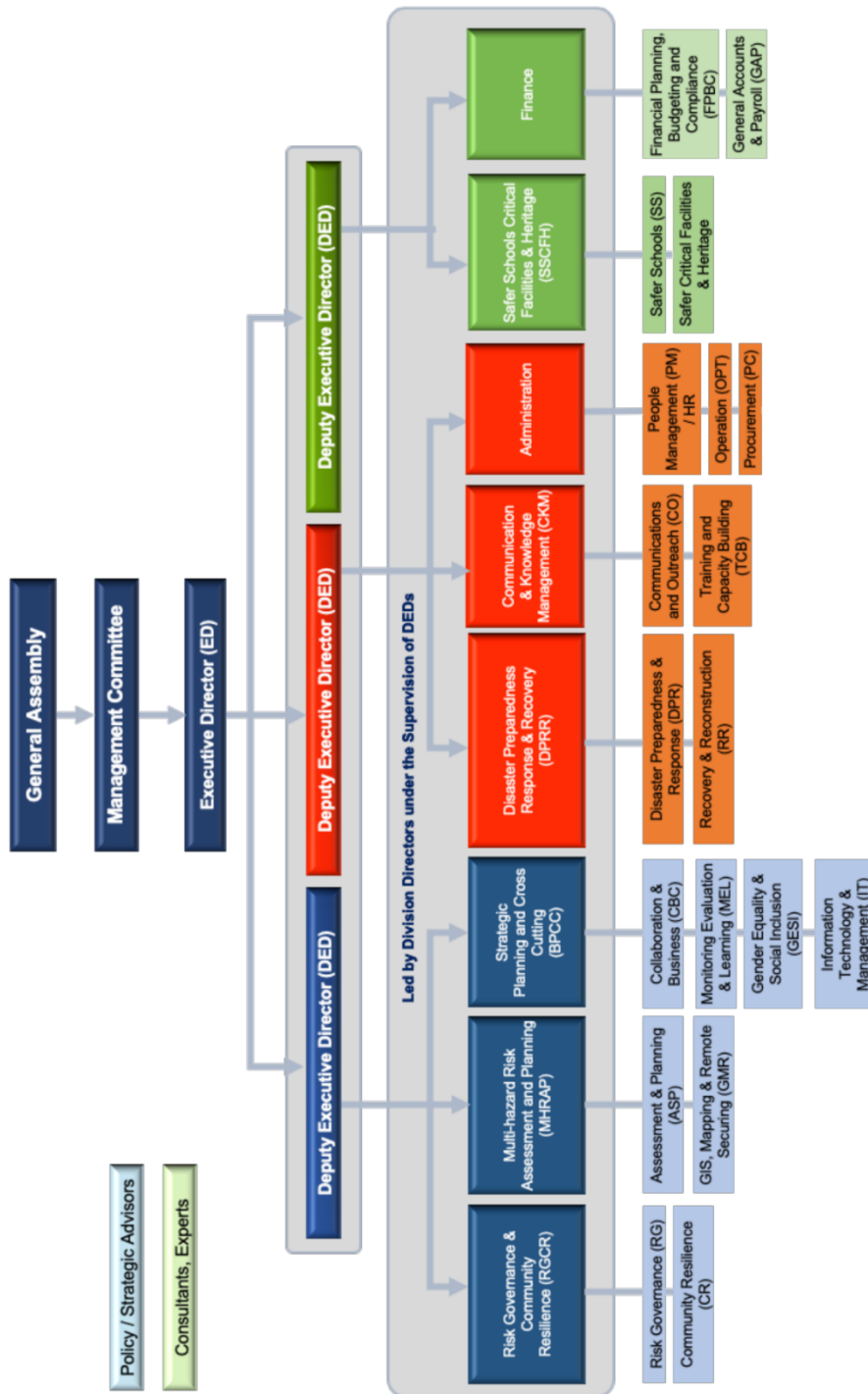


The General Assembly of National Society for Earthquake Technology – Nepal (NSET) has constituted new Management Board unanimously for the next 2-year tenure (2024-2026). Dr. Amod Mani Dixit is the President in newly elected NSET Management Board. Dr. Dixit is the Founder Member of NSET and has served as General Secretary for around 28 years. Dr. Dixit is the Immediate Past President and now continues the lead role in the organization. After the election program held on July 28, 2024, Election Coordinator Mr. Sudhar Man Tuladhar declared that total 6 Board Members got elected unopposed. The elected Board Members include Vice President Mr. Shreeram Singh Basnet, General Secretary Mr. Surya Prasad Acharya, Treasurer Mr. Surya Bhakta Sangachhe; and Executive Members Mr. Kalyan Bista & Ms. Hima Shrestha.

On the occasion, the outgoing and incoming Management Board Members were felicitated. The Management Board has nominated Dr. Binod Shrestha as the Board Member. NSET Management Board for the period of 2024-2026 is as follows:

President	Dr. Amod Mani Dixit
Vice President	Mr. Shreeram Singh Basnet
General Secretary	Mr. Surya Prasad Acharya
Treasurer	Mr. Surya Bhakta Sangachhe
Executive Member	Mr. Kalyan Bista
Executive Member	Ms. Hima Shrestha
Executive Member	Dr. Binod Shrestha
Executive Member	Dr. Ganesh Kumar Jimée

NSET Organogram



Income and Expenditure Statement

I. Tomorrow's Cities: Collaboration for making future Rapti City resilient to disaster

The world has been rapidly urbanizing in recent decades. Currently, around 4.4 billion people, or 56% of the global population, live in urban areas. This number is expected to more than double, with nearly 7 out of every 10 people living in cities by 2050. However, the rapid growth of cities has exposed them to many hazards like earthquakes, floods, volcanoes, and landslides. These dangers affect the urban poor the most, as they are often neglected and forced to live in informal settlements outside official city plans.

NSET, an organization founded with the goal of improving disaster safety in urban and rural areas of Nepal, has valuable experience and knowledge from working in urban risk reduction and management for the past 30 years. Its vision is "making Disaster Resilient Communities in Nepal by 2050," and its mission is "to help improve disaster resilience by developing and implementing suitable technologies and inclusive, collaborative approaches to reduce and manage disaster risks."

NSET led the capacity-building efforts for the Tomorrow's Cities (TC) research project in Rapti City. The project was structured around Tomorrow's Cities Decision Support Environment (TCDSE), a framework designed to help communities and governments make informed decisions about future urban planning by modeling the risks of natural hazards in people-centered ways.

Rapti, the newly established capital city of Lumbini Province, is in the early stages of creating its infrastructure development Master Plan. To make Rapti City resilient to disasters, the TC was implemented by NSET. The project was funded by the Global Challenges Research Fund (GCRF) Urban Disaster Risk Hub, a five-year global research initiative under the UK AID strategy, supporting efforts to achieve the United Nations Sustainable Development Goals (SDGs).

TCDSE in Rapti is a comprehensive approach to addressing urban challenges and improving disaster resilience. The project aimed to integrate community needs, hazard assessments, impact analyses, and policy development into the planning process, contributing valuable input to modify the city's Master Plan based on TCDSE.

TCDSE in Rapti was based on the Master Plan of Lumbini Provincial Capital City (LPCC), which outlines the urban plan for the future of Rapti City. The three main hazards considered for the city were floods, earthquakes, and landslides. The TC-Rapti team worked closely with Provincial Infrastructure Development Authority (PIDA) and the three municipalities—Rapti, Shitaganga, and Gadhwā—on every part of the TCDSE process. A participatory approach, which is a key element of TCDSE, was used in Rapti by involving various stakeholders. Six groups were selected to take part in the TCDSE process: Tharu, Pahadi, Squatter, Madhesi Muslim and Dalit, Ethnic, and the Planners and Authorities.

Working directly with the TC team, PIDA played a crucial role in modifying the master plan through the use of a detailed participatory and science-based decision support system, the TCDSE. From the initial planning phase to validation workshops and risk agreement system workshops, stakeholders were involved in meetings, workshops, focus group discussions, and interviews. Their input and feedback were used to shape the development process, promoting ownership and inclusivity. By engaging stakeholders from different sectors and backgrounds, the TCDSE process in Rapti aimed to create a shared vision for the city's future, reflecting both spatial and non-spatial aspirations of all involved.

TC launching workshop on City Scoping and Set-up

The TC launching workshop was conducted on 11 May 2023 at Rapti to introduce TC and TCDSE to the major stakeholders of the city and to share the planned activities of Tomorrow's Cities project in the city.



Work Package Process

The application of TCDSE in Rapti followed a structured process outlined in different work packages (WPs), each addressing specific aspects of the development process. MOU (Memorandum of Understanding) signing ceremony among PIDA, TC and Municipalities of Rapti

WP0: City Scoping and Set-ups

This initial phase focused on laying the groundwork for subsequent activities, including preliminary surveys, stakeholder identification, and partnership establishment.

WPI: Future Visioning

Work Package I focused on engaging the community and working together to understand the current social, economic, political, and hazard-specific conditions in Rapti. Through fieldwork, interviews, and focus group discussions, WPI aimed to capture the different perspectives and hopes of community members. The Future Visioning Workshop, which marked the end of these activities, allowed stakeholders to collaborate in creating visions for a resilient and fair capital city. The workshop used

participatory tools like the river of life and the wheel of urban assets to guide discussions and map out future goals.



Community engagement in Future Visioning workshop

Work Package 2 (Visioning Scenario Development) shifted the focus to analyzing the community's hopes from WPI and developing possible future scenarios for the city, including land use plans and policy databases. This phase included a detailed review of national, provincial, and local land use policies, as well as consultations with municipal authorities and community representatives. The land use plans were developed in line with existing policies and local plans to make sure they matched broader development goals. Future exposure data was gathered by collecting demographic, socio-economic, and infrastructure information to project trends for the next 30 years. Another important part of WP2 was policy development, where existing policies were analyzed to identify gaps in disaster risk reduction. The Validation Workshop was used to discuss, improve, and confirm the developed scenarios, ensuring they matched the community's goals and were technically feasible.



Validation and feedback collection from community and planners on the GIS land use maps and policies processed in WP2

WP3 (Multi Hazard and Impact Assessment)

Work Package 3 focused on assessing different hazards and their effects on infrastructure and communities in Rapti. Hazard assessment involved analyzing data from various sources to identify potential natural hazards like floods, earthquakes, and landslides. The impact assessment used fragility and vulnerability models to understand the possible effects of these hazards on buildings, transportation systems, and power infrastructure. Methods like flood vulnerability analysis and earthquake fragility function selection were specifically designed for Rapti to ensure accurate results. The analysis of transportation and power networks looked at the resilience of critical infrastructure and identified weaknesses to different hazards. Estimating casualties and displacement helped provide insight into the potential human impacts of disasters, supporting disaster preparedness and response planning.

