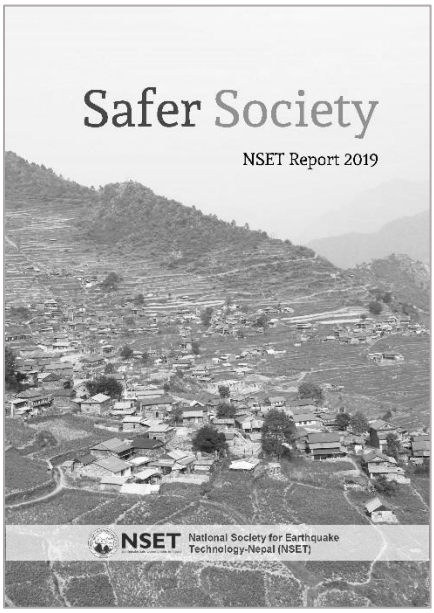
Safer Society

NSET Report 2019

NSET
Earthquake Safe Communities in Nepal

National Society for Earthquake Technology-Nepal (NSET)



Safer Society
NSET Annual Report 2019

National Society for Earthquake Technology-Nepal (NSET)

Cover Photo (Front)
Sertung of Dhading, once rattled by 2015 Gorkha Earthquake, completes reconstruction.

Cover Photo (Back)
Glimpses of NSET Activities.

June 2019

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Message from the President

Mr. Varun Prasad Shrestha

This is our honor to present NSET Report 2019. This report is a set of achievements and lessons from NSET's endeavors towards enhancement of disaster resilience of Nepal during the year 2018-2019. NSET grandly celebrated its 25 Years of journey; a Silver Jubilee Year and now enters into 26th Year of Collaboration, Commitment and Actions towards building resilient Nepal. This annual publication is expected to assist DRR stakeholders to accurately evaluate NSET's work vis-a-vis its stated mission and vision statements.

NSET strongly believes that the earthquake resiliency of communities can be achieved through enhancing awareness and building capacity by helping them to understand seismic risk and providing them with simple and practical methods in mitigating the risks. We are proud of our works with the wider acceptance of concepts, methodologies and safety measures NSET has been facilitating, developing or propagating for the people in Nepal and the region; and also for the trust made in us.

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

On behalf of the NSET Executive Committee, I would like to thank all Government agencies, civil organizations, international agencies and individuals for their initiatives and partnerships with NSET in their Disaster Risk Management Programs. In conclusion, I would personally like to commend all the staff at NSET for their hard and dedicated works. With your continued and sustained efforts, I'm sure we can achieve NSET Vision of 'Earthquake Safe Communities in Nepal'.

Thank you!

Message from the General Secretary

Dr. Amod Mani Dixit

This is our honor to come to our audience with the Annual Report-2019. We have completed 26 golden years in serving Nepal and Nepali in making the communities resilient. Indeed 26 years of concerted efforts in disaster risk reduction and earthquake risk mitigation in collaboration with government authorities, national and international partners, and the communities was a great opportunity for NSET. We are proud and quite satisfied to say that, now, considerable progress can be witnessed in DRR, particularly on preparedness, capacities to respond emergencies and recovery efforts in Nepal.

Last year we celebrated Silver Jubilee of NSET's journey followed by Risk2Resilience (R2R) International Conference on Experiences of Earthquake Risk Management, Preparedness and Reconstruction which directed the path to Nepal's Disaster Risk Management efforts; what we call the Resolution of R2R conference. The last year we traveled through was the year to execute the conclusions derived from R2R. We admit that NSET efforts have been directed towards implementing the mandates of R2R and we will continue in the years to come as well. Hopefully, our partners and our target people are satisfied with our effort and their consequences.

It's not a matter of self-satisfaction by doing the things by ourselves. We have numerous target groups and stakeholders to taste the fruits, that we have been providing standing as a tree. It's up to our esteemed target groups and partners to judge us.

NSET is on the way to implement the mandates of different global platforms and directed frameworks. In Nepal, newly formulated policies regarding DRR and earthquake risk mitigation as per the federal structure has well recognized the value and functions of civil society organizations like us. We have the challenge, how we can embed our activities in the line of formulated policies and how we can dive on the way to improve nation's position in DRR. Definitely, decentralization being practiced in Nepal is a great opportunity to strengthen the DRR efforts at local level both in performing development works and other aspects of prosperity movement.

These days, innovation is primary subject of focus to NSET.We are encouraging young scientists because an assortment of energetic scientific minds and use of advanced technology will also support to synthesize and sustain the scientific policies in disaster management sector. Young academia and practitioners in the field of DRR can work collaboratively to better understand the different aspects of DRR practices.

As usual we vow to cooperate and collaborate with you all. We request our Government Agencies, donors, partners, Urban and Rural Municipalities and Wards of every Municipal units to keep their eyes on us regarding our working culture and activities we perform. We appeal all the concerned to watch and guide NSET by which we can contribute better in making our communities resilient to future disasters.

Thank you!

Message from the Executive Director

Mr. Surya Narayan Shrestha

NSET has traveled its 26 years of journey towards building resilient communities. It was a great opportunity for us to serve the nation and the region. As the Executive Director of NSET, I congratulate the staff and our stakeholders on this occasion. I thank the members of the Executive Committee for the guidance, monitoring and for directives that have helped NSET to productively engage in the task of disaster risk management as per the aspirations of our mission, vision, objectives, strategies and values.

We are proud at the level of trust that NSET has built up with our national and international partners, from the informal groups to the numerous municipalities, districts of Nepal, from the individual home-owners to the officials of government, bi-lateral agencies, donor institutions, national and international finance institutions, private sector businesses, Nepalese diaspora and their organizations. This has been achieved because of the values we pursue, the professional ethics and technical standards we adhere to, the strict financial and performance discipline we exercise, and also because of collective belief in our vision, mission and objectives.

It's been more than 4 years of devastating Gorkha Earthquake 2015; as there was a big responsibility to rebuild large number of private houses, schools, hospitals and heritage sites, by now Nepal is endeavoring to accomplish the reconstruction activities. More than half of all the damaged structures have been reconstructed and one can witness significant progress in the housing reconstruction, reconstruction of health facilities and education facilities. Besides, the efforts are focused in expediting the process.

Our reconstruction should help reduce potential earthquake risks; and the efforts from government, non-governmental agencies and concerned authorities should continue for better and safer construction in future too. We, from NSET, are committed to continue the same. Now, NSET efforts are directed towards paving the way to institutionalize the efforts and practice made on reconstruction particularly at local levels. And of course, our efforts to support on implementing the building code in municipalities, enhancing the disaster response capacities and community based disaster risk management will be enhanced and continued.

Safer Society, a consolidated annual report of NSET, this year carries the outputs, outcomes and impact of NSET implemented projects during June 2018 – May 2019 along with the yearly performance of NSET in terms of financial and organizational development. This publication reports on NSET's fruitful collaboration with national and international agencies, academia and research institutions not only for ensuring high standards of our work in Nepal but also in our collaborative work in exploring the solutions for hazard risk reduction globally. This report wants to admit NSET efforts in line with Nepal's commitments to the Sendai Framework for DRR, in parallel with the national pursuit of devolving the DRR responsibility and authority to the rural and urban municipalities, and in line with the national commitments made by Nepal towards achieving the Sustainable Development Goals.

We also want to reassure our friends and well-wishers, federal and local authorities, scientists and masons, and the people that we will continue in years to come to serve the nation by continuing doing what we did so far, and will add new dimensions to our services. We request for continued understanding and support from all for your support, critique, suggestions and encouragements for ensuring that our work continues to serve the nation meaningfully.

Thank you!

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Section 1 About NSET

Introduction

NSET was established in 1993 by a group of professionals dedicated to reduce earthquake risk of Nepal. It was registered with the Government of Nepal in 1994 as a non-governmental organization. It is a multi-disciplinary professional society of professionals belonging to various physical and social sciences related with aspects of earthquake risk management. NSET is the national member of the International Association for Earthquake Engineering (IAEE), and it also sits in various regional and global networks on earthquake and disaster risk management.

Vision

Earthquake Safer Communities in Nepal.

Mission

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

Objectives

NSET has a three-pronged strategy:

- To sensitize, educate and facilitate all institutions to undertake organized approaches to managing and minimizing earthquake risk by transferring information, technical knowledge and skills, and helping them to mobilize resources for this purpose.
- To advocate for favourable and supportive policies, legal mechanisms, increased investments and a unified and effective national earthquake response mechanism and a system of incentives and disincentives to enable communities to become earthquake safe.
- To build a strong, well-resourced and credible institution that will be the national focal point for earthquake risk management actions, a facilitator and coordinator in the network of earthquake disaster management, and a source of all available information on the subject.

NSET's Values

NSET has been guided by its institutional beliefs, values and principles developed internally and also adopted from good practices of various institutions; local, regional and/or global. Bringing "substantial change in the application of technology to the many facets of earthquake disaster management for saving the lives of the people" has remained the guiding philosophy of NSET ever since its inception.

NSET,

- Is concerned with the ever-growing earthquake risk in the country, and is deeply convinced in the possibility of making a change despite the generally adverse economic condition of the

country, and is determined to achieve reduced earthquake risk in Nepal with time.

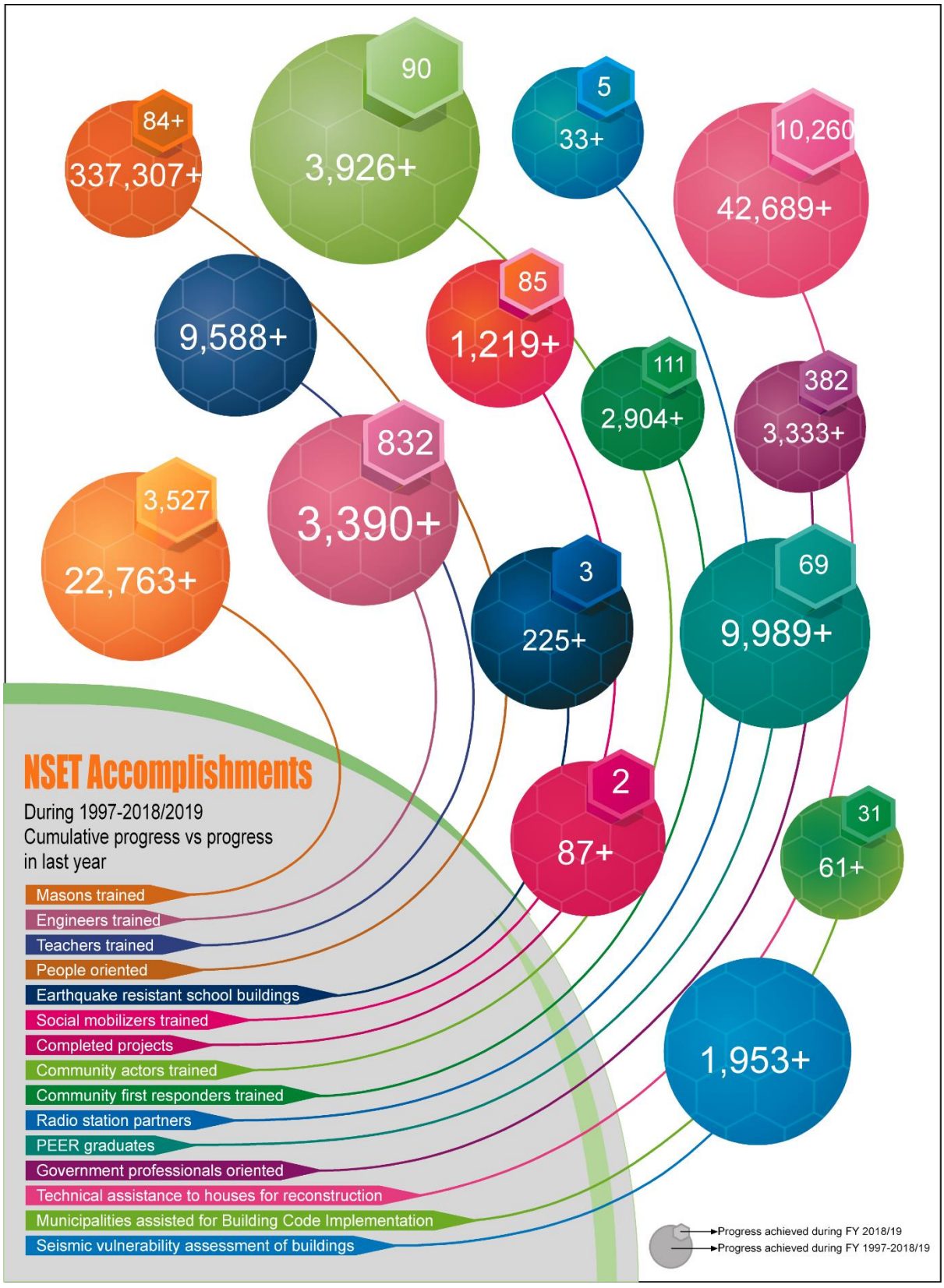
- Firmly believes that Nepalese initiatives are primary for achieving any risk reduction. International assistance can, at best, help the local initiatives.
- Will act as a working platform for all, national or international, irrespective of caste, creed, religion, age, gender, race, to contribute towards reduced earthquake safety in the country.
- Will not endorse political parties or candidates, political philosophies or policy issues other than those directly related to the primary mission of reducing death and injury from earthquakes in Nepal, but will engage in political processes, as necessary, to advance earthquake safety.
- Will operate as a NGO governed by highest ethical/professional standards, uphold the principles of integrity, including transparency and accountability in the use of funds, and decisions regarding projects, people and remuneration.
- Will not confront or compete with any individual or organization, but will facilitate the work of other organizations and will help them and individuals develop the skills needed for earthquake risk mitigation; will participate developing network and synergy.
- Is non-judgmental. It understands the overriding national developmental priorities such as basic and primary health, education, infrastructure, etc. but firmly believes in the benefits of integrating mitigation in development efforts. Therefore, it will try to influence new investments by multilateral and bilateral agencies to consider earthquake -resistance adequately in their investments in Nepal.
- NSET will seek, translate and transfer foreign and domestic knowledge and research results to the earthquake problem in Nepal, as also to bring state-of -the -act earthquake technology to Nepal.