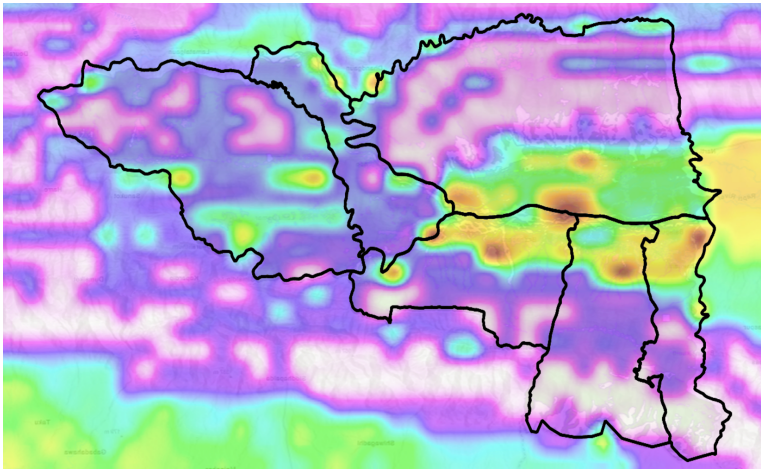
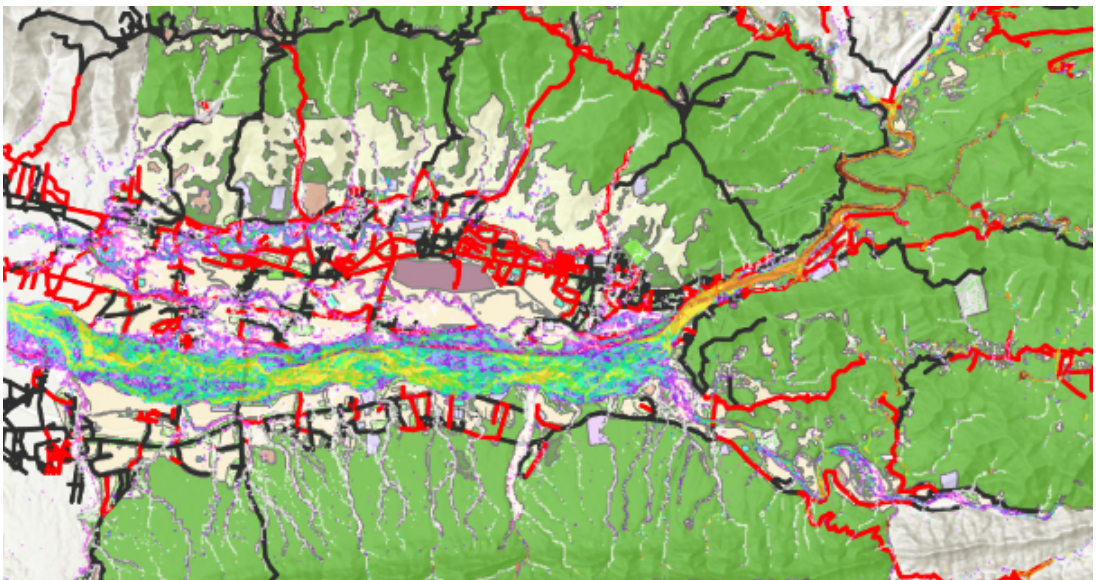
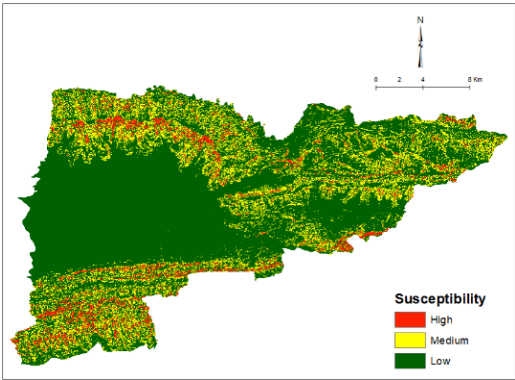


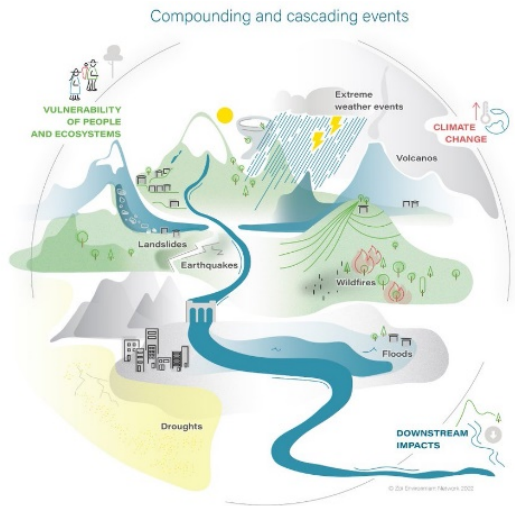
Figure 1 Earthquake shake map (in terms of g) for 8.2 Magnitude earthquake (equivalent to 1890 Nepal-Bihar Earthquake)



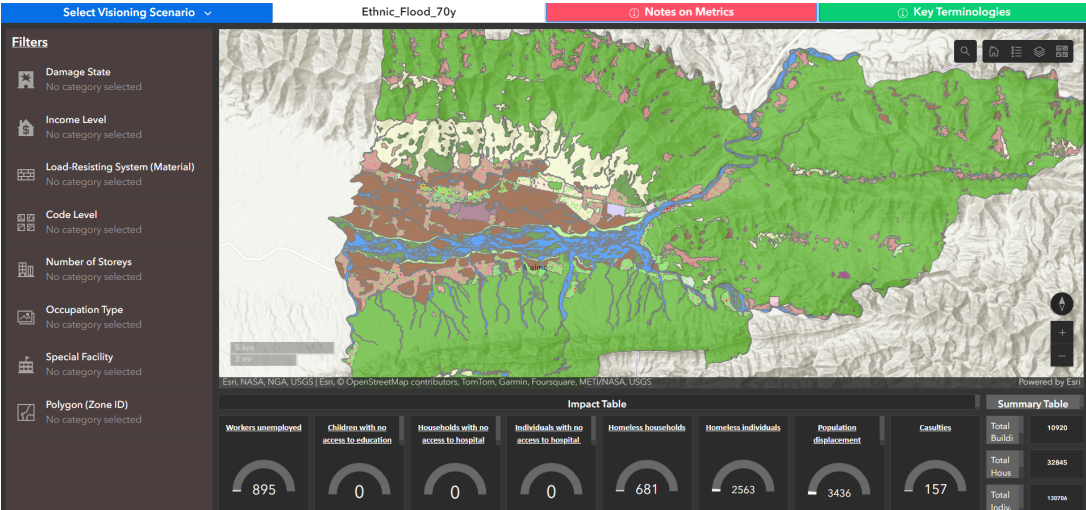
Flood hazard map (in terms of depth in m) for 70 years return period



2Landslide susceptibility map



Climate change assessment methodology



Dashboard displaying the impacts of 70 yrs return period flood

WP4 (Risk Agreement)

The Risk Agreement Workshop served as a platform for community engagement and discussions on impacts and disaster risk reduction strategies. The workshop utilized interactive sessions and visual aids to facilitate meaningful conversations and empower participants to understand the implications of different scenarios.



Discussion on the multi-hazard and its impacts via Dashboard and its mitigation measures

Risk informed modification and update of LPCC (Lumbini Province Capital City) Master Plan

Through the TCDSE process, an opportunity arose for Tomorrow's Cities to contribute to the existing Master Plan of Rapti city, which was developed by PIDA for Lumbini Province's capital. TCDSE activities in Rapti introduced a participatory approach to city planning, considering the future (up to 30 years) and incorporating risk-informed urban planning. As a result, PIDA, which is responsible for developing, amending, and implementing the master plan, collaborated with TC to improve the plan with TCDSE elements. This collaboration marks a shift toward including community input, long-term planning, and hazard risk assessments in the master plan. The updated master plan reflects the community's aspirations gathered during the Future Visioning, the land use plan developed during Visioning Scenario Development, and the considerations of physical infrastructure and social impacts assessed during multi-hazard risk assessment activities. It also includes the mitigations, policies, and actions collected during the Risk Agreement workshop in Rapti.

The revised master plan was shared with key stakeholders in Rapti city, including ward chairs and officials from 14 wards, as well as mayors and officials from Shitaganga Municipality, Rapti Rural Municipality, and Gadhwaha Municipality, along with representatives from PIDA.



Sharing of Master plan to City level decision makers: PIDA and Rapti, Gadhwara and Shitaganga Municipalities and wards

Action Planning Workshop for Tomorrow's Khokana held in Lalitpur

An "Action Planning Workshop for Tomorrow's Khokana" organized in Lalitpur on March 25, 2024, to share key research and efforts regarding the future of Khokana City, led by the Tomorrow's Cities (TC) teams from Lalitpur Metropolitan City Ward No. 21. The workshop aimed to gather consensus from stakeholders on the city's future direction.

A total of 45 participants, including elected officials, community members, and experts, attended. The workshop featured presentations on Tomorrow's Cities Decision Support Environment (TCDSE), with Work Package (WP) leads to sharing activities from each phase. Dr. Ramesh Guragain from NSET provided an overview of the project's community engagement and its potential for replication in other cities.

Following the presentations, a panel discussion focused on reducing hazard impacts in Khokana. The session was chaired by Mr. Rabindra Maharjan, Ward Chair of LMC-21, with panelists including Helen Maharjan, Prof. Max Hope, Dilli Poudel, and Surya Narayan Shrestha, facilitated by Dr. Guragain.





The program concluded with a session where Ms. Manjali Shakya, Deputy Mayor of Lalitpur Metropolitan City, was the chief guest expressed with commitment to implementing the city plan for Khokana, assuring no obstacles. Mr. Rabindra Maharjan, Chair of LMC-21, thanked all organizations involved and promised preliminary results in three years. Prof. Max Hope suggested seeking support from various agencies, while Dr. Amod Mani Dixit, President of NSET, emphasized the plan's value for other cities in Nepal and globally, urging continuous updates.

NSET presented a 3D model of Tomorrow's Khokana city, which was handed over to Ms. Shakya and Mr. Maharjan.



2. Efforts for making Resilient Schools and enhancing Preparedness and Emergency Response Capacity in Nepal

Nepali schools are highly vulnerable to frequent natural and man-made disasters, such as earthquakes, floods, landslides, and fires. Most schools lack proper preparedness and emergency response systems, leading to severe impacts on students, teachers, and infrastructure, disrupting education, and sometimes causing loss of life. The lack of comprehensive disaster risk reduction (DRR) strategies highlights the urgent need to build resilience. Prioritizing disaster preparedness and strengthening emergency response in schools is crucial to protecting Nepal's youth.

The School Earthquake Safety Program (SESP) is an initiative by NSET aimed at making schools and communities safer from earthquakes. Since its launch in 1997, SESP has focused on strengthening school buildings, training teachers, students, and parents on earthquake safety, and improving earthquake preparedness in schools. The program also extends its efforts to the broader community by training local masons in safer construction practices and promoting earthquake awareness. Through vulnerability assessments, retrofitting, and awareness programs, SESP works towards reducing earthquake risks in schools and communities.

In the past year, NSET has been actively involved in various initiatives in Nepal's school sector. These include projects such as strengthening institutional capacity for safe schools and climate change mitigation, ensuring post-disaster learning continuity, conducting seismic vulnerability assessments, creating retrofit designs, and developing innovative solutions for climate and disaster resilience. One key project was the construction of a demonstration earthquake-resistant school building in Godawari Municipality. NSET also assessed damaged public buildings in Jajarkot District and implemented temporary solutions based on its recommendations. Additionally, the organization has participated in programs like the Japanese Student and Teachers Interaction Program, further promoting earthquake safety and resilience in schools.

Institutional Capacity Strengthening for Safe Schools and Climate Change Mitigation and Adaptation Actions

NSET is currently implementing the "Institutional Capacity Strengthening for Safe Schools and Climate Change Mitigation and Adaptation Actions in Nepal" project. This initiative aims to enhance Comprehensive School Safety (CSS) and Climate-Resilient Education (CEE), support the implementation of CSSMP, and build capacity at various government levels. The project seeks to improve the capabilities of approximately 600 government officials, teachers, and community members, integrate climate resilience strategies, and engage around 500 stakeholders in updating CSS guidelines.

The project focuses on strengthening the capacities of federal, provincial, and local clusters, supporting local governments in developing education emergency response plans, addressing learning disruptions caused by school closures, and reintroducing at-risk students to school. Implementation strategies include updating CSSF tools, providing technical assistance, enhancing knowledge and capacity, engaging youth, demonstrating model schools, and ensuring coordination between clusters. The project covers federal, provincial (Madhesh, Lumbini, Karnali, Sudur Paschim), and local levels,

including Mahalaxmi Municipality, Lalitpur Metropolitan, Kantipur Municipality, and Changunarayan Municipality.

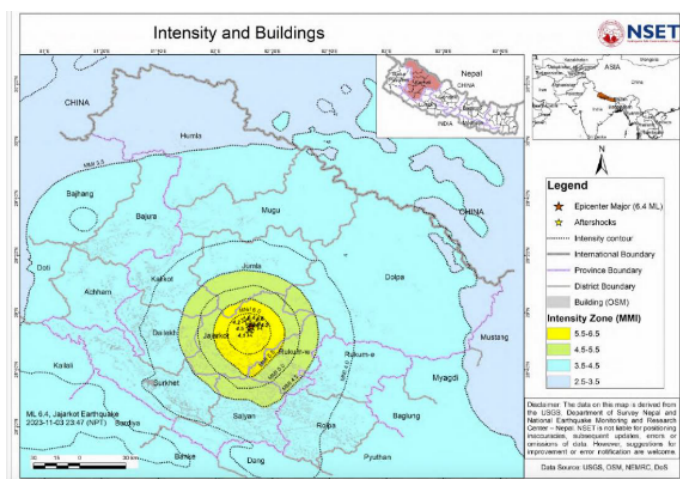


Mr. Chiranjibi Paudel, hosting an introduction session of the Project in Bhaktapur.