NSET AGM Concludes with Focus on Working Approach in the Context of Federalization

NSET held its Annual General Meeting (AGM) on September 26, 2018. NSET General Secretary, Dr. Amod Mani Dixit presented Progress Report on NSET's 25 years' achievements with a main focus on past one year, its completed and ongoing programs, challenges and way forward. On the occasion, the Treasurer of NSET Executive Committee, Mr. Yogeshwor Krishna Parajuli submitted Financial Statements of the organization including Auditor's Reports for the last Fiscal Year. A total of 26 general/life members including Executive Committee Members attended the meeting. The General Meeting unanimously endorsed both the Reports of General Secretary and Treasurer. The AGM also appointed new Auditing Firm for next Fiscal Year.

Participants of NSET's 25th Annual General Meeting (AGM) held on Sep 26, 2018.

NSET Accomplishments



Section 2 NSET Efforts in Past One Year (June 2018–May 2019)

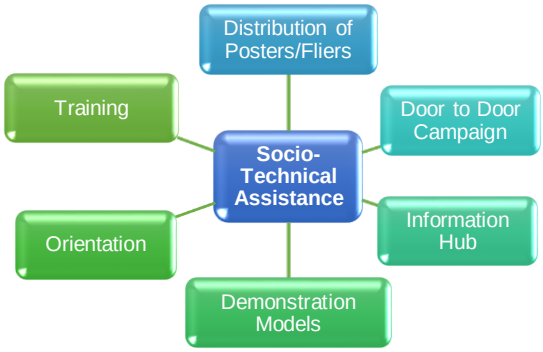
2.1 Build Back Better: Assisting Post Gorkha Earthquake Reconstruction

In the aftermath of the 2015 Gorkha Earthquake and its subsequent aftershocks, reconstruction of partially and fully damaged houses, led by the National Reconstruction Authority through owner driven reconstruction has gradually picked up pace. Marking the 4th Aanniversary of the Earthquake in April 2019, Nepal has already constructed 57% of the flattened houses while a large portion are still being reconstructed. Similarly, retrofitting of the partially damaged houses, albeit late, has started to gain pace.

Kafal Chhap of Khalte Dhading witnesses completion of reconstruction as all 60 damaged houses have been reconstructed

After the earthquake, while the country was reeling into an abyss of political instability and economic blockade, the reconstruction process was gradual, with high priority set for the formulation of appropriate policies, guidelines and manuals to guide the reconstruction. As such, owner driven approach was adopted for reconstruction primarily because of the social acceptability and sustainability observed in other post-earthquake reconstruction in developing countries. There was huge mobilization of technical professionals, to provide the necessary assistance and carry out inspections of the constructed buildings, in part to ensure earthquake resistant construction, and also social mobilizers massively mobilized for awareness raising and as a support mechanism for distribution of government housing grant. Suitable policies were promulgated to cater to the vast assortment of issues of earthquake affected people. A large percentage of the progress has only been achieved in the last couple of years. In comparison with reconstruction in other countries, notably India (2001) and Pakistan (2005), the current progress seems a bit slow. However, the huge diversity of construction practices, socio economic conditions and topography of earthquake affected communities required slow and steady process to resolve key issues.

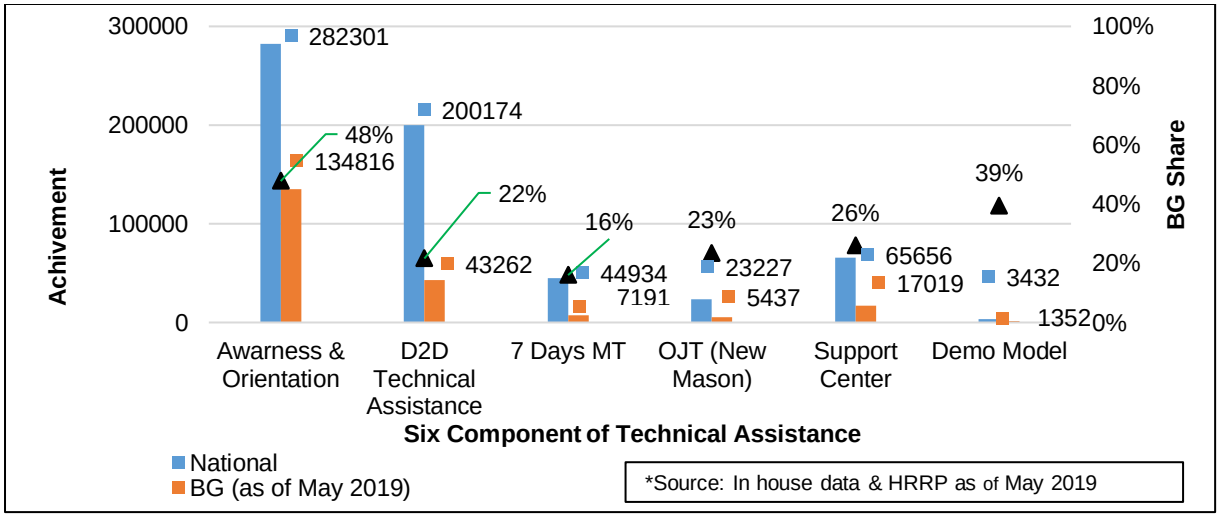
Baliyo Ghar



NSET started in 2015 implementing 5-year Housing Reconstruction Technical Assistance program known as "Baliyo Ghar Program" which is key part of USAID/Nepal's Reconstruction protfolio. Designated to help home owners and communities rebuilding in a way that increases their resilience to future disasters, Baliyo Ghar is closely aligned with Nepal Government's owner-driven housing reconstruction approach.

Baliyo Ghar Program aims at supporting the earthquake affected communities for earthquake resistant reconstruction through comprehensive socio-technical assistance. In the longer term, the program envisions establishment of disaster resilient construction practices in Nepal. Although the program primarily works in selected municipal units in Dhading, Dolakha, Nuwakot and Kathmandu, it has been able to support the reconstruction of all earthquake affected areas, through technical assistance in policy formulation, capacity building of engineers, architects and masons and enhancement of awareness regarding disaster resilient construction. A large portion of awareness raising and capacity enhancement of local communities is done through the mobilization of a mobile team, one or more in each earthquake affected community, to support the reconstruction of the beneficiaries through door to door technical assistance.

The program completely aligns with the reconstruction principles adopted by government and has made multitude layer of achievements resulting output, outcomes and impact. The progress so far during part of 3 and half years has been remarkable as shown:



Baliyo Ghar's Share of Reconstruction in comparison with National Reconstruction.

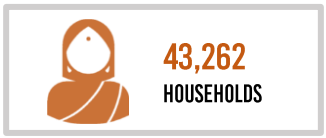
Baliyo Ghar Accomplishments

During the initial period of reconstruction efforts, which is being led by NRA, where NSET played a key role in bringing in learnings from its involvement in post-earthquake reconstruction elsewhere mainly in developing of appropriate policies and procedures, eastablishing sustainable mechanism developing technical capacity of stakeholders and raising awareness. NSET assisted NRA in developing beneficiary contract, information booklets, and guidelines in receiving government tranches in the early days of reconstruction.

Nearly a year after the earthquake, technical personnel were deployed by the NRA to earthquake affected communities. This large mass of

engineers, sub engineers and assistant sub engineers needed training on appropriate construction techniques, which was technically assisted by NSET through its Baliyo Ghar Program. In the subsequent months, focus was given to the enhancement of awareness of all stakeholders regarding earthquake resistant construction, and reconstruction policies and guidelines. As a number of houses built before the deployment of technical personnel did not meet the prescribed minimum requirements, the Correction and Exception manual was developed which included exceptions in construction or steps for administering the required correction in a non-compliant house. In the forthcoming period, different technical manuals and policies were promulgated to cater to the needs of earthquake affected communities. As the reconstruction of fully damaged houses has gained a momentum at the end of four years, focus is now being given to retrofitting of the existing partially damaged houses. Different manuals, guidelines and training curricula are now being developed for the same as well, and discourse is ongoing to find an appropriate approach to expedite retrofitting. Similarly, priority has been given to the sustainability and institutionalization of the efforts and learnings of reconstruction, at all levels of governance, towards preparedness for future disasters and developing a disaster resilient community.

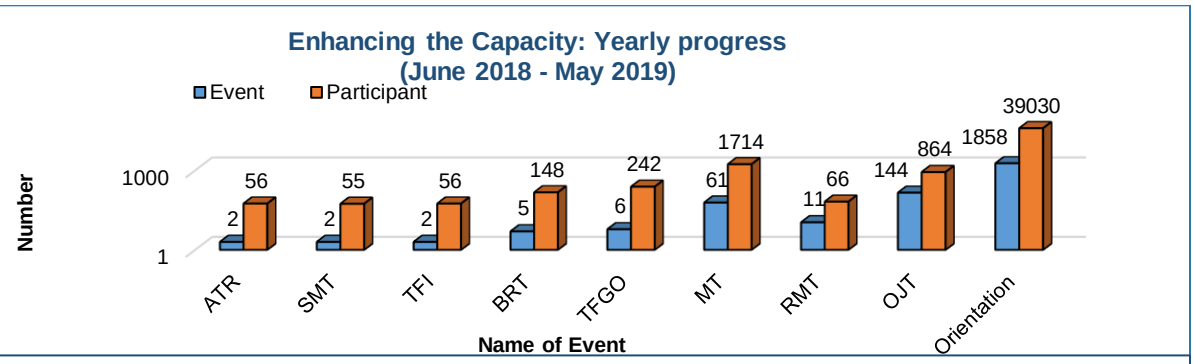
Retrofitting, in context of Nepal's rebuilding process, plays vital role in sustaining achievements of earthquake risk reduction efforts. What's more important is the retrofitting of low strength masonry houses which is one of the largest prevailing housing stock in Nepal. For a long period of time, retrofitting of stone masonry buildings was considered as an uneconomical and technically unfeasible option. The lack of awareness and skills required for retrofitting resulted in loss of confidence in the technique as a whole, and without adequate demonstration, retrofitting would not be scaled up despite numerous discourse and discussions. Thus, with view to promote retrofitting in stone masonry buildings and train masons and engineers, Baliyo Ghar, currently in its fourth year of implementation has started a number of activities. There are several ongoing trainings on retrofitting of stone masonry buildings for masons, engineers as well as orientation and demonstration visits for beneficiaries as well as government officials at the local, district and central levels. This comprehensive approach including all concerned stakeholders is expected to increase the awareness and confidence, enhance skills and create a demand for retrofitting in earthquake affected areas, which eventually shall provide a springboard for escalating retrofitting in other parts of the country.



Baliyo Ghar has been providing socio-technical assistance to earthquake affected communities in Dolakha, Dhading, Nuwakot and Kathmandu. Running in its 4th year of implementation, till May 2019, NSET-Baliyo Ghar Program has trained 12,621 local masons, 3800 technical professionals and 562 social mobilizers involved in reconstruction activities. Total 134,816 beneficiaries have been oriented and 43,000 households have been provided with technical assistance directly in rebuilding their houses to resist future earthquakes. Besides these, 5430 more new masons have been produced with the implementation of 910 On-the Job Training (OJT).

Accomplishments of Past Year

Designed to help homeowners and communities rebuild in a way that increases their resilience to future disasters, the community level socio-technical assistance is a significant component of the program. Massive numbers of trainings targeted towards enhancement of capacities of all stakeholders have been conducted. Local masons, engineers and technicians working in earthquake affected areas, social mobilizers, government officials, elected representatives and community people have been trained on earthquake resistant construction techniques through a wide array of activities. In the grass-root level mobile teams comprising of an engineer, social mobilizer and construction technician support the process. Retrofit has been the major activity being carried out during 4th year of program implementation, however, like the previous years, significant number of capacity building acitivities (*see bar graph below*) have been carried out in this year too.