Orientation and simulation held in Ganesh Basic School in Chagunaryan Municipality, Bhaktapur.

a. Jajarkot Earthquake: Post-disaster Learning Continuity-Damage and Need-Assessment



Nepal experienced a seismic event with a magnitude of 6.4 in Jajarkot on November 3, 2023, followed by successive earthquakes measuring 5.3ML and 6.3ML in Bajhang during October and November of the same year. The earthquakes caused widespread devastation, claiming the lives of 154 individuals, including 81 children. The impact extended across 17 districts, with particularly severe damage in Jajarkot and Rukum West. In these districts, 746 schools and 130,000 students (IEMIS, 2023) were affected.

These schools require comprehensive post-disaster learning continuity damage and needs assessment to ensure safe, permanent learning spaces. In response to this critical situation, NSET conducted a thorough assessment to address the immediate challenges and plan for the recovery and reconstruction of the affected educational infrastructure, aiming for a resilient and sustainable future for the affected communities.



The Post-Disaster Learning Continuity Damage and Need Assessment was conducted from November 21 to December 8, 2023, in the 13 most affected rural municipalities of Jajarkot and Rukum West districts. The assessment involved a survey of a total of 746 schools. Prior to the survey, team formation took place on November 21, 2023.

Seven teams, each consisting of three technical members, were formed to carry out the work. The teams worked under the leadership of the Centre for Education and Human Resource Development (CEHRD) of the Ministry of Education, Science, and Technology (MoEST), in collaboration with the Ministry of Social Development (MoSD) of Karnali Province Government and the Nepal Education Cluster, with valuable support from UNICEF and Save the Children. The technical team was led by an engineer from CEHRD, and UNICEF provided technical support through its technical partners to carry out the assessment.

The team arrived in Jajarkot-Khalanga, where an orientation on EMIS for surveyors was held on November 22, 2023. The field survey planning involved the social development province office in Jajarkot and West Rukum, with municipal coordination supported by the province SDO district offices. Before deployment, an orientation was conducted on November 23, 2023. The surveyors then collected data using hardcopy questionnaire forms from 746 schools.



During the damage assessment, a total of 746 schools were surveyed. Information for all these schools was gathered from available data. Among the 2,122 school buildings surveyed, the most common building type was stone masonry in mud mortar, accounting for 57.3% of the total. Other building

types included reinforced concrete frame at 24.5%, stone in cement mortar at 16.2%, and other types at 2%.

Of the surveyed 2,122 school buildings, 21% were classified as needing reconstruction (DG4 & DG5), 36% required retrofitting (DG2 & DG3), 26% needed repairs (DG1), and 17% required no intervention. Out of the total 656 toilets, 512 were damaged. Similarly, 235 out of 389 boundary walls were affected. Laboratories also sustained damage, with 57 out of 239 being impacted. Additionally, 47 out of 266 libraries suffered damage.



The impact on learning continuity varied across schools, with different degrees of damage observed in Jajarkot and West Rukum. In Jajarkot, 55% of schools were closed for less than 5 days, while in Rukum West, 62% faced similar closures. Regarding school operations, 76% in Jajarkot and 85% in Rukum West were considered capable of functioning, highlighting regional differences in the aftermath of the earthquake. The recovery time also differed, with 63% of schools in Jajarkot returning to full operation within one week, compared to 73% in West Rukum.

There is a need for transitional learning centers (TLC-Type 2) to ensure learning continuity until permanent reconstruction is completed. The assessment report is being used for planning the reconstruction and recovery of school facilities. The federal, provincial, and local governments, with support from local authorities, are utilizing this data and loss estimation to guide the education system recovery. The estimated cost for emergency response recovery is US\$9.62 million, while the reconstruction cost is estimated at US\$36.06 million, totaling a recovery cost of US\$45.68 million.

Finding from Need Assessment

- ➔ Temporary Learning Center (Type I): Immediate need to set up 666 temporary learning centers.
- ➔ Transitional Learning Center: Setting up 1,730 transitional learning spaces is essential to ensure that education can resume promptly.
- ➔ Safety Measures: Prioritize the safety of students and staff by conducting thorough assessments of existing 2,122 school buildings.
- ➔ Basic Learning Resources: Provide essential 3,852 textbooks, to facilitate the resumption of classes and maintain a conducive learning environment.
- ➔ Qualified Teachers: Mobilize and train teachers to resume classes and provide psychological support to students coping with the aftermath of the earthquake.
- ➔ Infrastructure Rehabilitation: Plan for the reconstruction of 441 school buildings and retrofitting for 774 school buildings and repairs for 546 school buildings.
- ➔ ReAL Training: Training for 746 schools' teachers on Recovery and Accelerated Learning (ReAL) Training

Earthquake and Fire Orientations and Drills

With a view to promoting the awareness of students and teachers about Earthquake Risk Preparedness, series of orientation sessions and drills were organized in Jajarkot and West Rukum of Karnali province. In total 17 earthquake orientations and drills conducted, 688 people directly benefitted including 387 female and 301 males. Among the 17 events, 10 were organized in Jajarkot while 7 were conducted in Rurkum West.

Recovery and Accelerated Learning Plan

The Government of Nepal (GoN), in collaboration with development partners, developed the Recovery and Accelerated Learning Plan (ReAL, 2023-2028) as part of the School Education Sector Plan (SESP, 2022-2030). The plan aims to build a resilient and responsive education system capable of addressing and recovering learning loss among students based on identified needs. The ReAL plan's objectives are to recover the learning loss caused by the COVID-19 pandemic and institutionalize best practices for recovery and accelerated learning in schools. The plan incorporates research and experiences from the pandemic and follows the RAPID Framework to address learning loss and accelerate learning in schools.

As part of the Jajarkot Earthquake Response program, a series of ReAL Plan training sessions were conducted in Athbiskot Municipality and Sanobheri Rural Municipality of Rukum Paschim, and Nalgad Municipality and Barekot Rural Municipality of Jajarkot district. These trainings aimed to implement activities in schools to recover learning losses caused by the earthquake.

The two-day training sessions were held for three separate groups of teachers between February 20 and February 27, 2024. A total of 101 participants attended the training, including 52 female and 47 male teachers from various schools in the four intervention areas. The ReAL training program included activities that schools could use to recover from the learning losses caused by both the earthquake and the ongoing disaster situation.

SN	Palika	Participants		Total
		Female	Male	
1	Barekot Rural Municipality	8	17	25
2	Nalgad Municipality	15	12	27
3	Athbiskot Municipality	13	11	24
4	Sani Bheri Rural Municipality	13	12	25
Sub Total				101

Construction of Temporary Learning Center

To support post-disaster learning continuity, temporary learning centers (TLC-Type-2) were established in schools following comprehensive damage and needs assessment.

A total of 23 TLC-Type-2 centers, along with 23 wash facilities, were constructed across various schools in Jajarkot and Rukum West. These were spread across four municipalities and rural municipalities: Barekot, Nalgad, Sani Bheri, and Athbiskot.

Specifically,

- Five TLC-Type-2 centers and five wash facilities were constructed in Wards 3, 6, 7, and 8 of Barekot Rural Municipality, benefiting 278 students.
- Six TLC-Type-2 centers and six wash facilities were built in Wards 4, 5, 6, and 9 of Nalgad Rural Municipality, benefiting 197 students.
- Six TLC-Type-2 centers and six wash facilities were set up in Wards 11, 12, and 14 of Athbiskot Rural Municipality, benefiting 274 students.
- Six TLC-Type-2 centers and six wash facilities were built in Wards 1, 5, 8, and 10 of Sani Bheri Municipality, benefiting 244 students.



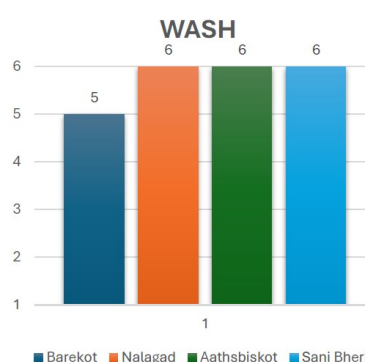
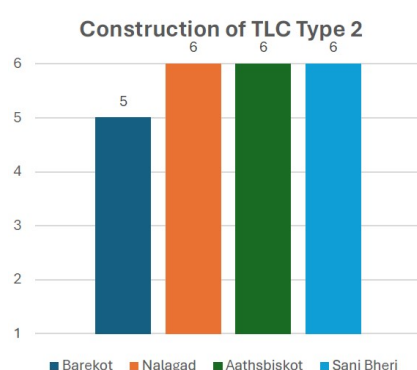
23

Total TLC 2 Constructed



23

Total WASH Constructed



Case Story: Cash grant modality help to construct the TLC on lower cost: Rajendra Khadka, SMC chair, Nirmal Jyoti Basic School, Nalgad Rural Municipality

Mr. Rajendra Khadka serves as the Chairperson of the School Management Committee (SMC) at Nirmal Jyoti Basic School in Nalgad Rural Municipality, Jajarkot District. Residing in Ward No. 6, Thapla, Mr. Khadka has been dedicatedly fulfilling his role as SMC chair for the past two years.



Mr. Khadka was sleeping inside his home when a 6.4 magnitude earthquake, with its epicenter in Ramidada, Jajarkot, struck on the night of November 3, 2024. Thankfully, Mr. Khadka was unharmed, and the earthquake did not cause significant damage to the lives and property of his close family members. However, the quake claimed the lives of four individuals, including three students and a teacher from his school. Additionally, several buildings at Nirmal Jyoti Basic School were severely damaged, leading to the school's closure. The students were also recovering from the trauma of loss and devastation witnessed in the aftermath of the earthquake. Resuming classes seemed unlikely without addressing both the necessary infrastructure and the emotional well-being of the students.

When asked about resuming classes, he said, "Classes were conducted outdoors on the playground, resulting in disruptions to the regular academic schedule. Despite efforts to return to normal, attendance remained sparse due to ongoing aftershocks and the emotional toll of loss experienced by students and their families."

He further explained, "Given the urgent need for Temporary Learning Centers (TLC) at our school, we reached out to various levels of government for assistance. Following the earthquake, the National Society of Earthquake Technology-Nepal (NSET), with financial support from UNICEF, conducted a damage assessment of the school buildings. Recognizing the need to resume classes promptly, NSET, in collaboration with UNICEF, provided assistance to construct a Type II Temporary Learning Center. Initially, we formalized this arrangement through a tripartite agreement involving NSET, Nalgad Rural Municipality, and our school. According to the agreement, NSET was expected to provide one hundred fifty thousand Nepali rupees in two installments to the school for the construction of the TLC. If this amount proved insufficient to construct two classrooms, the school would cover the additional costs. NSET was responsible for providing technical support throughout the construction process."

Throughout construction, NSET provided drawings and cost estimates, as well as comprehensive supervision and technical assistance to the workers involved.

Mr. Khadka added, "Following the agreement, NSET disbursed Rs. 75,000 as part of a cash grant to facilitate the construction of TLC. Within 15 days, we successfully completed the construction. After completing the TLC, the remaining Rs. 75,000 was provided, and the transaction was made through the official school account. To carry out the construction, we hired local laborers on a daily-wage basis. We opted for locally available materials, including stone, corrugated sheets, and timber, to build TLC. Salvage materials, such as stones and wood from the damaged buildings, were also used. However, despite these efforts, an additional Rs. 30,000 was needed beyond the amount supported by the project to complete the construction. The school managed to cover this extra amount."

Mr. Khadka expressed his satisfaction with this approach, stating, "I believe this approach is highly effective. Constructing the TLC using this modality enabled us to significantly reduce costs compared to if donor agencies had undertaken the construction themselves. By utilizing salvage materials that would have otherwise gone unused, we further decreased the expenses. Additionally, the TLC we built through this method, with technical support, is stronger and more resilient."