ATR = Advance Training on Retrofitting
SMT = Social Mobilizer Training
TFI = Training for Instructors
BRT = Basic Training on Retrofitting

Massive Awareness through Mass Media and New Media

The program is producing a variety of education and outreach materials on safer construction practices, including mass media particularly in collaboration with TV Channels and Radio Stations. Baliyo Ghar TV Program and Radio Programs have been very effective means to disseminate appropriate message in appropriate time regarding earthquake resistant technology, process and to raise awareness, showcase the success stories of reconstruction, and dig out the gaps to get them solved. Under the program, NSET collaborated

Mayor of Kageshwori Municipality Mr. Krishna Hari Thapa, Chief of Shivapuri Rural Municipality, Mr. Ram Krishna Thapa and Deputy Executive Director of NSET, Dr. Ramesh Guragain in panel of one of the Baliyo Gar TV Program Episodes

with 4 television channels and 14 radio stations from 4 districts in the initial phase of program implementation. But now, program is partnering with 2 television channels; Nepal Television (state-owned) and Kantipur Television (Private) and 4 radio stations; Ujjaylo 90 Network (Kathmandu), Radio Dhading (Dhading), Hamro Radio (Dolakha) and Radio Jalapa (Nuwakot).

During the period of June 2018 – May 2019, altogether **40 episodes of television program** produced and broadcasted weekly twice from 2 television channels. Likewise, **292 radio programs** were produced and broadcasted twice during the period. IEC materials with the earthquake safety message and tips for preparedness have been distributed in the program areas in wide number. Using the new media like Facebook, Twitter and Youtube, Baliyo Ghar program has been propagating reconstruction related messages and collecting feedback from the audience as well.

Field Visit of Prominent Professionals and its Impact

In the past three and half years of program implementation, Baliyo Ghar Program has been able to facilitate for high level visits and interaction with the earthquake affected communities in program areas. The observation visits from senior government officials, and other prominent persons in the program areas provided the required grandeur to the program's approaches and objectives in the eye of the stakeholders.

The observation visits from senior government officials, including the Chief Executive Officer (CEO) of NRA, Mr. Sushil Gyewali and the project chiefs of NRA/CLPIU among other officials were conducted. Similarly, Ambassador of US to Nepal, Mr. Randy Berry, visited an earthquake affected community in Dolakha and interacted with the beneficiaries. Vice president of Work Bank, Mission Director of USAID, Senior officials of the DR4 office of the USAID have also visited Baliyo Ghar program. The visits from senior professionals within NSET itself, including the Executive Director, Dy. Executive Director and other directors on a frequent basis is conducted.

CEO of NRA, Mr. Sushil Gyewali and US Ambassador to Nepal Mr. Randy Berry visiting Majhigoun of Dolakha

CEO Mr. Gyewali and Ambassador Mr. Berry visited a house of children which was rebuilt through the OJT of Baliyo Ghar program in Majhigoun of Dolakha. Both the visiting officials expressed their satisfaction to see the reconstruction going very well in Majhigaun, and they thanked local masons & Baliyo Ghar team for the support.

On the one hand through the engagement of high professionals in the visits, Baliyo Ghar Program was able to transmit and transcribe the critical insights regarding reconstruction in Nepal. On the other hand, the visit became fruitful in making the local authorities and community people more receptive on program components which strengthened the local coordination. Likewise, it was a great opportunity for the program team to showcase their efforts and impacts that they have been able to generate in their working areas. Further, this also allowed the personnel to gather knowledge on related issues from senior experts, thus aiding in their capacity development towards more efficient work.

JOURNALISTS DISCUSSED THE ISSUES OF RESILIENT RECONSTRUCTION AND RETROFIT

Under Baliyo Ghar Program, NSET has been frequently holding discussions with the journalists to build better understanding among them particularly on reconstruction process, good practices of reconstruction, gaps identified and specific issues that comes across. In this year too, NSET discussed with the journalists from Dhading district. The discussion was focussed on the roles of mass media for resilient reconstruction and successful implementation of Retrofit. A **Media Workshop on Reconstruction and Retrofit** was organized in DhadingBesi on 8 Feb, 2019. In enhancing the knowledge on the concept, technology and viability of Retrofit among the journalists and sharing the ideas in implementing Retrofit On-the Job Training (OJT) in Dhading, the workshop became an ample platform.

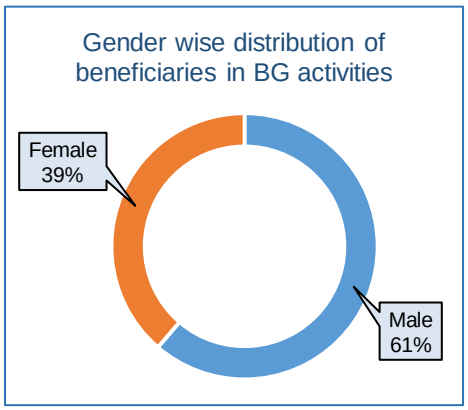
Media Workshop at Dhading

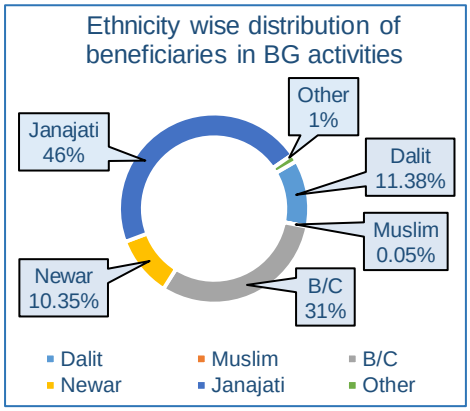
During the workshop, various working journalists based in Dhading shared their experiences of reporting in the post-earthquake situation and overall reconstruction process. In the meantime, sharing their learning over the workshop, most of the participants acknowledged NSET for creating such platform to discuss about retrofit and enhancing knowledge on its technicalities. Invited as the special guest in the workshop, Mr. Rajendra KC, Chief of NRA-GMALI-Dhading urged the journalists to cover and write the reconstruction success stories and also positive aspects of reconstruction rather than just criticizing the efforts made.

In Dolakha an informal interaction was organized particularly to discuss the issues of Retrofit and good practices that can be witnessed in quake hit areas among the radio journalists based in district.

Program's Context in terms of GESI

In the course of program implementation, the facilitation for the inclusion of women and disadvantaged social groups has been kept at high priority. The Gender Equity and Social Inclusion (GESI) Action Plan of the program envisions active participation of the at-risk communities in all components of the program. The action plan ensures equal opportunities, inclusion and access to prioritize disadvantaged groups. As such, of the total participants in all activities conducted through Baliyo Ghar Program, 39% of the beneficiaries were female. A vast majority of these women attended orientation and awareness activities (41%) and in On the Job trainings (26%) which focused on enhancing skills of women working as laborers in construction. Similarly, nearly half of all the beneficiaries in Baliyo Ghar activities belong to Janajati group, followed by Brahmin, Newar, Dalit and Muslims. The program has also been able to support for the reconstruction of 910 houses, primarily belonging to vulnerable beneficiaries during the demonstration construction of On-the-Job Trainings. These beneficiaries were selected based on the priorities set by the NRA in its trainings strategy. Thus, through a wide range of activities, Baliyo Ghar Program has been able to achieve inclusion and equality in gender and social aspects, focused towards developing a disaster resilient community.





Retrofitting: Challenges and Affirmative Efforts

In the preceding years, the program had been facilitating for the construction of new houses through various approaches of socio-technical assistance and community mobilization. However, during the course of the program implementation, the need for adequate and appropriate socio-technical assistance for retrofitting of houses was felt. As such, Baliyo Ghar Program has been implementing various demonstration, awareness and capacity building activities so as to build the confidence among all stakeholders in retrofitting techniques. The activities are intended towards the escalation of retrofitting across the country, but primarily to support the retrofitting of more than 60,000 houses of beneficiaries enlisted for the retrofitting grant by the NRA.

Masons working in a retrofit site at Nuwakot

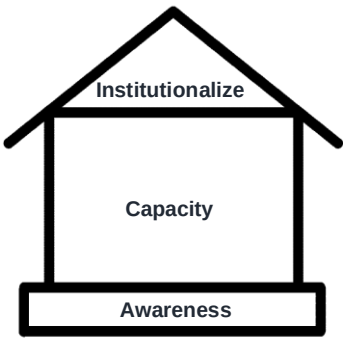
More than four and a half years after the earthquake, while reconstruction is booming, retrofitting, still has not progressing as expected. There were various challenges. Delay in adequate policy formulation regarding retrofitting in the initial two years; focus primarily on reconstruction; gaps in disseminating the promulgated guidelines and manuals; gaps in making elected local government representatives and the technical personnel were not adequately aware and confident in the technique. Similarly, a huge gap in awareness among communities was seen, which also fueled by the apparent disparity that earthquake affected beneficiaries feel regarding the distribution of grants. In addition, the unavailability of skilled human

Representatives of Local Government visit a Retrofit site in Laduk Dolakha as part of Training for Local Authorities

resource, both masons and engineers to support house owners in retrofitting is scarce. Thus, a large portion of the retrofitting beneficiaries have applied for the transfer of beneficiary status from retrofitting to reconstruction, with local governments eager to recommend for such transfer.

Despite these issues, some positive efforts have been made towards accelerating retrofitting in earthquake affected areas. Discourse and discussions in workshops, seminars and meetings regarding appropriate retrofitting techniques have instilled confidence among stakeholders to adapt the concept and techniques of retrofitting. Baliyo Ghar Program, currently in its fourth year of implementation is conducting a wide array of activities pertaining to the dissemination of knowledge and demonstration of retrofitting techniques, especially in stone masonry buildings which are abundant in rural areas. Separate training packages have been prepared for different target groups, all towards developing a common and comprehensive understanding regarding retrofitting. Masons are being trained through 25 days on site training, whereby a demonstration model house is also retrofitted. Engineers are being involved in retrofit trainings, which contain both theoretical classes, practical exercises and a site visit to an ongoing retrofitting site. Similarly, local government representatives, social and political leaders are oriented on retrofitting concepts and techniques, including demonstration visit. As the result, an understanding of the concept, strategy and benefits of retrofitting damaged and undamaged houses is being developed in earthquake affected communities. And most importantly, skilled masons, who are able to perform the necessary construction work are being trained. The increase in demand from communities and the availability of skilled masons is most likely to expedite the process of retrofitting in Baliyo Ghar Program areas.

Paving the Way to Institutionalize the Efforts



In the initial phase of program, massive awareness raising activities were conducted, whereas in due course, capacity enhancement activities like mason trainings, trainings to engineers were focused. Now, time has come to institutionalize the reconstruction efforts. Unless and until the efforts, practices and standards of current reconstruction process will not be adopted by the Local Government for sustainable construction, all of the efforts will go in vain. Hence, to institutionalize the current efforts and localize the earthquake resistant building construction technology, Baliyo Ghar program is now working closely with local authorities helping them develop plans, mechanize the building permit system and preset the overall disaster risk mitigation measures. Frequent coordination meetings, capacity enhancement trainings to the local authorities and exchanging the learnings of reconstruction are some of the activities that have been carried out to pave the way to institutionalize the efforts.

TRAININGS HELD FOR LEADERSHIP OF LOCAL AUTHORITIES FOR SUSTAINABLE RECONSTRUCTION

In the initial phase of reconstruction campaign, in the absence of local authorities, somehow it was hindering the reconstruction activities basically in decision making and facilitating the government process. After the local bodies came to force after local elections it has been easy enough to coordinate and collaborate in making the communities resilient. But the local authorities were in seek of programs that would help in enhancing their understanding and boosting the capacity. And of course, enhanced capacity of the local authority only can play the crucial role in the effective and safer reconstruction. In such scenario Baliyo Ghar program accelerated the coordination meetings and began implementing Training to local authorities soon after they were elected.

Training to local authorities in Nuwakot

In this year too, 3 trainings for local authorities and social activists on **Disaster Risk Reduction, Building Code Implementation, Sustainable Reconstruction and Retrofit** have been organized in the program areas. The two-day training package includes Roles of local authorities for sustainable reconstruction and DRR, building permit system and building code implementation followed by simulation, theories, research findings and implementation of retrofit, and retrofit on-site visit. It also includes the planning discussion for DRR measures. A separate curriculum has been developed and followed in the training.

Local authorities representing Nilkantha Municipality, Siddhalekh Rural Municipality and Galchhi Rural Municipality of Dhading participated the training conducted at Ghatbesi, Dhading. Whereas, representatives of Bigu Rural Municipality and Kalinchwok Rural Municipality of Dolakha participated the training conducted at Singati Dolakha. Likewise, representatives of Kakani Rural Municipality participated the training organized at Kakani, Nuwakot.

As part of the training, the participants were acquainted with the process of building permit system through simulation. Many of the municipalities in Nepal are following building permit system and implementing building code which now is mandatory for the rural municipalities as well. So to enhance the understanding level and capacitate in setting the BCI structure (Policy/system, manpower, resources, technical assistance) in rural municipalities, the demo building permit system exercise was conducted.

After the training the local authorities have drawn-on in proceeding the enforcement of building code and building permit system in their municipalities. Also, they have shown keen interest in retrofitting the non-damaged houses and existing vulnerable houses in their areas.