Mr. Khadka further shared, "One of the major lessons learned from this construction process is that post-disaster construction differs significantly from regular construction practices. Given the urgency of the situation, it requires initiating construction as quickly as possible. However, organizing the

necessary construction materials and labor force within such a short timeframe is extremely challenging."

Now, classes are underway in the TLCs, accommodating 20 students. This initiative ensures learning continuity in safer environments for the students. Furthermore, the project fully funded the construction of WASH facilities to promote a healthy learning environment.



Earthquake-resistant model school building

An earthquake-resistant model school building has been constructed in Godawari Municipality, Kailali District, Sudurpaschim Province, Nepal aiming to enhance earthquake safety by training local masons to build a four-room reinforced concrete (RC) framed building. Additionally, the project assisted the school in developing a comprehensive disaster management plan. NSE accomplished the activity, in partnership with Geo Hazards International (GHI) and funded by multiple donors.



Figure 3 Key handover to the Municipality/SMC from GHI & NSET



Figure 4 Completion of Final color

School emergency evacuation plan and earthquake simulation

Preparation of a school emergency evacuation plan and conducting earthquake simulation drills was done in Uttargaya Public English Secondary School (UPESS) in Bidur-10, Angitar, Nuwakot. The evacuation plans detailed evacuation routes and safe assembly locations, ensuring safe paths from classrooms and other areas within the school premises. Experts evaluated and proposed the best evacuation routes for emergencies like earthquakes and fires. This plan is crucial for guiding students, teachers, staff, and visitors to safety during emergencies. Conducting earthquake drills, even for safe school buildings, is an essential part of this preparedness effort. NSET implemented the disaster preparedness project with the support from El Comedor Estudiantil Giordano Liva initiative.



School Search and Rescue Training



3D model demonstration of Landslide to students

Nepal Earthquake Desk Feasibility Study, Phase 2

With the aim of determining the viability of engineered "Earthquake Desks" to enhance the safety of schoolchildren in Nepal, the Nepal Earthquake Desk Feasibility Study, Phase 2, implemented by the NSET. This initiative served as a temporary safety measure until seismically vulnerable school buildings can be replaced or retrofitted. Key project activities include prototyping Nepal-made Earthquake Desks based on existing designs, conducting physical tests to evaluate their suitability for school environments, organizing stakeholder workshops and demonstrations to generate interest, training local manufacturers on the finalized design, and identifying methods to ensure quality control and assurance of the produced desks. The consultant will play a crucial technical role, contributing to information gathering and analysis, assisting with logistical arrangements, and fostering relationships with stakeholders to support the successful implementation of each project element.

School functional surveys

NSET has conducted school functional surveys utilizing checklists and specialized equipment such as the Multi-Functional Monitor, Global Thermometer, Autotube Pro, Rich Theta Digital Camera, and a carbon dioxide meter. Additionally, NSET also carried out a detailed functional assessment of a school building in Chautara Sangachokgadhi Municipality, Sindhupalchowk. These activities were done under the UCL – Structural and Functional Resilience of Schools in Nepal (SFRES) project.



Vulnerability Assessment

NSET also carried out a Seismic Vulnerability Assessment of Shree Nikhantheswor Secondary School in Jugu, Dolakha. This included Retrofit Design and Supervision for the school. Additionally, NSET developed the Retrofit Design for the Nepal Red Cross Society (NRCS) Training cum Activity Center Building located at Red Cross Marg, Kalimati, Kathmandu, Nepal. Furthermore, NAST funded the Innovation on **Nature-Based Solutions for Climate and Disaster Resilient Buildings** project, which focuses on using non-erodible mud to enhance climate resilience, fire resistance, and earthquake safety. Lastly, there was a Japanese student and teacher interaction program, where students submitted their findings and experiences.



3. Assessment of Damaged Public Buildings and Recommendations on Temporary Solutions for Damaged Facilities

In the wake of the seismic events caused by the Jajarkot earthquake on November 3, 2023, the NSET led efforts to assess the impact on public buildings in collaboration with the United Nations Development Programme (UNDP). This partnership reflects a shared commitment to addressing the challenges posed by seismic events and fostering the resilience of communities across Nepal.



Structural damages observed and documented during assessment at Nalgadh Municipality



Service receivers at CDO office with damaged Durbar in the background

The assessment project was driven by the collective aim of not only understanding the immediate impact on public buildings but also formulating strategies for reconstruction and recovery in alignment with international best practices.

The overarching objective of this initiative was to comprehensively evaluate and enhance the resilience of public buildings in Barekot Rural Municipality and Nalgadh Municipality of the Jajarkot district, following the seismic impact of the earthquake. Using the template developed by the National Disaster Risk Reduction and Management Authority (NDRRMA), the primary goal was to conduct a meticulous assessment of the suitability, unsuitability, and safety of these structures and facilities concerning their capacity to provide essential services.

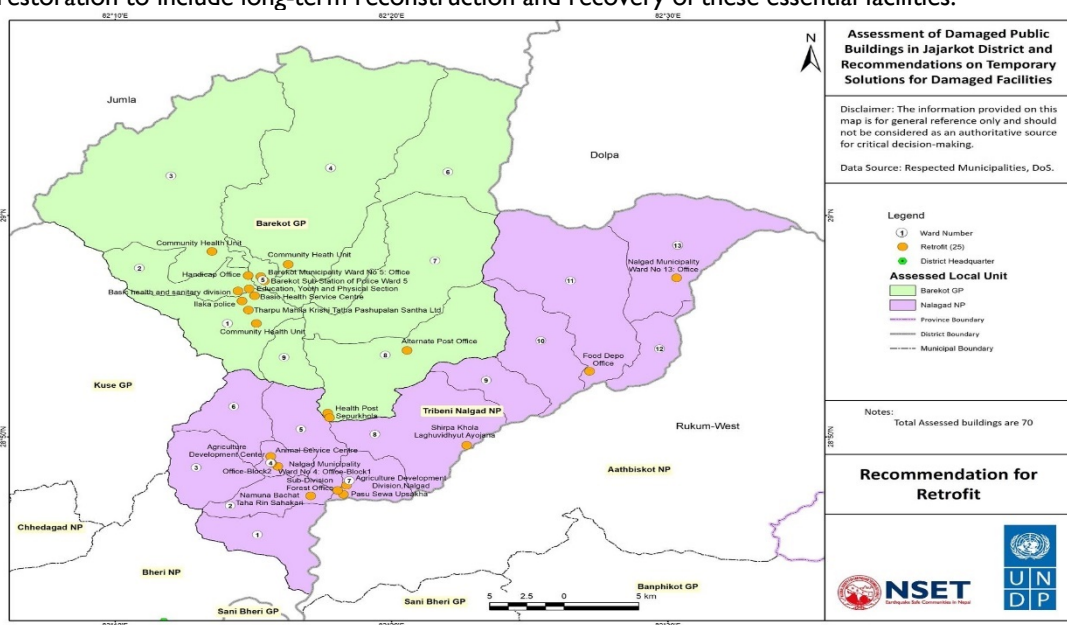
Additionally, the assessment carried out a detailed examination of the immediate connectivity around these facilities, addressing critical aspects such as access roads, culverts, power supply, and water supply. Aligned with these objectives, the project sought to propose viable and context-specific solutions for repairing damaged structural facilities. These solutions were designed to expedite the prompt initiation or resumption of services, ultimately contributing to the overall recovery and resilience of the affected communities.

The specific objectives of the project were outlined below:

- ➔ **Conducting an Assessment:** The primary objective was to carry out a comprehensive assessment of public buildings in Barekot Rural Municipality and Nalgadh Municipality, Jajarkot district, excluding health facilities and schools. This involved utilizing the template developed by

the National Disaster Risk Reduction and Management Authority (NDRRMA) to evaluate the suitability, unsuitability, and safety of these structures for delivering essential services.

- ➔ **Evaluating Connectivity:** An additional objective was to examine the immediate connectivity surrounding the assessed facilities, including access roads, culverts, power supply, and water supply. This evaluation aims to provide critical insights into the infrastructure supporting the functionality of public buildings.
- ➔ **Proposing Restoration Options:** The project sought to propose viable options for repairing damaged structural facilities. The goal was to facilitate the prompt initiation or resumption of essential services, emphasizing actionable recommendations to address the impacts of the earthquake on these vital structures.
- ➔ **Recommendations for Enhancing Resilience:** In alignment with these objectives, the project aimed to comprehensively evaluate and enhance the resilience of public buildings in the affected areas following the seismic impact of the earthquake. The focus extended beyond immediate restoration to include long-term reconstruction and recovery of these essential facilities.



The scope of work for this assessment initiative was well-defined, focusing on the comprehensive evaluation of approximately 45-50 public buildings situated in Barekot Rural and Nalgadh Municipality, Jajarkot district. It was crucial to note that this scope explicitly excludes schools and health centers, streamlining the assessment's concentration on other essential infrastructures within these localities. The targeted buildings spanned a variety of public facilities, each playing a vital role in the daily lives of the community members. The assessment period, scheduled from December 19, 2023, to January 31, 2024, reflects a strategic timeframe for the meticulous examination of these structures. This duration ensured a thorough and efficient evaluation process, allowing for the collection of detailed data, analysis of structural and non-structural elements, and the formulation of informed recommendations. By adhering to this scope of work, the assessment endeavors contributed valuable insights that will inform not only immediate restoration efforts but also long-term reconstruction and resilience strategies for the benefit of the communities in Barekot Rural and Nalgadh Municipality.

3. Supporting Reconstruction in Jajarkot Earthquake Affected Areas through Model Homes

The Jajarkot earthquake caused significant loss of life, injuries, and extensive property damage. This disaster highlighted the vulnerability of traditional construction methods, which often fail to withstand seismic events. In the aftermath, homeowners frequently rebuild using familiar but unsafe methods due to a lack of knowledge or resources, perpetuating a cycle of vulnerability that leaves communities exposed to future seismic risks. To address this challenge and provide tangible examples of safer construction practices, the Model Homes for Promoting Safe Reconstruction Project was initiated. This initiative aims to empower local communities with the knowledge and skills needed to build more resilient homes.

The project focuses on constructing seven earthquake-resistant model homes, promoting the use of locally available materials, and providing hands-on training to local masons and technical professionals.

The primary objectives of the project are as follows:

Constructing Model Homes: Building seven earthquake-resistant model homes across the local levels of Jajarkot, West Rukum, and Salyan districts. These homes will serve as living demonstrations of earthquake-resilient construction techniques and foster a culture of safety within communities.

Utilizing Local Materials: Ensuring the use of readily available local materials to enhance affordability, reduce environmental impact, and promote sustainable rebuilding practices.

Providing Training: Equipping 98 local masons and 49 municipal technical professionals with hands-on training in safe construction practices.

Through a collaborative approach involving co-funding and joint efforts by the Karnali Province Training Academy, local governments, development partners, the Rotary Club, and NSET, the project has adopted a comprehensive and sustainable approach to promoting safe reconstruction practices.

Pre-construction Phase:

Consultation meetings were conducted with seven local governments to finalize building sites, select beneficiaries, and define roles and responsibilities. A rigorous selection process was undertaken to identify beneficiaries within municipalities and rural municipalities.

Construction Phase:

The model homes were built in Chaurjahari, Triveni, Darma, Barekot, Bheri, Nalgad, and Aathbiskot. Each home was constructed within a 25-day timeframe, demonstrating efficient and effective building practices. Hands-on training sessions were held at construction sites, where 98 local workers and 49 municipal technical professionals were trained in earthquake-resistant construction techniques, covering areas such as design checks, permit systems, and field supervision.

Post-construction Phase:

Handover ceremonies were organized for the completed model homes, with events held in

Chaurjahari and attended by local community members and stakeholders.

Of the seven model homes, four have been completed, and three are currently in progress. These include:

- One school canteen room.
- Two patient waiting rooms at maternity service centers.
- Four homes for marginalized or economically vulnerable groups.

In total, 98 construction workers and 48 local government engineers have received hands-on training during the construction of these model buildings. The project has been supported by various partners:

The Karnali Province Government provided logistical support for the training sessions. Local governments covered the remuneration of construction workers. Development partners funded implementor remuneration and construction tools and equipment. Rotary District International 3292 contributed construction materials.