Impacts of the Program

The impacts of Baliyo Ghar can now be witnessed in all earthquake affected areas where Baliyo Ghar Program is currently working. Communities are rebuilt at an overwhelming rate and more importantly, significant rate of compliant to the provisions set by the government. As of April 2019, more than 80% of the 59 thousands households directly supported by Baliyo Ghar Program have completed construction.

Several villages, are now looking forward to wrap up the reconstruction process and focus on livelihood enhancement and going back to their normal day to day activities. Earthquake resistant technologies have not been only adopted in the Baliyo Ghar areas, but have also been replicated in adjoining areas through movement of trained masons and trickling of awareness.

The local governments are now eager to encompass the learnings towards preparing a disaster resilient community.

As GESI has been an integral part of Baliyo Ghar Program; the program has enacted specific action plans to accommodate all disadvantaged

groups into its activities. A large group of female masons have now been trained as part of On-the-Job Training programs, and are now able to work independently in construction. As of now 17% of total trained masons are females. Vulnerable communities and beneficiaries are provided with additional support through social mobilization, motivation and reporting, whereas, during the On-the-Job trainings, 910 houses were constructed, majority of which belonged to vulnerable beneficiaries.

BALIYO GHAR TRAINED MASONS LEADING THE RECONSTRUCTION

Bimala Basnet, resident of Bhimeshwor Municipality, Dolakha was once a housewife who used to engage herself in agricultural works for the whole year. As a single woman, she was struggling to feed her 3 children. But after she participated the mason training of Baliyo Ghar she has improved her earnings and engages herself in reconstructing Dolakha as a lead mason who has been deploying 5/6 masons in the construction sites. Baliyo Ghar Program has enhanced the skills and knowledge of 6700 masons where 15% of them are females and Bimala is one of them. Some of the female masons trained under Baliyo Ghar have now serving as contractors as well.

VULNERABLE FAMILY / PERSON SUPPORTED TO REBUILD SAFE HOUSE

Mr. Lato Tamang, 81, seems very happy to be under the earthquake resistant house which was rebuilt under the on-the Job Training of Baliyo Ghar Program. With no one in his family, Mr. Lato remained in temporary hut for 3 years after the Gorkha Earthquake. He now is living happily in Sikre, ward 03 of Shivapuri Rural Municipality, Nuwakot. 910 model houses like Lato's house, have been rebuilt in 3 districts through Baliyo Ghar program's OJT. 6 unskilled masons from each demo house have enhanced their capacities who now are contributing in reconstructing their localities.

TIPLING OF DHADING TURNED TO BE RESILIENT VILLAGE

Tipling, one of the northern most part of Ruby Valley Rural Municipality, Dhading which once was rabbled by Gorkha Earthquake witnesses the successful reconstruction almost completed. Baliyo Ghar provided technical assistance in every households of Tipling to ensure safety. Like Tipling, there are several villages in Dhading, Dolakha and Nuwakot turning to be resilient where Baliyo Ghar has directly supported earthquake affected households to get them enter into the quake safe house. The compliance rate of those villages is high compared to other villages where technical assistance has not reached.

NSET Efforts through Housing Recovery and Reconstruction Platform (HRRP)

The Housing Recovery and Reconstruction Platform (HRRP) is a mechanism for coordination, strategic planning and technical guidance to agencies involved in recovery and reconstruction and to support the Government of Nepal in coordinating the national reconstruction program. NSET leads technical coordination under HRRP. With the HRRP management, NSET has provided technical staff at central and district level. The fundamental approach of technical coordination is working at three level (National, Hub and district). This is continuously being done through the district orientations, trainings, district technical coordination meetings and field visits by technical professionals through the District Technical Coordinators with continuous support from National technical team and the District

Management Team (DMT). Technical coordination team is supporting all stakeholders to have a uniform understanding on the comprehensive package of technical assistance at center as well as district level.

Accomplishments (June 2018-May 2019)

At the central level HRRP supported in the development of Manuals and Guidelines including Light Timber/Steel Frame Structure Manual and Inspection Checklists, Hollow Concrete Block Manual and Inspection Checklists. Also various trainings were organized for engineers and masons along with orientations to government engineers and officials on various technical issues to disseminate reconstruction related update and information at District and Palika level. Study and research on various topics like; Hollow Concrete Blocks: Production and Use in Earthquake Affected Districts, Urban Housing Reconstruction Status Paper have been conducted.

In the District level more than 102 orientations on various technical subject including Correction/Exception Manual, Confined Masonry, Dry Stone Masonry and Treatment of Wood and Bamboo; and Orientation on Repair and Retrofit Manual, Hollow Concrete Block Manual and Inspection Checklists were conducted and provided training support in districts and CLPIUs. At the local level HRRP conducted more than 196 meetings at municipal level in 14 earthquake affected districts and more than 32 ward level meetings.

Challenges

- Difficulty in convincing government and other stakeholders on the importance of retrofit to scale up reconstruction and bringing POs on board on retrofitting
- Encouraging POs and getting them involved in urban reconstruction as there are very few POs
- Decreasing number of PO's presence in the districts due to short term project design and less priority on recovery and reconstruction work as compared to emergency

Lessons Learnt

- Reconstruction is not only an engineering (technical) issue – its more about understanding the local context, managing information, sharing and coordination.
- Reconstruction is not only building a safe house, it is building a home that has linkage with livelihood, culture, infrastructure, DRR and whole development process.
- Recovery & reconstruction is a long-term process and require investments.
- Retention of knowledge and skill through institutionalization is extremely necessary.
- Issues and challenges can't be addressed by one approach, needs specific approach for specific issues.
- Media has vital role - engaging and managing media is important.

Section 2 NSET Efforts in Past One Year (June 2018–May 2019)

2.2 Making Resilient Cities: Technical Support to Municipalities for Building Code Implementation in Nepal

NSET is implementing T**echnical Support for Building Code Implementation in Nepal (TSBCIN)** also known as **"Daro Ghar, Digo Basti"** program with the funding support from the United States Agency for International Development/Office of U.S. Foreign Disaster Assistance (USAID/OFDA) in 30 Municipalities since August, 2017. This program is slated to conclude in September, 2019. NSET focuses on assisting the municipalities in enhancing their capacities to appropriately develop and adequately administer the building permits and control system to ensure the improved seismic performance of all new building construction. Raising Awareness of various stakeholders of building construction, Capacity Enhancement of construction workers and administrators of building permit process, Institutionalization of Building Code Implementation (BCI) at the Municipalities and Collaboration and Networking with international, regional, national and local organizations for effective BCI are the major strategic components of NSET to help implement the National Building Code (NBC).

Accomplishments

Awareness and Sensitization for Effective BCI

Promoting awareness on earthquake safer construction is one of the strategic components of NSET. Several awareness and sensitization programs were conducted for house-owners, political/social leaders, social mobilizers, community people, students and other stakeholders through orientation sessions, earthquake safety campaigns, mobile clinics and local radio campaigns. These stakeholders are engaged to further disseminate information on earthquake safer building construction practices. During May 2018 to April 2019, more than 3000 community people were sensitized on safer construction through orientation programs. In this period, 984 house-owners, 442 social-political leaders, 207 practicing masons, 175 students and 26 municipal staff participated in formal interactive orientation session. Likewise, 2100 house-owners also benefitted through 420 Mobile Clinic events as well.

984
House-owner oriented through
38
Orientation programs

175
students oriented through
3
Orientation programs

3037
community people oriented through
65
Orientation programs

442
Social political leader oriented through
15
Orientation programs

2100
Benefitted through
Mobile Eq Clinics conducted in
420
sites

26
Municipal employees oriented through
1
Orientation program

Capacity Enhancement of Construction Workers & other Stakeholders

Enhancing basic skills of construction workforce including masons, contractors and engineers through trainings is another strategic component of the NSET-TSBCIN. The objective of these training courses are to enhance the capacity of key construction stakeholders on earthquake safer construction practices and earthquake risk management. Under the program, different types of training programs, targeted to construction workers, engineers, local leaders and other key stakeholders, have been conducted. In this period, program has trained a total of 837 masons on earthquake resistant construction including mason refresher and 33 masons on retrofitting technique.

Likewise, 484 engineers on Basic Earthquake Resistant Design and 48 engineers on advanced Earthquake Design have been trained. Total 24 officials, including mayors and representatives from DRR and Urban Planning and 30 Municipal Officials/Social Mobilizers and Social Leaders have been trained on Earthquake Risk Management and Building Code Implementation. Similarly, 220 local journalists benefitted through 10 Training Workshops organized for the working journalists from various media outlets across the country.

Masons during practical session of Mason Training.

837
Masons trained through
29
Mason trainings

33
Masons trained on retrofitting through
3
Mason trainings

25
Masons trained through
1
Mason refresher

24
Mayors & representatives from DRR & Urban Planning trained through
1
training

48
Engineers trained on advanced ERdesign through
2
trainings

457
Engineers trained on Basic ER design through
20
Trainings

30
Municipal Social Mobilizer/social leader trained on ERM&BCI through
1
training

30
Municipal Social Mobilizer/social leader trained on ERM&BCI through
1
Training

220
Media persons trained on ERM&DRR through
10
trainings

Improving Institutional System

Improving Institutional System of Municipalities

NSET has been providing technical inputs and supports for improving institutional system forBuilding Code Implementation in the Municipalities. NSET has organized various consultation meetings and thematic workshops, and has developed various guidelines, manuals and checklists. This has helped the Municipalities to deliver the services in an efficient manner and have a robust enforcement and compliance mechanism to ensure safer building construction.

NSET has been successful to influence Municipalities for allocating budget for effective BCI. Numerous orientation programs, capacity enhancement programs and building surveys had been conducted under the leaderships and budget of the municipalities. This effort has ensured local ownership and is believed to sustainably lead the programs in the municipalities without external support.

NSET has organized six national level workshops on BCI, benefiting altogether 347 people. Likewise, there has been 12 consolation meetings with municipalities' officials and contributed towards sustainability.

347
People benefitted on BCI&ERM through
6
National Workshop

107
People benefitted on BCI&ERM through
13
Consultation meetings with Municipal officers /Local stakeholders

Collaboration and Networking

NSET has adopted collaboration and networking approach to build cooperation among related stakeholders for providing effective support for building code implementation. During this course, it has collaborated with various local stakeholder's like CBOs/NGOs, professional societies, municipalities, academic institutions, local media, volunteers etc. to conduct various activities. Some of the major collaborations undertaken are as follows;

Collaboration with Mid-Western University

A tripartite MOU has been signed among Mid-Western University, Birendranagar Municipality and NSET for joint research on earthquake risk, disaster risk reduction, and awareness activities on safer building construction practices. All three organizations will work together on capacity enhancement of construction stakeholders on safer construction.

MoU signing among Mid-Western University, Birendranagar Municipality and NSET

Collaboration with Disaster Management Network of Nepal (DiMaNN)

NSET collaborated with National Disaster Management Network (DiMaNN) for organizing a training workshop for civil society leaders. A two-day training workshop on Disaster Risk Reduction and Management was organized during 28-29 November 2018 in Kathmandu. The objective of training workshop was to enhance the knowledge of Civil Society Leaders who have been working at local level on the recent DRR/M policies and implementation of building code. The 81 participants were from different local NGOs from all provinces.

Collaboration with Nepal Engineers' Association

NSET and Nepal Engineers' Association (NEA) Province No. 7 Chapter jointly organized a Training course for engineers of municipality offices. The training course focused on basics of earthquake-resistant building designs and evaluation of designs and drawings submitted to the municipal offices.

Collaboration with Durham University

In collaboration with Durham University, NSET is studying the process of DRR consideration in the existing urban planning process. For this, NSET is assisting Vyas Municipality for developing their local disaster risk management plan and integrating it in their urban development plan.

Research work with Nepal School of Social Work

Through a MOU with NSET, students of Kadambari Memorial College School of Social Work are conducting research works on social aspects of building construction practices. Two groups of students were supervised and mobilized for the research work. One group of students are conducting research on social, economic and

culture aspects of houses in Birendranagar Municipality while other group of students carried out the resilience assessment of community around the artificial lake of Ghorahi Sub-Metropolitan City.

Scientific Collaboration with USGS and GEM

NSET has been collaborating with US Geological Survey (USGS) for understanding the seismicity and earthquake shaking behaviour of ground surface and buildings of Kathmandu Valley and few other urban aras of Nepal. TSBCIN is assisting this scientific work by establishing accelerometer network in few program municipalities. Also, TSBCIN is working for carrying out the earthquake risk and loss estimates of few program municipalities of by using the OpenQuake methodology and tools developed by the Global Earthquake Model (GEM).