The total expected expenditure for the project is NPR 1,16,00,000, with financial contributions distributed as follows:

- 34% from the Karnali Province Government.
- 9% from local governments.
- 26% from development partners.
- 31% from Rotary District International 3292.

Implemented by NSET, this project established a strong foundation for future efforts. It demonstrates the feasibility and benefits of adopting safer reconstruction practices in earthquake-affected areas, paving the way for more resilient communities

4. Supporting Birendranagar Municipality in Feasibility Study on Land Pooling

The TAYAR Nepal – Improved Disaster Risk Management Project, funded by USAID Nepal, aims to enhance the capacities of both national and subnational institutions in Nepal responsible for disaster risk reduction, preparedness, and response. At the local level, NSET, with support from USAID TAYAR Nepal, is assisting Birendranagar Municipality in strengthening its Disaster Risk Reduction and Management (DRRM) capacities and facilitating the development of land use plans that prioritize risk mitigation.

To promote planned urbanization in alignment with these risk-sensitive land use plans, TAYAR Nepal supported Birendranagar Municipality in conducting a comprehensive Land Pooling study. This land pooling study project was designed in two phases:

Phase One: Conducting a detailed study on land pooling in Birendranagar Municipality. This phase involved reviewing existing legal provisions and practices, exploring potential options, and finalizing the land pooling area in collaboration with the municipality.

Phase Two: Conducting a detailed feasibility study of the selected land pooling areas and preparing a comprehensive project report for the chosen land pooling schemes.



During the first phase, site studies were conducted at 14 locations, and pre-feasibility studies were carried out on four of these sites. Two sites were subsequently recommended for further feasibility study. The second phase of the land pooling feasibility study for these two sites was conducted from September 15, 2023, to March 30, 2024, through a joint venture of NSET, The Engineering Consultancy for Constructive Development Efforts in Nepal Private Limited (ECoCoDE Nepal Pvt. Ltd.), and Technosaints Engineering Consult (TEC) Pvt. Ltd.

The primary objective of this study was to prepare a detailed project report for the project's implementation. This included analyzing the current situation of the project area, identifying the necessary physical infrastructure for systematic housing development, assisting in making policy

decisions for project management, designing projects to secure financial resources from both external and internal sources, and creating a detailed plan for project implementation.

The scope of the feasibility study involved conducting a comprehensive analysis for land pooling in two locations: Shivalaya-Baudha in Ward 9 and Barrakuna in Ward 11 of Birendranagar Municipality. This included a range of components such as socio-economic analysis, topographic survey, development of block plans, and preparation of a detailed feasibility study report for both land pooling sites. The working areas of the proposed study encompassed the following:

- Reviewing reports of land development projects, particularly land consolidation projects.
- Collecting and analyzing data on land within the project area.
- Preparing details of roads, sewers, buildings, educational and other institutional, social, and physical infrastructure within the project area.
- Preparing details of Guthi, public, and private lands within the project area.
- Developing and analyzing conceptual plans for physical infrastructure.
- Preparing preliminary designs and cost estimates for development works within the project area.
- Obtaining feedback from local landowners regarding the proposed project.
- Establishing a basis for land management.
- Preparing a model readjustment plan.
- Conducting financial analysis.
- Preparing a work schedule and identifying the manpower necessary for project implementation.

The activities accomplished during the study included:

- Formulation of a committee and formation of a Land Pooling subcommittee.
- Survey and data collection, including a topographic survey.
- Development of a conceptual plan and preparation of maps.
- Digitization of cadastral data.
- Conducting feasibility analyses (social and financial).
- Preparation of a detailed block plan.
- Preliminary infrastructure design.
- Preparation of a land readjustment policy.
- Detailed design of major infrastructure, including open spaces/parks, neighborhood roads, drainage systems, water supply, electricity/communication systems, and wastewater treatment plants.

The culmination of these efforts was the completion of a comprehensive feasibility report.



Site visit at Vyas Municipality**Conducting DGPS survey and Drone Survey**

As part of the Land Pooling study, an exposure visit was organized for the user committees and representatives from the municipality. The visit included two key locations: the Bhaisepati Awas Area in Lalitpur and Vyas Municipality in Tanahun. In Lalitpur, an orientation and interaction program were conducted with the User Committee of the Bhaisepati Awas Area, providing participants with valuable insights into the project's planning and implementation. This was followed by a guided tour of the Bhaisepati Awas Area by the user committee. Similarly, in Vyas Municipality, a meeting and experience-sharing session were held at the Project Implementation Unit Office. This session included the project technical team, the user committee, and landowners from Vyas Municipality. Participants shared knowledge and discussed best practices. The visit concluded with a tour of the Vyas Land Pooling site, allowing attendees to observe the project's progress and gain a deeper understanding of its implementation.

5. Resilient Settlement - Capacity Building on Building Code Implementation

With the goal of enhancing the awareness and capacity of masons and engineers in building code compliance and retrofitting, the 'Resilient Settlement - Capacity Building on Building Code Implementation' project was implemented by NSET from April 2023 to July 2024. Initially planned for the period of April 2023 to January 2024, the project timeline was extended to July 2024. Supported by USAID's Tayar Nepal, this project was conducted across all eight partner municipalities within Jajarkot District. Its major objectives were: Providing socio-technical support for reconstruction efforts, Enhancing the technical capacity of masons and engineers and Constructing model homes for individuals in need.



The project adopted a collaborative approach, working closely with local and provincial governments to institutionalize a rural building permit system. It emphasized capacity building for engineers, masons, and local organizations, alongside raising awareness among elected representatives. Key partners in the initiative included the Government of Nepal, Karnali Province, 23 municipalities and rural municipalities across Jajarkot, Salyan, and West Rukum, as well as Save the Children, CARE Nepal, Rotary District 3292, Panch Tara Yuva Sanrakschak Manch, and HRDC Jajarkot.



Training for Elected Representatives from 23 Local Governments



7-day Masons Trainings

Several activities were conducted, including training for elected representatives from 23 local governments, 7-day mason training, training for engineers, and on-the-job training for masons and municipal engineers. Socio-technical support was also provided. The Karnali Province Training Academy (KPTA) conducted multiple trainings, supported by USAID's Tayar Nepal Grant, which included engineers' training, mason trainings, on-the-job trainings, and socio-technical support.



Socio-Technical Support



On-the-Job Trainings for Masons and Municipal Engineers

The project achieved significant milestones, such as the endorsement and implementation of the Building Permit System (BPS) for rural buildings by three municipalities as per MOFAGA's Building Permit Procedure, developed with support from USAID's TESREC program. Training models developed under the project now serve as a standard for rural mason training and construction. Collaboration with USAID/BHA/Save the Children facilitated the development of instructors, and additional financial support was leveraged from Rotary International and local governments. Furthermore, the Karnali Province Training Academy is planning to expand the building code implementation and building permit training program to other districts in the next fiscal year. For future interventions, the project aims to develop resilient communities by working with local governments to foster comprehensive planning that incorporates multi-hazard and socio-economic considerations.

Case Story: Training on Building Construction Working Procedure (BCWP) enlightened me about the need for BCWP - Sushil Mishra

Photo here....

Dullu Municipality is the second-largest municipality in Karnali Province, predominantly located in a hilly region. The municipality was declared on May 18, 2014, after merging six erstwhile Village Development Committees, namely Naule Katuwal, Nepa, Paduka, Dullu, Pusakot Chiudi, and Badalamji. With the delineation of the federal structure in Nepal following the promulgation of Nepal's Constitution 2015, the municipality expanded further, incorporating Malika, Gauri, Kalbhairab, and Gamaudi villages. The municipality covers an area of 156.8 km². According to the 2021 census, the total population is 39,143, with a population density of 249.7/km².

Ms. Sushila Mishra, 35, an engineer by profession, is currently working in Dullu Municipality, Dailekh district. Born in Nilakantha Municipality, Dhading district, she completed her bachelor's in civil engineering (BE) in 2017 from Universal Engineering & Science College, Chakupat, Lalitpur, affiliated with Pokhara University. After marrying Kapil Khanal of Dullu Municipality, Dailekh district, she joined her job in her home municipality on May 14, 2020. She currently works in the Infrastructure Development Section of the municipality, overseeing the Building Permit Process and being involved in the implementation of Building Code regulations and related works.

Although the municipality is considered an urban local government, the vast areas of Dullu Municipality predominantly fall under a rural setting. Very few buildings are being constructed by following the Building Permit Process. Hardly 15 to 20 buildings are built in a year under the radar of the Building Permit Process, and numerous buildings are still being constructed in the municipality without compliance with the Building Permit System (BPS).

"Although the municipality enforced the national building code through the Building Permit Process some 7-8 years ago, it has not been effectively enforced. The 15 to 20 households who come for the Building Permit Process are mainly for banking loan processes rather than due to safety awareness," shared Ms. Mishra.

She, however, mentioned that the attitude of people towards safety is gradually changing in recent times, thanks to the 2023 Jajarkot Earthquake and the municipality's awareness promotion activities. The elected representatives and the technical workforce of the municipality have been exposed to a series of trainings, orientations, and workshops, enhancing their knowledge regarding the enforcement of NBC and the BPS through interventions from USAID's Tayar Nepal Project and orientation sessions provided by the Provincial Government.

Ms. Sushila Mishra, the mother of two children, attended a training on "Engineers' Training on Building Construction Working Procedure" held in Kathmandu during January 16 to 20, 2024. Ms. Mishra, a nursing mother, with her 6-month-old son attended the training conducted by the National Society of Earthquake Technology – Nepal (NSET) with support from the USAID's Tayar Nepal Project. According to her, the training was extremely beneficial to her. During the training, she learned various aspects of BPS and Building Code Implementation (BCI), specifically acquiring knowledge about the "Four Categories (A, B, C,

and D) of Buildings" for the formulation and implementation of the building code mentioned in Nepal's National Building Code (NBC).

Ms. Mishra was mostly attracted to Category "D" of Buildings, constructed with local materials such as baked or unbaked brick, stone, clay, bamboo, grass, timber, etc. She is interested in this category because such buildings are mostly constructed in Dullu Municipality. Additionally, she learned about how to bring public buildings under the radar of BPS and considerations while designing buildings to be constructed on slope land plots.

"Despite working for quite some time in the municipality, I was totally unaware of the need for "Building Construction Working Procedure (BCWP)," which is an essential legal document to enforce the BPS and BCI in a municipality. We are administering BPS based on the Risk-based Land Use Plan (RSLUP) and a building bylaw initially drafted in 2015 and revised later in 2022 with technical support from USAID's Tayar Nepal project," remarked Ms. Mishra.

She further shared that the training provided an immense opportunity for her to learn about the BCWP and its criteria, format, things to be considered, and how to make documentation of already constructed buildings and houses, among other things. "Had I known earlier about the need for BCWP, our municipality would have already developed and approved it 2-3 years ago. Nonetheless, better late than never we have already finalized the contents and provisions, and currently, it is under the process of drafting. Once it is done, we would call a meeting of the executive committee of the municipality and approve it."

She, however, shared that the availability of a limited technical workforce in the municipality and the inability to bring new homeowners under the BPS are still major challenges. To include more people in the BPS system, her municipality is carrying out various promotional activities, and elected representatives are fully cooperating in this measure.

Assistance to enhance earthquake preparedness

The "Integrated Disaster Risk Reduction and Environment in Darjeeling Hills (IDRRE)" project, implemented by the NSET and funded by Caritas Germany, addresses the significant seismic hazards in the Darjeeling and Kalimpong districts, which lie in Seismic Zone IV. This region's rugged terrain, characterized by high mountains, deep valleys, and steep slopes, makes it particularly vulnerable to disasters such as earthquakes and landslides. In response, Caritas India and Anugyalaya initiated this three-year DRR project, focusing on comprehensive risk assessments and preparedness measures. NSET's role involves providing essential technical assistance to enhance earthquake preparedness, including conducting seismic hazard studies, offering training-of-trainers (TOT) for local engineers, and performing capacity needs assessments. By facilitating these initiatives, the project aims to bolster the disaster resilience of the Darjeeling bazaar and surrounding areas, ensuring a collaborative approach to mitigating the risks posed by the region's seismic activity.