Other Accomplishments

Training-Workshop for Local Government Leaders in Surkhet and Dharan

Training workshops targeting local government leaders i.e. Mayor, Deputy Mayor, Chief Administration Officer and Engineers were organized in Dharan and Surkhet in September 2018. The events were held with a view to enhance the understanding of local leaders on earthquake hazard and risk of Nepal and possible ways for reducing the earthquake risks. The event saw the participation of 90 local government leaders. The workshop discussed including government's existing policies (strategies, Acts, guidelines and regulations) on Disaster Risk Reduction and Management, National Building Code, Technology for making earthquake resistant building, existing Building Permit System in municipalities, Evaluation Methods of Implementation of National Buildin g Code, DRR Mechanism in Urban Development Planning and Disaster Response Plan among others. The training workshops were successful in generating the interest and also contributing to build capacities of local government leaders to assist in effective implementation of National Building Code. It also helped to understand the importance and possible ways of using Integrating Urban Development Planning (IUDP) and Risk Sensitive Land Use Planning (RSLUP) for risk reduction.

A souvenir handed over to Mayor of Janakpurdham Sub-Metro during Training Workshop by NSET Executive Director.

Training Workshop for Radio Journalists

One-day training workshop for practitioner journalists from local radios has been organized in six different cities (Itahari, Bardibas, Dhangadhi, Nepalgunj, Gaindakot and Vyas) during Dec. 16-29, 2018.The objective of the workshop was to increase the level of awareness of the local radios and enhance their engagements in disseminating the knowledge on safer construction practices.

Training Workshop for local journalists

During the series of workshops, participants had discussed various issues including earthquake preparedness, National Building Code, safe construction technology, disaster reporting, building code implementation strategy, and local issues of building code implementation among others.

Local radios are found very effective and influential to raise public awareness, educate and build better understanding amongst various stakeholders and

advocate for local actions. The program also encouraged the local radios for production and dissemination on disaster issues and safer construction practices. Altogether 108 numbers of local journalists from different media houses participated in this program.

Likewise, a Training Workshop for journalists from NSET partner radio were also held focusing on various dimensions of building community resilience and what and how media can contribute in the process during April 1-2, 2019. Total 15 participants, including journalists & program producers from 5 local radios of different provinces partnered under TSBCIN program and also NSET coordination team took part in the learning and sharing processes. Under the program, NSET is working in partnership with five local radios from various provinces with the view to support promote safer construction practices in the various urban and rural municipalities.

Training Workshop for producers from NSET partner Radio under TSBCIN

System for Retrofitting of Existing Vulnerable Buildings Established in Ghorahi Sub-Metropolitan City

In Nepal, there are large number of existing vulnerable buildings in the municipalities. In many cases, people have been adding floors above the existing vulnerable buildings, making the buildings even more vulnerable. To address such situation, few municipalities have initiated the process of promoting retrofitting of existing buildings. Ghorahi Sub-Metropolitan City in the Province No. 5 of western Nepal is one of the pioneer municipalities to initiate the process of retrofitting of existing vulnerable buildings.

In Ghorahi, if any house-owner wants to add floors to the existing buildings, the house-onwer is required to conduct the detail assessment of the house; and if the house is not enough for addition of floors, then they have to retrofit the existing portion of the house so that the entire house is earthquake-resistant.

Additionally, if any building has been constructed non-compliant to the building code, it does not get "completion certificate", the house-owner has to retrofit the house and then only, they get the "certificate of completion"

NSET is assisting Ghorahi Sub-Metropolitan City to develop mechanism for assessment and retrofitting of existing buildings.

Building Permit System Software Installed in Gorkha Municipality

NSET has been providing technical inputs and supports for improving institutional systems in the municipalities. As an effort to improve the institutional system in the municipalities, Building Permit System software is being installed in different program municipalities. During this reporting period the software was installed in Gorkha Municipality. NSET is testing this software for digitization of building permit forms and drawings. The program will upgrade this software to assist the municipality for easing building permit system.

Sharing Workshop on Building Permit System and Disaster Preparedness and Response Planning at Municipality Level

National workshop on "Existing Building Permit System and Disaster Preparedness and Response Planning at Municipality Level in Nepal" was conducted to share experience among 60 professionals and stakeholders of different municipalities on the issues. The workshop aimed to learn from one other and discuss the disaster preparedness and response measures in different sectors. The Specific objectives of the workshop were to find out the challenges and the need to improve the existing building permit system, receive experiences from the local authorities on their respondence to Gorkha Earthquake 2015 and receive feedbacks on roles and responsibilities of different stakeholders for DRM at Local Level. This learning is essential to develop and deploy the innovation-driven disaster management measures in local level. The workshop also aimed to improve the existing building permit system and procedure in municipalities.

Disaster Risk Management Training

Upon request of Vyas Municipality, NSET organized a series of disaster risk management and emergency response capacity enhancement trainings such as the Community Search and Rescue (CSAR), Basic Emergency Medical Response (BEMR), Damage Assessment Training (DAT) and Fire Fighting trainings in Vyas Municipality. These trainings were organized to enhance the emergency response capacity of the municipality. A total of 28 participants were trained. These trainings assisted Vyas municipality for developing a pool of volunteers for implementing the disaster response plan of the municipality.

Findings of 'Study of Urban Development in Kathmandu Valley' Shared

A workshop on 'Study of Urban Development in Kathmandu Valley, Status of National Building Code and Building By-Laws Implementation' held in Kathmandu.The workshop, which saw the participation of around 80 stakeholders, was organized with view to share the survey findings among the stakeholders, get their feedback on the findings of the study, revise the findings in line with the feedback and make recommendations for the effective implementation of Building Code and Building By-Laws in the future.

Representatives from Ministry from Urban Development (MoUD), Department of Urban Development and Building Construction (DUDBC), Kathmandu Valley Development Authority (KVDA), various professional societies (Nepal Engineering Association, Society of Nepali Architects(SONA), Nepal Engineering Council), Municipalities, INGOs and NGOs among others were present at the program.

Japan International Cooperation Agency (JICA) supported NSET to carry out the survey on 'Study of Urban Development in Kathmandu Valley'. The Department of Urban Development and Building Construction (DUDBC) has provided important guideline for carrying out the study. The study focused on existing acts and regulations related to by-laws and building code enforcement. The study was conducted through review of drawings to understand level of complince in submitted drawings and through evaluation in field to check the complince in actual construction.

Baseline Surveys and Retention Survey

During the period, NSET conducted three types of Baseline Surveys; a) Baseline Survey on the current status of building code implementation in the program municipalities, b) Baseline Survey on general perception of people and professional towards disaster resilience and c) Baseline Survey on safer construction, status of safer building construction practices. It has also conducted a retention survey of the graduates of training program. ***[For more details, please refer to 2.9 chapter]***

LDCRMP Orientations and VCA Training for Bharatpur Metropolitan City

A total of 24 people including elected leaders and officials of Bharatpur Metropolitan City (BMC) participated in a five-day training program on Local Disaster and Climate Resilient Plan (LDCRMP) organized in BMC during 11-15, December 2018. The major focus of the training was on the planning process. The training was expected to impart skills to Disaster Risk Management Committees (DRMC) to initiate planning and implementation of DRR Preparedness and Climate Change Adaptation. The program covered basics of disaster risk reduction and preparedness at the municipal level including climate change adaptation.

Likewise, to develop Local Disaster and Climate Resilient Plan (LDCRP) of BMC, two rounds of Vulnerability Capacity Assessment (VCA) trainings were conducted to local volunteers of BMC on May 2019. The three-day VCA trainings on VCA were conducted to the volunteers nominated by ward disaster risk management committees covering two volunteers from each ward of BMC. After the training, these trained volunteers have been engaged to carry out VCA of the BMC with technical assistance from NSET.

2.3 Making Resilient Schools: Efforts on School Safety in Nepal

NSSP Kick off Implementation of Retrofitting of School Buildings in Western Nepal

Nepal Safer School Project (NSSP) is one of the programs under DFID's **"Strengthening Disaster Resilience in Nepal"** that includes a total of six programs to help build the resiliance of vulnerable people and reduce the impact of natural hazards in Nepal. The overall goal of NSSP is of increased preparedness and improved capacity of disaster management systems to build resiliance to minimize impact ofnatural hazards in schools and nearby community. Its priorities and targets include upgrading physical infrastructures to make more resiliant through retrofitting; stregthening disaster risk managemnt in schools, and ensuring disaster resiliance is reflected in school curicula, teacher trainings and resources.

NSSP is being implemented by a consortium led by Crown Agents (CA) in partnership with National Society for Earthquake Technology-Nepal (NSET), Save the Children, and Arup International. The program is to contribute to the Government of Nepal's School Sector Development Plan (2016-2023) which includes a focus on School Safety and Disaster Risk Reduction. This is a five-year project; running from 2018 to 2023.

The program covers four districts- Bardiya of Province No. 5, Jumla and Surkhet of Karnali Province and Achham of Sudurpaschim Province. The program is being implemented in 17 local units of the above mentioned four districts with coverage of all the geographical regions (Himal, Mountaion and Terai).

Accomplishments

Consultation Meetings, Site Selection and Finalization of Local Units for Implementation of NSSP Activities

Formally launched on May 29, 2018, the NSSP has successfully completed the inception period and is now in its implementation phase. Meetings and consultations with the relevant Province and District officials have been accomplished. Such meetings have been held at all the program districts.

- District level consultation meetings were carried out in all 4 NSSP districts and the meetings finalized the 17 local units for implementation of NSSP activities.
- Province level consultation meetings were conducted in all 3 NSSP program implementation provinces.

- First round of Municipality Consultation meetings were held in 5 Municipalities.
- Earthquake Safety Promotional Officers (ESPO) were deployed in NSSP districts and are being involved in regular coordination and information collection activities.
- 21st ESD was commemorated in all 4 districts with different set of activities led by NSSP program team.

Closing Ceremony held for Program 'Disaster Education from Hyogo in Nepal'

Nepal's education sector suffered a huge loss during 2015 Gorkha Earthquake. Sustainable Disaster Risk Reduction (DRR) education system in Nepal was felt in the context of earthquake devastation. To assist the Government of Nepal in establishing and promoting the DRR education, 'Disaster Education from Hyogo in Nepal' project was started through the formation of a joint consortium between NSET and Team Hyogo, Japan. Eight schools of Dupcheswor Rural Municipality, Nuwakot were selected for project implementation with the recommendation and guidance of District Education Office, Nuwakot. The project ran from June 2016 to December 2018. The major outcomes of the project were development of sustainable DRR education, Reconstruction of a remote area school building and Teachers Manual and Student's workbook developed by teachers.

A Closing Ceremony for the program 'Disaster Education from Hyogo in Nepal,' was held in August 2018 in two levels, at the district level in Nuwakot and at the central level in Kathmandu in collaboration with Team Hyogo, Japan and Centre for Education and Human Resource Development (CEHRD).

Speaking at the closing ceromoney, the teachersfrom various schools of the two Rural Municipalities expressed their commitment to continue the approach and process they learned from the program 'Disaster Education from Hyogo in Nepal' by propogating the message to other schools of the district for disaster education in their respective schools. Through this program, the eight schools of Nuwakot have been developed as lead schools to spread the concept of disaster education to other schools.

School Handover Ceremony held

Prior to the Closing Ceremony for the program 'Disaster Education from Hyogo in Nepal,' a School Handover Ceremony was held at Dangsing, Tarkeshwor Rural Municipality of Nuwakot district on August 27, 2018. The two-room semi-permanent school block of Chandra Nayan Basic School was constructed through technical support from NSET and financial support from Team Hyogo under the program.

Chandra Nayan Basic School was heavily damaged by the 2015 Gorkha earthquake. It lies in a very remote area of Nuwakot and not many facilities are accessible for the community members which includes a majority of marginalized indigenous population. Consisting of 30 students, the school was previously functioning in Temporary Learning Center constructed by bamboo.

The event was attended by newly elected Chairperson and Vice Chairperson of Rural Municipality, Ward Members, parents, School Management Committee members, teachers and students.

Review and Sharing Program in Japan on Collaborative Efforts of Team Hyogo and NSET on Disaster Education in Schools

After successfully concluding the project in Nepal, a Closing Ceremony for the project was held at Kobe, Japan on 20th January 2019 where the program approach and components reviewed and also key learnings shared. The program was attended by Mr. Yoshiteru Murosaki, President of Team Hyogo, Graduate School of Disaster Resilience and Governance, University of Hyogo. Various Organizations, University members as well as high school students attended the program. NSET professional made a presentation regarding the project. Maiko High School students made a presentation and talked about their long history with NSET and shared their experiences visiting various schools in Nepal. Similarly, a reporting session was also held at Disaster Management Headquarter, Hyogo Prefectural Government on January 22, 2019.

Review and sharing program in Japan

Collaboration of Miko High School, Japan and NSET

The Kobe-Kathmandu Collaborative Exchange Program on Earthquake Safety has been an important component of NSET's SESP Program. Under the program, students from Maiko High School of Kobe, Japan conduct educational and cultural visit to the schools in Nepal that are seismically reconstructed and retrofitted under SESP. The goal is to raise awareness for disaster preparedness among students, teachers, and other members of the community.

The program consists of: a) Exchange of Culture Box to promote international cooperation in earthquake safety after knowing each other's culture, b) Raise funds to retrofit public schools in Nepal as part of NSET's SESP program and C) Disaster Education Progra through exchange of Curricula for disaster and environmental studies between Maiko High School and the schools of Kathmandu.

In 2002, a student and a teacher from Maiko School visited various schools of Kathmandu Valley and exchanged their views and shared the experiences regarding earthquake safety. In 2003, five students and two teachers from the school visited schools in Kathmandu and stayed with the students of Balbikash Secondary School, Alapot for a night at their home. In 2004, 14 students and 2 teachers from the school visited the Shree Krishna School, Dhapakhel and Bal Vikash Secondary School, Alapot, Kathmandu and stayed with the students of the schools. In 2007, ten students and three teachers from school, along with six members from "Support for International Disaster Education" (SIDE) team from Kobe, Japan, visited Nepal.The exchange continued during 2009-2014 also. In 2015, eight students and two teachers from Miko High Schools Visited Nepal after Gorkha Earthquake. They visited schools of Kathmandu and Nuwakot and handed over some funds to the earthquake affected schools. In 2016, another group of students and teachers from Miko High School visited Nepal and observed the progress of reconstruction.

Disable Friendly School Buildings Innaugurated and Handed-over in Sindhuli and Kathmandu

The newly reconstructed school building of Shree Nava Jyoti Deaf Secondary School, Sindhuli, was inaugurated and handed over to community on January 6, 2019. Two 3-room block, one 2-room block of single story confined masonry structure with metal truss and CGI sheet and separate toilet and bathroom for male and female students were constructed under Australian Aid funded NSET-Plan consortium project "Building Back Safer School for all".

NSET provided technical assistance in design and construction supervision of school. On the occasion, contribution of NSET's technical assistance was also acknowledged.

Shree Nava Jyoti Deaf Secondary School School in Sindhuli

Total 12 School buildings were constructed under the project in Kathmandu, Lalitpur, Sindhuli, Sindhupalchwok, Dolakha and Makwanpur district.

The school was established in 2003, targeting the deaf students of Sindhuli and other nearby districts. Currently, the school is providing education for 106 deaf students from 10 districts with hostel facilitates.

Likewise, the disabled-friendly school building of Khagendra Nava Jeevan Special Education Secondary School of Narayantar, Gokarneshwor Municipality was inaugurated and handed over to school

Khagendra Nava Jeevan Special Education Secondary School hand-over ceromoney

administration amid a ceremony held on 11th March 2019. The school building was also damaged during the 2015 Gorkha Earthquake.

An RC framed building with 10 rooms was built with technical support from NSET and financial support from Plan International through Department of Foreign Affairs and Trade, Australia (DFAT) under NSET-Plan consortium project 'Building Back Safer Schools for All. In the ceremony, NSET was awarded Certificate of Appreciation.

The overall construction works was carried out by School Management Committee. As the majority of the students have some sort of physical disability, the school building has been made disabled-friendly with the provision of ramp, verandah with disabled- friendly concrete tiles, and disabled- friendly commode in toilets.

2.4 Making Resilient Communities: Efforts on Community Based Disaster Risk Management (CBDRM) in Nepal

When any disaster occurs in a community its members are the first ones to respond to and provide immediate assistance. Enabling community members to respond to disaster and emergencies is always a major focus of all NSET's DRR initiatives. CBDRM Division of NSET has been working together with communities on multi hazard risk reduction with special focus to earthquakes. In such efforts, its' main focuses are on institutional development, capacity building, community involvement to plan and implement Disaster Risk Reduction, Preparedness and Response activities to make the community disaster resilient. Such endeavors initiate with optimum efforts on awareness raising, education and disaster response exercises in helping communities to be more resilient.

Major Accomplishments

Empowering Women through Disater Risk Reduction

Empowering Women through Disaster Risk Reduction' (EWDRR) is a program implemented by NSET with funding support from Durham University. The program was launched in Bhainse, Ward Number 3 of Bagmati Gaupalika and Tajhya Tole of Khokana, Ward Number 21 of Lalitpur Metropolitan City (LMC) in May 2018. NSET initiated organizing and mobilizing the women in both the communities with a Risk Perception Survey and Awareness Programs on Disaster Risk Reduction. Informal training sessions were conducted for the community members and disaster management groups on Vulnerability and Capacity Assessment (VCA) and Community Based Disaster Risk Management. Both the communities identified the potential hazards, assessed the risk and existing capacity within the community and came up with priority actions.

Community Level Landslide Mitigation at Bhainse

A community in Bhainse, ward number 3 of Bagmati Rural Municipality, has installed storm drainage system to stop the water penetrating into the land slide from the top. They also constructed two layers of gabion wall at the bottom to stabilize the slope under the EWDRR program jointly implemented by NSET and Durham University.The community has also decided to plant deep rooting plants in between the storm drainage system and the gabion wall for better protection. They decided to work for landslide risk reduction. Although, the potential landslide that seems to be relatively smaller, it could damage the entire community if it starts to slide.

Fire Response System Installed in Khokana under Action Research Program

A Fire Response System was installed at Tajhya Tole of Khokana, Lalitpur Metropolitan City-21 with the view to promote women's engagement and contribution in Disaster Risk Management efforts. The Fire Response System is comprised of hose pipes, control valves, connections and nozzles which can be easily connected or disconnected to the water pumps. The system has been positioned at strategic locations in Tajhya Tole. There is a pond in the locality that has been selected as the source of water. The system is expected to be enough to respond potential fires that can break out any corner of the community and can cover up to a height of five-storey.

The ward office has taken the responsibility of maintaining the system, produce and mobilize the local teams of firefighting volunteers ready with periodic refresher training programs. The installed fire response system will be operated and handled by community volunteers during the emergency once they are trained on the modality of the operation of system. Ward office is scheduled to organize a training program for local volunteers on this connection.

Orientation on School Level Safety Program for Teachers

To get the feedback from the teachers on the lesson plan of "School Level Earthquake Safety Handbook" prepared for school students, an orientation program was conducted on school level safety program for Teachers in Lalitpur. With suuport from NSET, Society of Urban Poor (SOUP organized the event which was participated by teachers from targeted schools of project target wards of KMC/LMC and SOUP's ASP (After School Program) teachers.

In order to give them information on earthquake and its preparedness, the project teamed up with the NSET and prepared a DRR handbook for school children of grade 6-8. Ten schools from the project target wards were selected for the DRR activity where the school will include the book as their extra activity program. The DRR handbook and lesson plan of the book was prepared following many discussions and revisions. Two teachers from each selected schools were requested to take part in the orientation program.

Orientations and Distribution of SAR Tools for Targeted Wards of LMC and KMC

With the technical support from NSET, SOUP is implementing a project "Create Safer Community" in partnerhsip with Shapla Neer to help the people in core city areas of Kathmandu and Lalitpur district. Under the project, SOUP is working in ward number 12 and 21 of KMC and 7, 8 and 17 of LMC. Starting from 2016, the three-year project is focusing on the recovery and prevention of the damages in these areas and working to establish DRR programs in these areas to tackle the future disaster risk. NSET has been providing the technical input for the program from its ignition. An orientation program was organized for the potential rescue volunteers and officials of ward offices from Lalitpur and Kathmandu Metropolitan Cities before handing over community search and rescue tools to the project wards in January, 2019. The program was organized at Nepal Bhasa Mankaa Chhen in Lalitpur on January 8, 2019 and Nepal Bhasa Mankaa Chhen and at Jaisidewal Youth Club in Kathmandu January 9, 2019. Toral 40 participants including ward chairpersons, ward members, Community Disaster Management Committee (CDMC) members and active member of each wards of each municipality along with head of Department of Disaster of LMC, Mr. Harish Chandra Lamichanne and Head of Department of Disaster of KMC, Ms. Archana Shrestha Shakya attended the program.

Kirtipur Women's Festival

NSET actively involved in organizing the first Women Festival 2019 which was celebrated along with the 23rd anniversary of the establishment of Kirtipur Municipality. The festival was expected to develop the confidence in the women to rise with entrepreneurship and also the preservation of the tradition of the Newari communities is sure to be preserved to go along generations to generations. The festival was officially commenced with the massive rally demonstrating the women's ability in playing various traditional musical instruments like flute, madal, dholak, majura etc. The rally covered the major historical part of the Kirtipur and ended into the Uma-Shankhar Temple, one of the major temples in Kirtipur.

2.5 Enhancing Preparedness and Emergency Response Capacity: Efforts in Nepal and Beyond

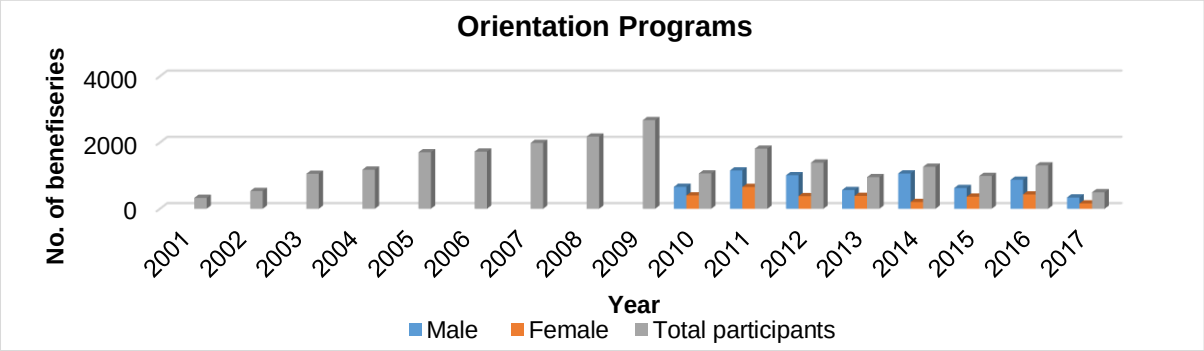
Disaster preparedness and planning is a process leading to better and effective response to disaster situation. NSET, through Disaster Preparedness and Emergency Respo nse (DPER) Division, is involved to develop concepts & approaches and impart knowledge and skills to enhance the capacity for disaster preparedness and emergency response in Nepal and beyond.

NSET has developed training curricula targeting various groups of communities and stakeholders involved in Disaster Risk Management (DRM). These courses aim to raise awareness among individuals and the communities, about the associated hazards and vulnerabilities, prepositioning the emergency supplies, develop response plan, strengthen the coping capacity and making communities resilient by using locally available resources.

Apart from this, NSET has been implementing "Program for Enhancement of Emergency Response (PEER)".This is a regional program being implemented since 1998 with the view to enhance overall disaster preparedness and emergency response of South Asian countries.

Awareness and Orientation Programs

NSET has been conducting regular "Earthquake Orientation" programs for different stakeholders in Nepal. Usually such programs are conducted by NSET upon request of the agencies or organization. However, if realized, NSET conducts such programs voluntarily for the needy people or community. Till date since 2001, NSET has conducted over 1,000 orientations benefitting nearly 23,000 people from different communities.

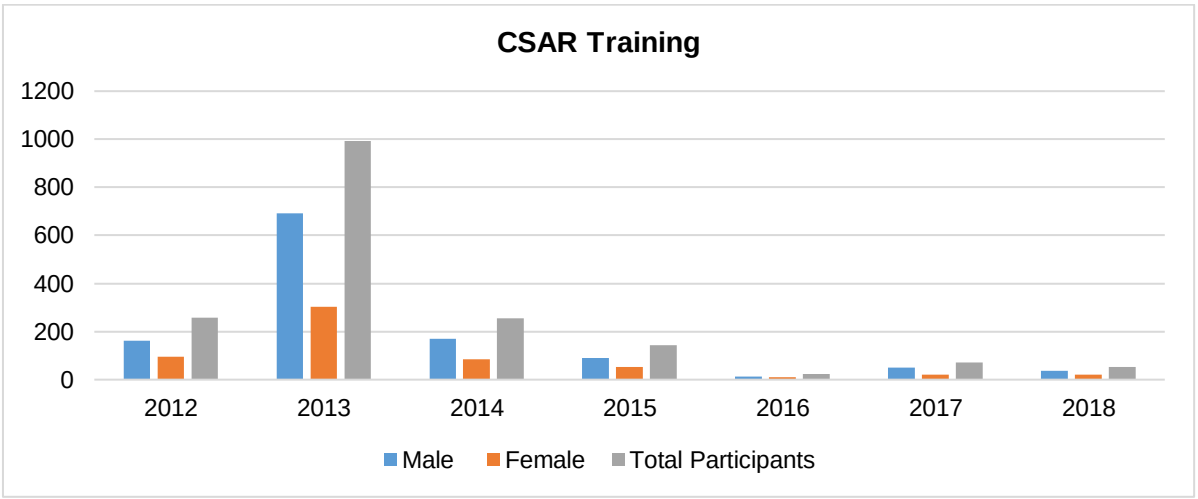


Number of participants in orientation from 2001 to 2017

Enhancing capacity of Communities for Search & Rescue

NSET has been imparting various hands-on emergency response skills through Community Search and Rescue (CSAR) Trainings. There are two level of CSAR courses being conducted by NSET. The CSAR-1001 (one-day) and CSAR 1002 (three-days).