Seismic Vulnerability Assessment and Retrofit Design

NSET undertook the Seismic Vulnerability Assessment and Retrofit Design project, focusing on the residential building of Mr. Tejendra Jung Thapa located in Naxal, Bhagabatibahal, Kathmandu. The initiative aimed to evaluate the structural vulnerability of the building to seismic events and develop retrofit designs to enhance its resilience against earthquakes. Through rigorous assessment methodologies and engineering expertise, NSET conducted a comprehensive analysis of the building's structural integrity and identified vulnerabilities. Subsequently, retrofit designs were tailored to address the specific weaknesses identified, ensuring the building's ability to withstand seismic forces and mitigate potential risks to occupants and property. By implementing this project, NSET contributed to improving the seismic safety of residential structures in Kathmandu, thus bolstering the overall resilience of the community to earthquake hazards.



Seismic vulnerability assessment and retrofit design of Residential Building of Mr. Tejendra Jung Thapam

6. Disaster response and recovery initiatives

Landslide response and Shelter Construction in Maiwakhola



Villagers working for wood and Bamboo centibera skeleton construction.

Locals of Maiwakhola (Wards 3 and 4) and Sidingwa (Wards 1, 2, 3, 4, 6, and 7) Rural Municipalities, Taplejung District, Koshi Province were severely affected by floods and landslides in July 2023. As part of the response, emergency relief distribution began on July 27, providing 82 households in Sidingwa with essential food supplies, hygiene kits, and solar lights. On September 3, food items were distributed to 40 households, and dignity kits to 65 families of Maiwakhola Rural Municipality. The Maiwakhola Rural Municipality DRM team relocated the entire community by constructing temporary shelters.

Under the Start Fund Networks' support, NSET collaborated with CRS, NHSRP, and VCN, to provide the support to the municipality's efforts for shelter construction. The project also conducted geohazard assessments and supported relocation planning. Need assessments were carried out with affected communities during the distribution of emergency materials. The local level officials of both municipalities coordinated and facilitated the emergency support and distribution tasks in the affected areas.

NSET provided socio-technical support, including shelter construction. A total of 64 households received materials for temporary shelters, including CGI sheets, plain sheets, cement, and toolkits. Likewise, temporary shelters for 64 households who lost their homes due to floods and landslides were constructed. For this, over 100 people worked as volunteers daily for shelter construction. Woods, bamboo, JCB, and other small tools and equipment were managed by the municipality itself.



Overview of the shelter after roofing and mud plastering

Shelter Support to Rautahat Fire

In response to a fire incident in Madhesh Province, Rautahat District, specifically in Madhav Narayan Municipality Ward No. 4 and Isanath Municipality Ward No. 8, the Rautahat Fire Response Project was implemented with support from the Start Fund Network. Led by NSET in partnership with the local organization Mandwi, this project constructed shelters for 22 households, including 17 in Madhav Narayan and 5 in Isanath.

This project was a pilot initiative aimed at building earthquake-, flood-, and fire-resilient semi-permanent shelters using local materials and practices by engaging local masons in coordination with the municipality and local community. The initiative successfully embraced an owner-driven construction approach, providing social and technical support to individual households for shelter design and planning.

Designed for a 60-day response period, the project reconstructed 22 houses for economically vulnerable people affected by the fire. The program's major actions included preparation (needs assessment, house design preparation, and establishing a complaint and feedback mechanism), shelter construction (providing social and technical support, financial assistance, technical supervision, and monitoring construction progress), capacity enhancement and awareness (fire safety orientation, on-the-job training, fire preparedness, and provisioning community fire response items), and coordination and collaboration with various stakeholders such as local partners, municipalities, and disaster management committees.



This strategy not only facilitated immediate shelter response but also added value by investing in permanent reconstruction efforts, employing multi-hazard resilient construction techniques.

The swift construction within 60 days helped beneficiaries avoid health impacts, and a robust complaint and feedback mechanism, alongside the C-SAC (Community-based Security and Advisory Committee), was established.

The project also enhanced the capacity of local masons, engaging them in the construction process while ensuring designs adhered to traditional practices using local materials. However, the project faced limitations due to the limited time available for designing appropriate buildings for the local context, highlighting the need for early partner engagement from the concept design phase.

Innovations included developing designs that matched the local context, conducting in-situ experiments to test local materials and construction technologies, and conceptualizing transition shelters that evolve from temporary to permanent structures.

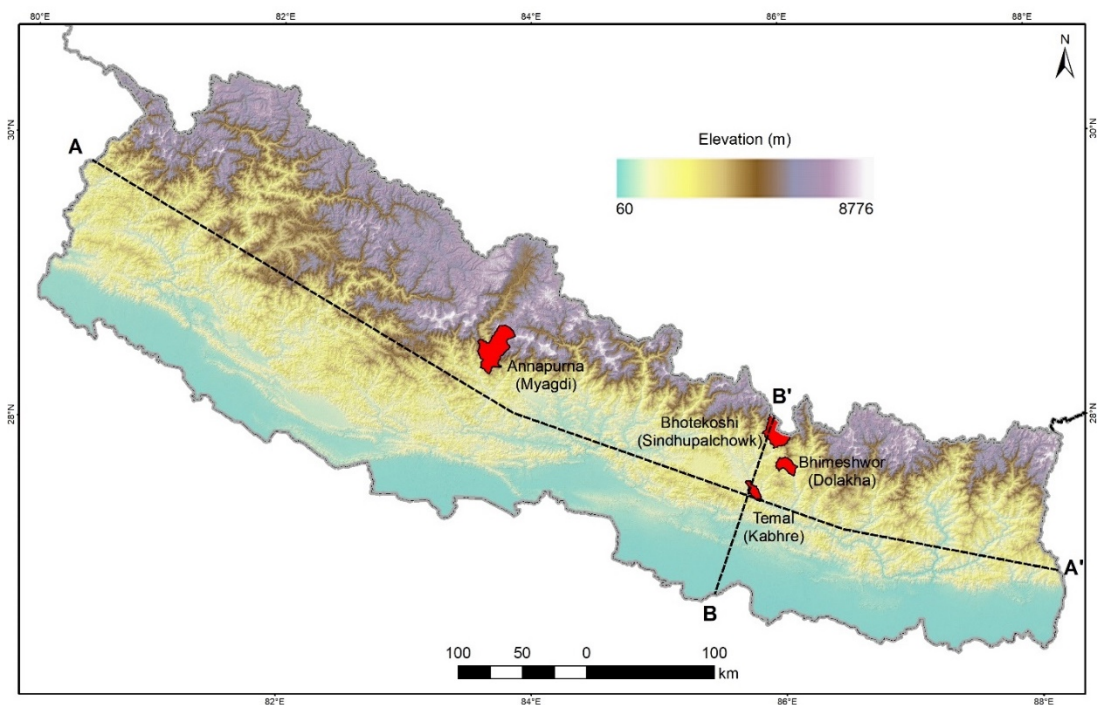


7. Multi-Hazard Preparedness for Response and Recovery Efforts

NSET has expanded its scope and works to managing multi-hazard situations, climate change adaptation and risk management from earthquake risk management in nearly 3 decades. Through these initiatives, NSET aims to integrate this synthesis of disaster risk management (DRM) and Climate Risk Management (CRM) into economic development efforts.

Preparedness and Planning for the Mountain Hazard and Risk Chain in Nepal through Sajag-Nepal

"Preparedness and Planning for the Mountain Hazard and Risk Chain in Nepal," known as Sajag-Nepal, focused on contextualizing the multi-hazard and systemic risk landscape in Nepal, developing a national-scale multi-hazard inventory, creating national and municipal preparedness plans for earthquake-related and seasonal monsoon-related multi-hazards, and embedding local natural and social scientific knowledge of the mountain hazard and risk chain into preparedness and response mechanisms.



Key Activities and Achievements

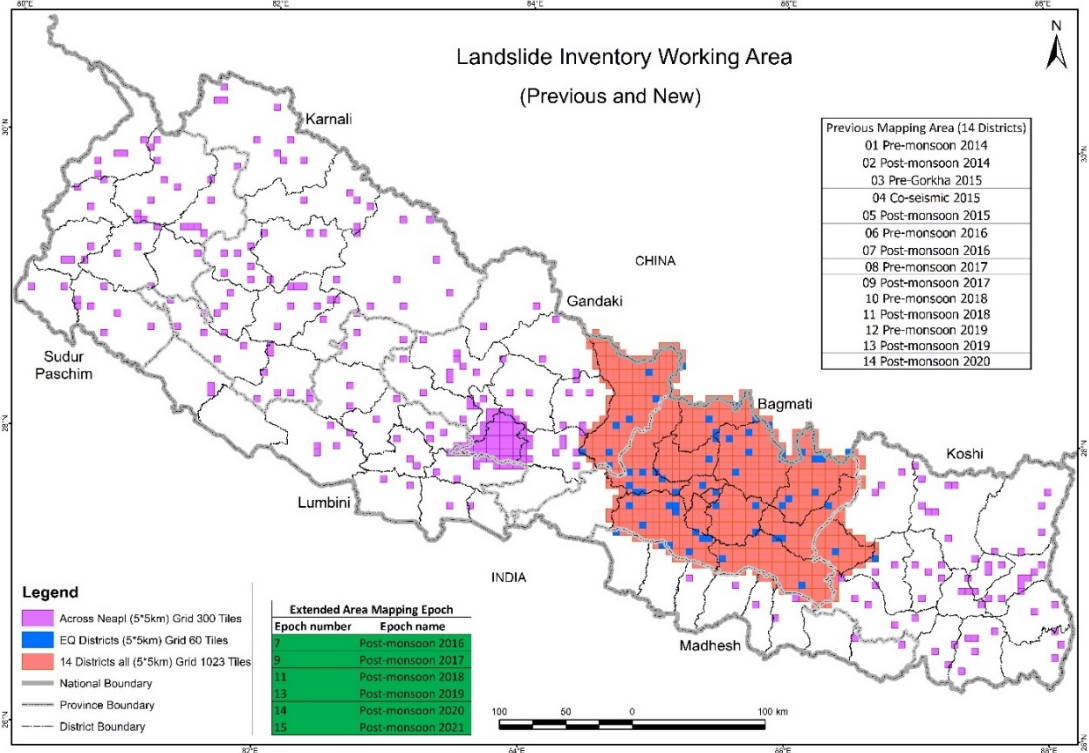
Collaboration and Engagement

The Sajag Nepal Project held meetings with the National Disaster Risk Reduction and Management Authority (NDRRMA) to share multi-hazard scenario results, focusing on the impacts of earthquakes and landslides on buildings. An advisory team was proposed to help share the project outcomes and integrate them into government planning. The project also collaborated with the Ministry of Federal Affairs and General Administration (MoFAGA) and the International Federation of Red Cross and Red Crescent Societies (IFRC) to explore using the Community-Based Disaster Risk Management (CBDRM) platform to share project outcomes at the local level. It discussed partnership opportunities with the Department of Hydrology and Meteorology (DHM) to use project findings in impact-based forecasting and monsoon predictions. In Kavre, it presented research findings and mapping activities to the District Disaster Reduction and Management Committee (DDRMC) for landslide monitoring in Temal Rural Municipality. Additionally, it engaged with representatives from Bagmati Province and Dolakha District to explore how scientific data is used in disaster risk reduction (DRR).

Research and Data Collection

Drone Surveys and Slope Monitoring were one of the major activities under which UAV surveys of landslide monitoring sites in Temal Rural Municipality were conducted. Similarly, Slope stability monitoring equipment was installed in four municipalities to understand the link between monsoon rainfall and slope stability. National-Scale Landslide Inventory: Inventories of landslides across 300 grids in Nepal were developed using Sentinel-2 satellite images, covering six post-monsoon events from 2016 to 2021. Apart from that, Landslide Database of 100 major landslide incidents (2018-2021) was compiled to support multi-hazard scenario modeling. Additionally, 183 landslide events were mapped in 2022, resulting in 99 casualties and significant damage. Methods for semi-automated

clustering of landslides were developed to create a national-scale multi-hazard inventory.