The CSAR training aims to develop capacity of communities, schools and organizations for performing search and rescue operation mainly on searching, locating and extricating victims on the surface and/or who are lightly trapped. CSAR includes the skills for systematic search in safe structures, rescue of lightly trapped victims, extinguishing initial fire and lifting, stabilising and moving heavy loads. Till date since 2012, 75 CSAR training courses have been conducted in Nepal, reaching out to 1213 Males and 590 Females.



Number of participants in CSAR trainings from 2012 to 2018

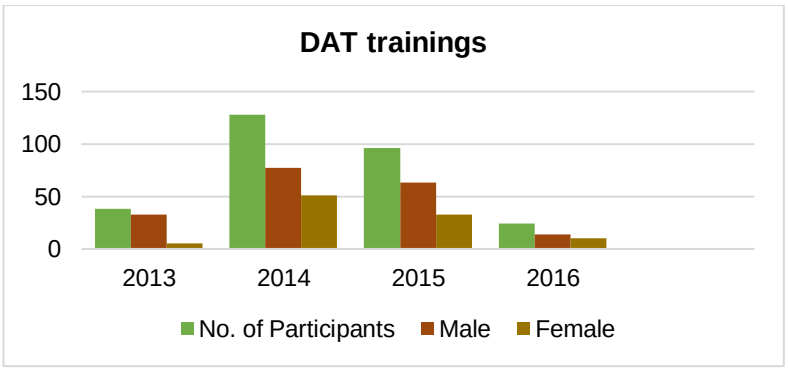
Basic Emergency Medical Response (BEMR) Trainings

BEMR training provides knowledge on prehospital treatment for bleeding, burns, fractures, shock, chocking and CPR. The trained responders bridge the gap between immediate pre hospital care and hospital- based treatment. From 2012 to 2019, NSET has produced 720 BEMR responders (472 are male and 248 are female) from 29 trainings in Nepal.

Number of total participants in BEMR trainings from 2012-2018

Damage Assessment Training (DAT-1001)

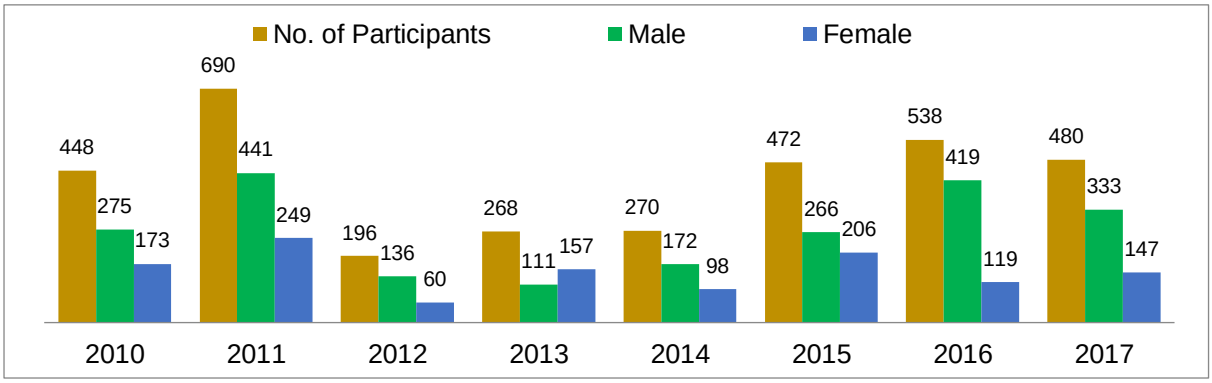
DAT provides information and knowledge to conduct rapid damage assessment of damaged houses in order to determine whether the structure is safe to enter and operate search and rescue activities. DAT incorporates the knowledge and skills to identify general building types, distinguish structural and non-structural systems of the buildings and to know the level of damage of the buildings. So far, NSET has produced 286 graduates (187 male and 99 female) conducting 12 DAT courses.



Participants for DAT within 2013-2016

Earthquake Safety Drills

"Drop Cover and Hold On" is recognized worldwide as an appropriate action to minimize injuries and deaths during an earthquake. It is the appropriate action to reduce injury and death during earthquakes. Every year as part of regular event of Earthquake Safety Day (ESD), "Drop, Cover and Hold on" and National Earthquake Safety Drill, are conducted in collaboration with the Government of Nepal and other stakeholders since 2008. NSET team designs and executes scenario-based simulation exercises for different organizations and communities. The simulation exercise aims to test the response plan, identify and address the gaps in the plan, ensure a practical plan and regularly update it from the lessons learnt.



Participants for Earthquake Safety Drills

Prepositioning Emergency Supplies

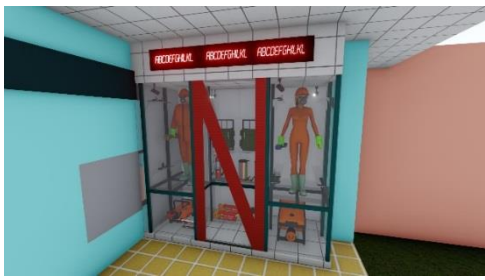
NSET promotes an easy to carry bag "Earthquake Go Bag," with emergency supplies, which serves as mobile emergency kit after disaster. The bag contains items sufficient for an individual to survive for at least 3 days during an emergency. It should be kept in an accessible area whether in a house, workplace or vehicles so as to quickly grab while evacuating. NSET has reached out to four sub-metropolitan cities, 53 municipalities and 135 small towns in promoting the Earthquake Go-Bag. Along with the Go Bag, NSET also promotes Household Emergency Kit (HH Kit), a rescue box with about 25 various rescue items in different numbers as per need, sufficient for one family. Community Search and Rescue (CSAR) kit, a container with about various 72 rescue items in different numbers for small community or institution and PPERS (Pre-positioned Emergency Rescue Store, a large container with about 100 various rescue items in large numbers which is designed for a larger Community. PPERS were already placed in 8 different places of Kathmandu Valley, namely, in Thimi, Chyamhasingha, Teku, Balaju, Bhainsepati, Chhetrapati, Baneshwor and Durbar Square before Gorkha Earthquake and these stores were used for rescue by both locals and national security forces.

NSET staff participating in Drill

Earthquake Preparedness and Response Plan (EPRP) of NSET

NSET has been advocating for developing the Earthquake Preparedness and Response Plan (EPRP) for all organizations, which should be realistic as well as pragmatic. NSET has also developed its EPRP and conducts periodic drills. There are teams like, Emergency Commander, Damage Assessment Teams, Search and Rescue Team, Emergency Medical Response Team, Communication Teams and and others. These teams are activated by the Inciden Commander and they execute their role very well in every drills which is organized at NSET in every six months. EPRP of NSET is prepared for ensuring minimum damage/loss of property and life in its office during a major earthquake. Recently, NSET conducted Earthquake Drill on 25th April 2019.

Rescue Equipment Display



Display Case being constructed at NSET

NSET under Program for Enhancement of Emergency Response (PEER) program has been conducting Medical First Responder (MFR), and Collapsed Structure Search and Rescue (CSSR), Community Action for Disaster Response (CADRE), Swift Water Rescue (SWR), trainings. These courses are specialized for emergency medical and search and rescue targeted for different level of responders. The major tools and equipment required to perform these skills have been displayed in the display box in front of NSET building. Through the display box, NSET aims to disseminate the information regarding the required tools and equipment for effective response for different situations of emergencies.

Automated External Defibrillator(AED)

By installing Automated External Defrillator (AED) in NSET building, it has become one of the organizations to have portable AED. Majority staffs at NSET are trained in using AED and Cardio Pulmonary Resuscitation (CPR), it was made compulsorily to all the staff.

AED at NSET

NSET staff on AED training

Program for Enhancement of Emergency Response (PEER) Milestones

NSET has been implementing "Program for Enhancement of Emergency Response" (PEER). This is a USAID/OFDA funded regional program being implemented with the view to enhance overall disaster preparedness and emergency response of South Asian countries.

The PEER was introduced to Asia in 1998 by USAID's Office of U.S. Foreign Disaster Assistance (OFDA). The PEER Phase 1 (1998-2003) was implemented in four countries, namely, India, Indonesia, Nepal and the Philippines. After establishing partnerships with the respective governments and designated partner institutions, skills based trainings for professional responders, namely, Medical First Responder (MFR) and Collapsed Structure Search and Rescue (CSSR) courses were introduced. In addition to the original countries, Bangladesh and Pakistan were also inducted into PEER 2 (2003-2009). Hospital Preparedness for Emergencies (HOPE) Course was added in the principal courses of PEER. Under PEER 3 (2009-2014), NSET

conducted MFR and CSSR courses in 6 countries, namely, Bangladesh, India, Indonesia, Nepal, Pakistan and the Philippines.

Now, PEER 4 (2014-2019) is being implemented in Bangladesh, India, Nepal and Pakistan. Apart from MFR, CSSR, Community Action for Disaster Response (CADRE) and HOPE courses, a new specialized course 'Swift Water Rescue (SWR) Course', has been developed and piloted during this phase to build the capacities of countries in swift water emergencies. To introduce and help sensitize to the PEER process, new target countries in South Asia such as Afghanistan, Bhutan, Maldives and Sri Lanka were inducted into PEER in selected regional program events.

Activities Accomplished Under PEER-4 (from June 2018 to May 2019)

Emergency Response Stakeholders Meeting

Ministry of Home Affairs (MoHA)-Government of Nepal led and hosted Nepal Emergency Response Stakeholders Meeting on June 7, 2018, at MoHA, Singha Durbar, Kathmandu. Meeting highlights included discussions on existing capacities, broader need and strategies for enhancing the emergency response capacities of Nepal, within the present federal system of government structure. There were 25 participants in the meeting, representing MoHA, Nepali Army, Nepal Police, Armed Police Force, Nepal Red Cross Society, USAID Nepal and NSET.

PEER Stakeholders meeting at MoHA, Nepal

The stakeholders' meeting was aimed at sharing capacity building and emergency response experiences in Nepal, lessons learned and good practices (achievements), impact of PEER, evaluation of PEER implementation in Nepal, strategy for PEER institutionalization in respective PEER partnering institutions, and way forward for emergency response capacity building in the country.

Mr. Kedar Neupane, Joint Secretary at MoHA, emphasized the importance of having a standard training curricula appropriate for Nepal context in developing emergency responders. The followings are the key points obtained from the meeting:

- Nepal has been pursuing continued improvements in emergency response capacity building through PEER and other platforms.
- Nepal needs to further strengthen its existing capacities and resources, training institutions must agree on a standardized training curricula for Nepal, mainstreaming concepts and skills that are appropriate for Nepal; and build-in a monitoring system for the training programs.
- A national centralized database of trained emergency responders and other related professionals must be established.

Following the meeting, NSET also shared PEER course directories to MoHA, an initial step of integrating PEER database into the national database maintained by the National Emergency Operations Center (NEOC).

Training for Instructors (TFI) Course Review Workshop

Training for Instructors (TFI) Course Review Workshop–Nepal was conducted from October 31 to November 2, 2018 under the PEER Stage-4.

TFI is a five-day instructor development course for developing qualified instructors for effective learning and capably deliver the training programs. It is an essential foundation of PEER instructors' development process for the program's courses, namely, Medical First Responder (MFR), Collapsed Structure Search and Rescue (CSSR), Hospital Preparedness for Emergencies (HOPE), Community Action for Disaster Response (CADRE), and Swift Water Rescue (SWR) courses. At present, TFI has been institutionalized by various PEER partner institutions for their internal capacity building.

Participants present their respective agency's experience in implementing the TFI

Experienced and pioneer instructors from MFR, CSSR, HOPE, CADRE and SWR were gathered in the three-day workshop and discussed the overall concept, principles and methodologies of the course, including the critiques, comments and recommendations received from the TFI courses completed. The workshop highlighted that TFI course, introduced by USAID/OFDA through PEER since 1998, has been well accepted and acknowledged as one of the best courses for developing qualified trainers and conducting trainings effectively, for PEER courses, and for other training programs as well.

Regional Master Instructors' Workshop (MIW)

Regional Master Instructors' Workshop (MIW) was conducted on November 26-30, 2018 in Kathmandu. A total of 28 senior PEER instructors from the program beneficiary countries participated in the MIW. There were 6 participants each from Bangladesh, India and Pakistan and 10 participants from Nepal, who are PEER-certified instructors of Medical First Responder (MFR), Collapsed Structure Search and Rescue (CSSR), Community Action for Disaster Response (CADRE) and Training for Instructors (TFI) courses.

The MIW aims to develop potential Course Coordinators and Course Monitors within the Program for Enhancement of Emergency Response (PEER) system. The MIW was delivered by six senior PEER master instructors from Bangladesh, India, Nepal and Pakistan. Plenary presentation of PEER Country Case Studies underscored the

emergency/disaster response experiences of MIW participants utilizing their knowledge and skills learnt from PEER. The testimonies presented by the participants served as program impact on how useful PEER courses were in their everyday and major emergency response processes.

Participants of Regional MIW course in Nepal

Collapsed Structure Search and Rescue Instructors' Workshop (CSSRIW) Course, Bangladesh

NSET in collaboration with Bangladesh Fire Service and Civil Defense (FSCD) in Dhaka conducted the CSSRIW from 28th February to 6th March 2019. There were total 24 participants (23 male, 1 female), all from FSCD. A team of 9 instructors from FSCD facilitated the training composed of five (5) full instructors, three (3) assistant instructors, one (1) Course Coordinator; and one (1) regional Course Monitor from Nepal.