Knowledge Sharing

The project participated in multiple national and international forums, including the Humanitarian Cluster workshops, the Provincial Humanitarian Coordination Workshop, and the 35th Himalayan Karakoram Tibet Workshop, to share project outcomes and build capacity among stakeholders. As part of community-level interventions, 3D participatory mapping exercises were conducted in Kodari, Bhotekoshi Rural Municipality, to help communities visualize and understand landslide risks. Similarly, research outputs were shared at the Annual Kathmandu Conference on Nepal and The Himalaya, held from July 24–26, 2024, in Kathmandu.

Challenges and Lessons Learned

Ensuring completeness, reliability, and validation of the landslide inventory remains a challenge. In this context, it was realized that there is a need for improved data sharing between organizations. Likewise, difficulties in determining the geolocation of landslides based on media reports highlight the necessity for more accurate and systematic data collection methods.

Conclusion and Future Directions

The Sajag-Nepal project has made significant progress in developing a multi-hazard risk management framework for Nepal, emphasizing the integration of scientific data and local knowledge into disaster preparedness and response plans. Future efforts will focus on enhancing data collection methods, fostering collaborations, and ensuring that project outcomes are integrated into national and local disaster risk management strategies. The project's ongoing work will continue to support Nepal's resilience against multiple natural hazards, particularly in mountainous regions.



Sajag-Nepal was a multi-disciplinary research initiative funded by the UK Global Challenges Research Fund: Multi-Hazards and Systemic Risks. Implemented from 2020 to 2023, the project aimed to enhance decision-making and preparedness to mitigate the impacts of mountain hazards in Nepal. NSET served as the in-country secretariat, facilitating project activities. The project was an equitable partnership between various stakeholders, including government bodies, academic institutions, and non-governmental organizations from Nepal, the UK, Canada, and New Zealand.

National Tabletop Simulation Exercise organized

To enhance emergency preparedness and response coordination at the national level and build stakeholder capacity in information management, a one-day National Tabletop Exercise (TTX) was developed and conducted based on a major earthquake scenario. The exercise engaged key stakeholders from humanitarian clusters, private sectors, security forces, the federal government, and humanitarian partners, focusing on their roles and processes in emergency management.

A stakeholder mapping analysis was conducted to review the overall risk management process among DRRM stakeholders, examining institutional setups, mandates during emergencies, and future engagement in earthquake scenarios. Based on this analysis, the primary agencies involved in disaster preparedness and response were selected for participation in the TTX.

A one-day orientation was organized for the exercise team and facilitators, detailing the processes and activities required for the tabletop simulation. Additionally, preparatory meetings with humanitarian agencies (clusters/sectors) provided information on cluster functions during an earthquake emergency and secured their commitment to collaboration.

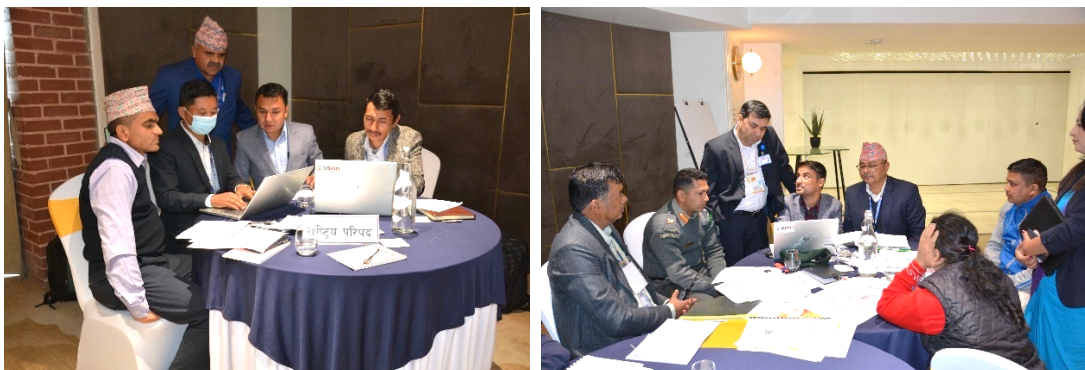


An earthquake disaster scenario was developed for the simulation exercise based on stakeholder discussions. The TTX event spanned one day, with a three-hour exercise followed by a two-hour debriefing session in Lalitpur. The program began with an opening ceremony led by NDRRMA CEO Mr. Anil Pokhrel, alongside Joint Secretary Mr. Bharat Mani Pandey of NDRRMA, Chief District Officers of Kathmandu, Lalitpur, and Bhaktapur, and other distinguished guests. Attendees included officials from the Home Ministry, Ministry of Federal Affairs and General Administration, Nepali Army, Nepal Police, Armed Police Force (APF), NGOs, and INGOs.

NSET, in collaboration with NDRRMA and the Ministry of Home Affairs (MoHA), conducted the TTX under the Tayar Nepal Program Grant (No. PUR-KTM-24-0069) as part of the 26th Earthquake Safety Day.



The exercise simulated the aftermath of a large-scale earthquake over a span of 7-8 days, presenting various scenarios and challenges. Each inject prompted responses based on the evolving situation, with predefined outcomes for each group. Injects were delivered in a logical sequence, reflecting realistic post-earthquake events and aligning with the specific roles and responsibilities of district and municipal committees, as well as provincial and federal authorities.



The TTX concluded with a debriefing session, during which participants provided feedback from facilitators, identified gaps, and formulated action plans to address those gaps. Discussions also centered on the commitments made by municipal and district officials to implement the proposed action plans.

Series of DAT, CPR-T, CSAR, Drill, TSP conducted for Different Organizations

NSET organized a series of training courses and exercises on Earthquake Basics, Drills, Fire Response, Damage Assessment, and Community Search and Rescue (CSAR). An orientation on Earthquake Basics, Drills, and Fire exercises was conducted on 26th January 2024 at Himat Hydro Power, Jhamshikhel, Lalitpur, with a total of 23 participants, including 17 male and 6 female participants. Two CSAR training courses were organized for US Embassy staff members on 4th and 5th March 2024. On 4th March, there were 24 participants, with 19 male and 5 female participants, whereas, on 5th March, there were 23 participants, including 16 male and 7 female participants. Similarly, two Damage Assessment Trainings (DAT) were conducted for US Embassy staff members on 6th and 7th March 2024. On 6th March, there were 22 participants, including 17 male and 5 female participants, while on 7th March, there were 28 participants, with 20 male and 8 female participants.

A three-day Community Preparedness Response Training (CPR-T) was conducted for the staff of Sipradi Trading Pvt. Ltd in association with Sipradian Shayata Shanthra from 7th to 9th June 2023. A total of 25 participants attended the training, including 21 male and 4 female participants. Training Skills for Professionals (TSP) was conducted for teachers of Universal Engineering and Science College (UESC) from 7th to 11th August 2023. The training included 22 male and 6 female participants, making a total of 28 participants.

A Basic Emergency Medical Response (BEMR) training was conducted for DHL, Nepal on 8th July 2023, with 24 participants, including 10 male and 14 female participants. A Fire Response Training was organized in Manpur village, Rautahat district, on 14th June 2023 to orient and train participants. NSET provided technical support to the National Disaster Risk Reduction and Management Authority (NDRRMA) for a three-day training/workshop on capacity building for rescue and preparedness, organized for government officials, security agencies, communities, and EOCs from 3rd to 5th July 2023.

An orientation on Earthquake Basics, Drills, and Fire exercises was conducted on 13th September 2023 at Winrock International Nepal under the KISAN II project, with 27 participants, including 18 male and 9 female participants. An Emergency Drills Training (Basic First Aid and Earthquake/Fire Drills) was conducted with DanChurch Aid, Lalitpur, Nepal, on 18th October 2023. It included 22 participants, with 12 male and 10 female participants. An emergency drill was also conducted at the European Union, Nepal, on 28th November 2023. A Damage Assessment Training in response to earthquake emergencies was conducted at the British Embassy, Kathmandu, Nepal, on 7th and 8th December 2023, with 14 participants, including 12 male and 2 female participants. The Disaster

Preparedness Response Plan (DPRP) for Lalitpur district was led and completed by the DPRR division. An earthquake orientation was conducted on 2nd December 2023 at Gadhwara Rural Municipality of Dang Deukhuri District in Lumbini Province.

NSET Efforts through the National Housing and Settlements Resilience Platform (NHSRP)

Launched in July 2022, the National Housing and Settlements Resilience Platform (NHSRP) succeeded in the Housing Recovery and Reconstruction Platform (HRRP), which focused on post-earthquake housing recovery. Restructured under NDRRMA, NHSRP aims to promote climate-adaptive and inclusive housing as part of Nepal's Disaster Risk Reduction National Strategic Plan (2018–2030). The plan focuses on strengthening disaster governance, enhancing preparedness, and promoting "Build Back Better" in recovery. NSET, leading technical coordination, has provided key support at central and district levels, achieving significant accomplishments.

Major accomplishments

In response to the challenges faced by earthquake-affected communities in Karnali during harsh winters, ArchSolar Designs developed a low-cost, insulated temporary shelter using local materials, providing solutions suitable for both winter and summer. A demo site at the National Innovation Center, Kirtipur, was visited by stakeholders in January 2024 to explore its relevance for ongoing shelter construction in earthquake-affected areas of Western Nepal. Additionally, NHSRP Bagmati provided virtual technical assistance to local bodies in districts like Dolakha and Makawanpur, enhancing the capacity of DRR focal persons and technical staff in data collection for disaster-affected beneficiaries. NHSRP also facilitated a stall during the 26th Earthquake Safety Commemorative Event in Karnali, promoting NDRRMA's Volunteer Management System for disaster response.

In February 2024, a workshop on Nepal's draft Multi-Hazard Risk Assessment Framework was held, discussing risk assessments for various disasters, followed by a technical workshop on earthquake hazard assessment and aftershock forecasting. NHSRP also conducted a disaster preparedness program in Chitwan, focusing on fire-risk reduction and firefighting techniques, attended by over 300 students. Technical training on Transitional Shelter Construction Guidelines was conducted in Jajarkot, enhancing the capacity of engineers and sub-engineers for housing recovery and reconstruction. A similar training in Bheemdatt Municipality focused on earthquake-resistant design and building bylaws, certifying 25 participants.

In March, a tripartite MoU was signed for mason training to support earthquake-resistant buildings in Jajarkot, while technical training on temporary shelter construction was conducted in Rukum West. NHSRP Bagmati facilitated a technical session on building code implementation and NDRRMA's reconstruction guidelines in Sindhupalchowk. Virtual support was extended to districts like Dolakha, Ramechhap, and Sindhupalchowk for data management and beneficiary enrollment, including support for ongoing reconstruction in Makawanpur.

An orientation in Rasuwa focused on retrofitting, reconstruction, and tranche disbursement procedures, while training trainers on mason training for earthquake-resistant buildings was held in Bajhang. Virtual orientations were also conducted on housing reconstruction guidelines and survey tools for Khatyad Rural Municipality, Mugu, and for frontliners in Saptari. NHSRP Karnali supported the preparation of disaster response plans, with a meeting on the MPRP and DPRP 2081, attended by various stakeholders and security forces.

8. Major Events of the year

26th Earthquake Safety Day

Nepal commemorated the 26th edition of ESD with the theme: "Let's Promote the Use of Local Resources and Technology for Earthquake Resilient Structures!" emphasizing the use of local materials and safer construction technologies to make disaster resilient society. The National Disaster Risk Reduction and Management Authority (NDRRMA) under the Ministry of Home Affairs (MoHA) organized, and Chandragiri Municipality, Kathmandu, hosted the 26th ESD National Programs this year. The NSET serves as the Member Secretary in the event. The ESD events, as in previous years, were conducted nationwide through collaborative efforts of various stakeholders.

National Meeting

Nepal observed the 26th National Earthquake Safety Day on January 16, 2024, with a variety of activities held nationwide. The National Meeting, inaugurated by Honorable Prime Minister Pushpa Kamal Dahal 'Prachanda,' took place at the Naikap football ground in Chandragiri, Kathmandu. In his address, Prime Minister Dahal emphasized the importance of taking proactive measures and learning from past earthquake tragedies to prevent future disasters. At the National Meeting in Chandragiri, Deputy Prime Minister and Home Minister Honorable Narayan Kaji Shrestha, who chairs the ESD National Organizing Committee, called for collaborative efforts in disaster reduction and strengthening local resilience.

Ms. Sita Gurung, Minister for Urban Development, also addressed the program, stressing the necessity of precautionary actions, preparedness, and safer construction practices to mitigate the devastating impact of recurring earthquakes in Nepal. She pointed out that past earthquakes have taken a significant toll on lives and property. Chandragiri Municipality hosted the 26th ESD National Meeting, which was chaired by Mayor Mr. Ghanashyam Giri. Various prominent figures also spoke at the event.

Mr. Anil Pokhrel, Executive Chief of the National Disaster Risk Reduction and Management Authority (NDRRMA), shared that the main objective of Earthquake Safety Day is to raise public awareness about earthquake risk reduction and promote the construction of safe housing across the nation.

Ms. Hanaa Singer-Hamdy, Resident Coordinator of the UN in Nepal, highlighted the importance of linking earthquake preparedness with efforts to minimize loss of life and property. Mr. Surendra Mohan Shrestha, Chair of the ESD Publicity Sub-Committee and Director General of the Department of Urban Development and Building Construction (DUDBC), pointed out that human casualties and property loss are often caused by the collapse of buildings and infrastructure. Therefore, building earthquake-resistant structures is essential.

Mr. Surya Narayan Shrestha, Member Secretary of the ESD National Organizing Committee and Executive Director of NSET, emphasized the need to continue dedicated efforts in earthquake risk reduction, building on the lessons learned from past events. The program was attended by government officials, professionals from various organizations, and dignitaries from diplomatic missions.



Earthquake Memorial Meetings

As part of the 26th Earthquake Safety Day (ESD), Earthquake Memorial Meetings were organized in Kathmandu and Lalitpur in memory of 1934 Great Nepal- Bihar Earthquake on Tuesday, January 16, 2024. Kathmandu Metropolitan City (KMC) hosted a Memorial Meeting held in historical Earthquake Monument standing at Bhugol Park. The Memorial Meeting was organized to pay tributes to all those who lost lives in all the past earthquakes in Nepal and to commit to work for enhancing earthquake safety of Nepali communities.

The program was attended by Hon. Deputy Prime Minister and Home Minister Mr. Narayan Kaji Shrestha, Deputy Mayor of Kathmandu Metropolitan City, Ms. Sunita Dangol, Chief Executive of National Disaster Risk Reduction and Management Authority Mr. Anil Pokharel, Executive Director of NSET Surya Narayan Shrestha, elected Representatives, Government Officials, Senior Officials of Security Agencies, DRR Practitioners, Volunteers, Community representatives and many more.

Meanwhile, at a similar memorial meeting also held at an Earthquake Monument at Patan Durbar Square in Mangal Bazaar on the evening of January 16, 2024.



Chief guest, Deputy Prime Minister and Minister for Home Affairs Honorable Mr. Narayan Kaji Shrestha paying tribute to deceased of the past earthquakes in Bhugol Park, New Road, Kathmandu.



Earthquake Safety Rally

With the view to elevate the level of public awareness, perception, and attitude towards earthquake risks as well as preparedness and to promote and encourage safer construction practice, Earthquake Safety Rallies was organized in Chandragiri as part of 26th Earthquake Safety Day (ESD) on Tuesday, January 16, 2024.

The Earthquake Safety Rallies, started from Chandragiri Municipality office at Balambu with the awareness-raising messages and converted into Earthquake Memorial Meeting organized Naikap Football Ground at Naikap. The rally was inaugurated and led by Ghanashyam Giri Mayor of Chandragiri Municipality.

The rallies were attended by various Rank and File Government Officials, Elected Representatives, Officials and Participants from various organizations including Schools, Colleges, Business Community, Non-Government Organizations, Security Personnel, Professionals & Activists of Disaster Risk Reduction and People from the Community.



Mayor of Chandragiri Municipality, Mr. Ghanashyam Giri cutting ribbon to inaugurate earthquake safety rally in Balambu, Kathmandu.

Awareness Raising Events

As part of 26th ESD 2024, various awareness events, namely, Street Drama, Earthquake Safety Demonstration, Landslide demonstration and Earthquake Safety Exhibition and awareness dance were held in Naikap Chandragiri Municipality, Kathmandu.





Earthquake Safety Exhibition

To disseminate information regarding measures related to Earthquake Risk Reduction and Safer Reconstruction to the general public as well as other stakeholders, a three-day **Earthquake Safety Exhibition** was organized at Naikap Football Ground, Naikap, Kathmandu during January 16-17, 2024. Deputy Prime Minister and Minister for Home Affairs, Mr. Narayan Kaji Shrestha inaugurated the Exhibition. Along with Minister for Urban Development, Ms. Sita Gurung, Executive Chief of National Disaster Risk Reduction and Management Authority (NDRRMA), Mr. Anil Pokhrel, government officials, experts in the fields of Disaster Risk Reduction in Nepal, DPM Shrestha and Minister Gurung observed all the stalls on the occasion.

During the exhibition, more than 1000 visitors visited different stalls of the exhibition. Altogether 28 stalls including Nepal Army, Armed Police Force, Nepal Police, Red Cross, DPNET, NSET, DUDBC were placed in the exhibition where visitors could get the information and ideas in regard to emergency risk management and disaster risk management efforts.



Honorable Deputy Prime Minister and Home Minister inaugurating the Earthquake Safety Exhibition

National Symposium on Earthquake Risk Reduction and Management in Nepal

As part of the 26th Earthquake Safety Day (ESD) observance, the National Symposium on Earthquake Risk Reduction and Management in Nepal was held in Kathmandu on February 1, 2024. The symposium, organized at the Bougainvillea Banquet Hall in Tripureshwor, Kathmandu, focused on various aspects of earthquake risk reduction, safer reconstruction, and reviewed key Disaster Risk Reduction (DRR) initiatives. The discussions centered on the Jajarkot Earthquake, earthquake response, post-earthquake reconstruction, and future directions for DRR and management in Nepal.

This year's symposium featured three thematic sessions:

- Jajarkot Earthquake Response and Relief
- Studies on Earthquake Damage and Impacts
- Earthquake Recovery and Reconstruction

The Department of Urban Development and Building Construction (DUDBC) and the National Society for Earthquake Technology (NSET), in collaboration with various government and non-governmental organizations, organized the symposium. Around 170 participants, including DRR stakeholders, professionals, teachers, and students, attended the National Symposium 2024.

The symposium commenced with an inaugural session, where invitees from ministries, government departments, and other government and non-governmental institutions shared their perspectives on the significance of the program.



On this occasion, experts and professionals emphasized the need for more collaborative efforts in disaster risk reduction and management to address the challenges posed by various phenomena such as pandemics, climate change, and recurring earthquakes in Nepal.

In his address at the opening ceremony, Mr. Anil Pokhrel, Chief Executive of the National Disaster Risk Reduction and Management Authority (NDRRMA), stated that Nepal had experienced two major earthquakes this year—in Bajhang and Jajarkot—as well as earthquakes in Bajura and Doti last year. He emphasized that these earthquakes are not the end, but merely a preview of what could come, and that NDRRMA, along with the entire political leadership, is committed to determining the appropriate response to such disasters.

The program chair, Mr. Ghanashyam Giri, Mayor of Chandragiri Municipality, expressed his sincere gratitude for the opportunity to host the national meeting of the 26th Earthquake Safety Day Program in Chandragiri Municipality. He highlighted the traditional earthquake-resistant construction practices in the Kathmandu Valley and underscored the importance of incorporating earthquake-resistant construction technology into modern building practices to create a resilient city.

Mr. Bharat Mani Pandey, Joint Secretary at NDRRMA, spoke about the initiatives undertaken by NDRRMA in Disaster Risk Reduction and Management in Nepal. Ms. Monika Jha, Deputy Director-General of the Department of Mines and Geology, stated that Nepal is situated in a seismic risk zone, and this risk is unavoidable. The event began with Dr. Amod Mani Dixit, President of NSET, outlining the objectives of the National Symposium and welcoming the participants to the program.

9. Monitoring Evaluation and Learning

The various projects and activities conducted by NSET are continuously monitored and evaluated to ensure a result-oriented and agile approach. Monitoring and evaluation at NSET allow for assessing the effectiveness of activities and enable timely development and adjustments. To establish a systematic and effective monitoring and evaluation framework, NSET has developed a range of rules and guidelines during this period.

In recent years, NSET's Monitoring, Evaluation, and Learning (MEL) team has focused on establishing a robust measurement, evaluation, and learning system. The NSET-MEL team has been instrumental in developing log frames for MEL/GESI frameworks and other related documents for both new and ongoing projects at NSET.

Orientation for the Program Team

The activities conducted in each program are entered into the Management Information System (MIS) of NSET. To ensure accurate data entry and verification procedures, an orientation session was conducted for all the teams currently working on different programs. The orientation covered instructions on how to enter data into the MIS and how to verify the methods and procedures. The data operators and data managers were divided into two groups during this orientation.

Field Monitoring Visit

NSET has conducted in the post distribution monitoring visit to Maiwakhola RM & Sidingwa RM of Taplejung districts under NSET/REACT/START FUD Project.

Data Analysis and Report Preparation:

- ➔ Data digitization and analysis of Response Fire-Rautahat NSET/Start Fund Nepal Alert N-12 Program.
- ➔ Support on compilation of data/information of Jajarkot Earthquake-Situation Status-Damages of Government, Private and School Buildings & Relief Data Analysis.
- ➔ Survey questionnaire digitized in Kobo Toolbox platform, survey monitoring, data cleaning, coding, analysis, generate results in table & diagrams and support in drafting report for the survey "*Post disaster Learning Continuity-Damage and Need-Assessment of School due to Jajarkot Earthquake*"- Total 746 schools surveyed with 2,122 buildings and 6,166 classrooms damage information. This survey includes a) School Mapping Survey, School Physical Damage Survey, due to Jajarkot Earthquake, b) School Building Damage Evaluation & c) School Learning Continuity Survey. The project was funded by UNICEF.
- ➔ Survey questionnaire digitized in Kobo Toolbox platform, survey monitoring, data cleaning, coding, analysis, generate results in table & diagrams and support in drafting report for the survey "*Assessment of Damaged Public Buildings in Jajarkot District and Recommendations on Temporary Solutions for Damaged Facilities.*" The project was funded by UNDP.
- ➔ Prepared Report on *Evaluation Survey of 21st Earthquake Safety Day Main Program (2024)* and Report on *Evaluation Survey of Symposium Programs* at Kathmandu-Bagmati and Deukhuri-Lumbini Province.
- ➔ Questionnaire Digitization in Kobo Toolbox platform, Survey data monitoring, data cleaning, coding & analysis, data compilation from secondary resources and support on drafting final report of the "*Building Compliance Survey of selected households at Lalitpur Metropolitan City*".

Project Support:

NSET has finalized and developed of Monitoring and Evaluation Plan, Baseline Survey questionnaire for selected indicator, questionnaire digitization in Kobo Toolbox, deployed for survey & Online surveyed data monitoring of Institutional Capacity Strengthening for Safe Schools and Climate Change Mitigation and Adaptation Action in Nepal (UNICEF's SAFE School Program).

Tomorrow's Cities

- ➔ Developed MEL instrument to collect participants feedback of the workshops.
- ➔ Conducted participant's feedback survey in "Validation Workshop on Visioning Scenario Development for Tomorrow's Rapti"
- ➔ Conducted Facilitator's feedback survey in "Validation Workshop on Visioning Scenario Development for Tomorrow's Rapti"
- ➔ Collected overall workshop evaluation from the participants in "Validation Workshop on Visioning Scenario Development for Tomorrow's Rapti"
- ➔ Conducted Pre-test and Post tests in Online Training of Module 1 to Module 4.
- ➔ Conducted participant's feedback survey in "Risk Agreement Workshop"

NSET Management Information System

NSET has created the Integrated Management Information System (MIS) to assist in the collection, storage, analysis, and decision-making process of all the activities carried out by NSET. The purpose of this system is to facilitate access to company data for future decision-making and advocacy. It provides information and support to managers, team leaders, and other staff members to make effective decisions and provide feedback on day-to-day operations. Currently, data entry for each activity is being done in this system.



NSET
Disaster Resilient Communities in Nepal

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