Participants fixing vertical shoring during CSSR Exercise (CSSRIW, Bangladesh)

The CSSRIW started with a formal opening program on February 28, 2019. Mr. Surya Narayan Shrestha, Executive Director of NSET, was the Chief Guest; Mr. Muhammad Saidur Rahman, Director, Bangladesh Disaster Preparedness Center (BDPC), and PEER In-Country Consultant; and Mr. Ganesh Kumar Jimee, Director, Disaster Preparedness for Emergency Response (DPER) of NSET and Lead Trainer, PEER, also graced the opening ceremony.

Two representatives from USAID/OFDA visited the CSSRIW on March 5, 2019 and had the opportunity to observe some sessions and interacted with the senior course instructors, FSCD and NSET representatives, including PEER In-Country Consultant for Bangladesh.

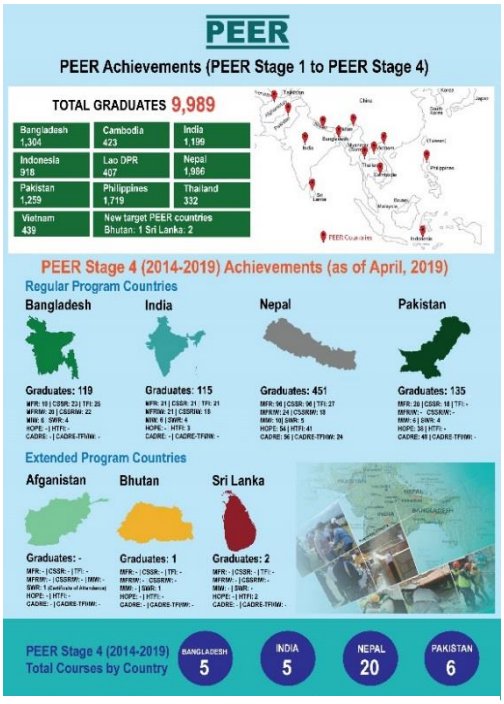
PEER Meetings in Pakistan, Bangaldesh, India and Sri Lanka

With view to update the PEER program partners in each of these countries on the progress of PEER Stage 4 implementation, including remaining works, NSET senior management visited PEER countries and met with key focal points in Bangladesh, India, Pakistan and Sri Lanka. The meeting in Sri Lanka aimed to establish initial linkages in the new PEER target country. A meeting with officials of National Disaster Management Authority (NDMA) and Pakistan Red Crescent Society (PRCS) held on February 25, 2019. Meeting with officials of Fire Service and Civil Defence (FSCD) and Bangladesh Red Crescent

Society (BDRCS) was held on February 27-28, 2019. Likewise, NSET seniors discussed with officials of India's Ministry of Home Affairs (MHA), National Disaster Management Authority (NDMA), National Disaster Response Force (NDRF) and SEEDS on March 26-29, 2019. They also held meetings with officials of Ministry of Health, Nutrition and Indigenous Medicine on April 4-5, 2019. The meetings were conducted with the nodal agencies, partner institutions and some senior PEER instructors.

The visits and meetings were helpful in receiving renewed commitment of the PEER countries to nominate most relevant instructors, participants, representatives to attend and contribute in the national and regional program events of PEER. The visits also helped to update the authorities on PEER development which was necessary in view of the changes in PEER contact points in Pakistan, Bangladesh an India.

Overall Achievements of PEER Program



Summary of PEER achievements in the region

Between the period 1998 and 2019, total PEER graduates from the South and Southeast Asia sum up close to 10,000. Of these, there are 1,345 MFR graduates and 600 instructors; 1,075 CSSR graduates and 516 instructors; 2,577 HOPE graduates and 557 instructors; 1,535 CADRE graduates and 512 Instructors. The Training for Instructors (TFI), a basic requirement for PEER instructorship, and can serve as a stand-alone course, has a total of 880, which are from the stream of MFR and CSSR courses. It is worthy to note that the TFI curricula is now used by several PEER partner organizations for their internal instructors' development trainings.

PEER countries have reported some forms of institutionalization which indicate PEER program ownership.

In Bangladesh, integration of MFR and CSSR curricula has been done in the internal training program of Bangladesh Fire Service and Civil Defence (FSCD). The MFR and CSSR courses have also been adopted in regular training calendar of FSCD. The HOPE course has been adapted and integrated in other development programs (SERB program in Bangladesh). The CADRE course curriculum has been considered as a reference for emergency response trainings for volunteers by FSCD.

In India, the MFR and CSSR courses have been adopted in the regular training calendar of National Disaster Response Force (NDRF) battalions. Interest towards the HOPE course is growing in India and private hospitals have been involved and taking initiation. The CADRE course has been realized of having high potential to institutionalize for community empowerment. NSET received expression of interest from NDRF India to align its internal Water Rescue Course with PEER-SWR curriculum.

In Nepal, regarding MFR and CSSR course implementation, there has been established Disaster Management Training Schools in all security forces (Nepali Army, Nepal Police, Armed Police Force). Similarly, MFR and CSSR courses have been recognized as foundation skills, and has been incorporated in the regular training calendar of these security forces. There has been ensured facilities in Nepal APF Disaster Management Training School.as per PEER training

guidelines. Institute of Medicine (IOM) of the Tribhuvan University has taken lead to implement the HOPE course. Some HOPE courses have been conducted outside of PEER support. Disaster Management plans have been prepared as per the HOPE guidelines. CADRE in regular calendar of Nepal Red Cross Society (NRCS). Nepali Army utilized PEER-SWR curriculum as reference for developing its internal SWR training for response teams.

In Pakistan, the MFR and CSSR courses have been adopted as foundation courses for emergency responders of Punjab Emergency Service (PES) Rescue 1122 as its regular training calendar. There has been also involvement of other emergency response organizations from the government such as Highway Police. Regarding HOPE course, there has been growing interest from the new leadership of National Health Emergency Preparedness and Response Network (NHEPRN). Senior HOPE graduates/instructors are advocatig for adoption of HOPE course in emergency response preparedness efforts.

Prospecpect of adopting CADRE course in Pakistan, there has been realized potential support for institutionalization from the Government of Pakistan. The course, however, adopted as a reference for other emergency response courses in Pakistan by Red Cresent Society (PRCS).

Efforts for Institutionalization

- Internalization of PEER system for instructors' and end-users' development has been observed. PEER curruculam and methodologies have been adapted to develop in-house capacities to produce more skilled responders and qualified intructors.
- Improvement of training facilities as per guidelines followed in the PEER Training for Instructors (TFI). A sound training environment compliments the curriculam for effective learning.
- Acknowledgment of the need for more capacity building and expression of support by other donors for conducting PEER courses;
- Present leaders who were PEER instructors or have become part of PEER process understand the needs, how PEER helped in bridging the gaps, continue to promote program ownership and sustainability; and wherever appropriate, promote PEER concepts in policies; and
- PEER pioneers from different countries have shown keen interest for developing a permanent regional platform for sharing experiences and mutual assistance.

Section 2 NSET Efforts in Past One Year (June 2018–May 2019)

2.6 Research and Development: Use of Science & Technology in Resilience Building

For better understanding of risk in all its dimensions of hazards, exposure and vulnerability, role of research is vitally important aspect as it provides the evidence and knowledge on risk and risk reduction. In this context, NSET, which has been working in the DRR in Nepal and region, and established as an important stakeholder in the DRR sector, is intensively engaged in research, for effective use of science and technology in the field of DRR.

NSET conducts research works and develop/adopt new methodologies into Earthquake and Structural Engineering, Seismology, Earthquake Hazard, Disaster Preparedness and Management, Civil Engineering, Urban Planning Architecture, Engineering Geology and Geophysics. In doing so, NSET researchers collaborate with local and international researchers to increase knowledge of earthquakes and disaster risk in Nepal. NSET research works are focused on Seismic Vulnerability Assessment, Development of different training manuals and Guidelines, Earthquake Resistant Design of buildings, retrofit design of buildings, Development of Manuals on Assessment, Trainings, Building Assessment – pre and post disaster situations, Awareness Raising and similar topics.

During the period of June 2018 to May 2019, NSET has been a part of various researches, tests, developments of standadrd guidelines and manuals regarding earthquake and disaster risk management. NSET conducted trainings under various NSET implemented programs.

Accomplishments

Lab Test of Stone in Mud Wall

Out of Plane Lateral Load Test for Stone in Mud Masonry Wall

As a part of SAFER project**,** two pilot tests of stone in mud walls were carried out at the Institute of Engineering (IoE) Laboratory. Of the two pilots, one was retrofitted with welded wire meshing at critical locations and GI wire meshes at remaining ones. The test showed significant improvement in out of plane lateral load capacity and deformability on the walls after retrofitting.

Out of plane pushover test of unreinforced stone in mud wall at IOE lab, Pulchowk

Out of Plane Pushover Test of stone in mud wall retrofitted using wire mesh at IOE lab, Pulchowk

Workshop on Seismic Safety and Resilience of Schools in Nepal (SAFER)

A progress sharing workshop of Seismic Safety and Resilience of Schools in Nepal (SAFER), a project focused on improving the seismic safety and resilience of schools in Nepal was held in Kathmandu on April 24, 2019.

With the view to share the progress of the research as part SAFER project, the workshop was organized jointly by Center for Education and Human Resource Division (CEHRD), University of Bristol, SAFER and NSET.

The main objective of SAFER is to take global development challenges in Nepal through engineering research for sustainable infrastructure and Disaster Resilience through a multi-disciplinary consortium of geographical and structural engineers, engineering seismologists, ICT experts, earth scientists from academia, social scientists, policy makers, financial experts, and humanitarian and stakeholders.

SAFER is a holistic and multi-disciplinary program for improving the earthquake-related safety of school buildings and the resilience of educational communities in Nepal. It is the consortium program of various partners; Bristol University, University of Southampton, California Institute of Technology (CALTECH), University at Buffalo, University of Roma Tre, NSET, Tribhuvan University, Institute of Engineering, Kathmandu University (KU), Arup International Development (ARUP-ID) and Save the Children. The Safer School Research Project has been divided into five work packages and various tasks which are scheduled to be accomplished in three years.

The five work packages of after School Research Project are as follows.

1. Geodatabase for the Kathmandu Valley and Seismic Hazard Assessment.
2. MobileApp and WebApp Platform for Managing School Inspectors at a National Level.
3. Laboratory Testing of Masonry and Stone Schools in Nepal. Natural Isolation and Superstructure Engineering.
4. Structural Vulnerability of Schools in Nepal.
5. Seismic resilience of Educational Communities.

The event saw the participation of around 40 people from various organizations including academicians and researchers associated with national and international universities, representatives of development partners, officials from Government of Nepal and non governmental organizations.

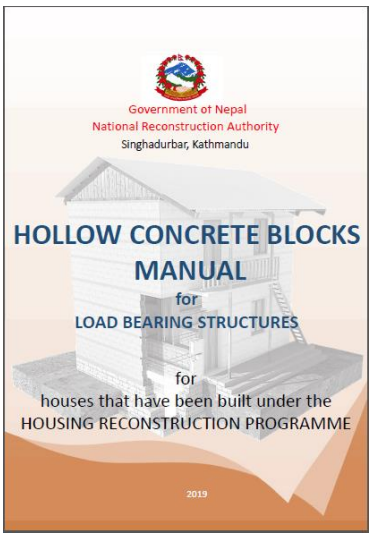
During the program, altogether 12 presentations including presentations from NSET, Save The Children, CEHRD, NRA-CLPIU(Education), IoE, KU and JICA were made. The consortium partners of SAFER School Research Project also shared the research progress on the five work packages.

Development of Manuals and Guidelines

Working together with NRA under Baliyo Ghar Program, NSET provided the technical support in development of following manuals under the Housing Reconstruction Program.

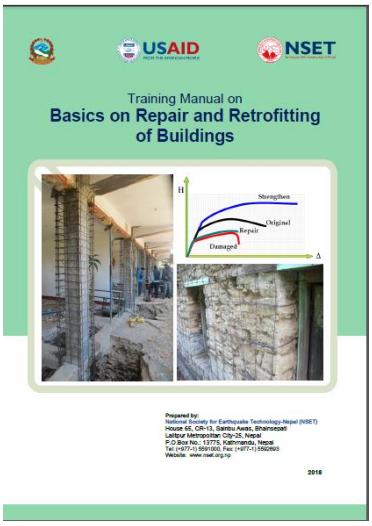
Hollow Concrete Blocks Manuals

Under the housing reconstruction program, houses that have been constructed or are in the process of construction need to comply with the Minimum Requirements (MRs) for compliant construction. In order to receive the housing reconstruction grant, the buildings need to comply with all the descriptions mentioned in the inspection check sheet which were formulated on the basis of MRs. Most of the hollow block masonry houses that have been reconstructed till date do not fulfill all the MRs, as a result many houses have not been approved to receive the grant. Hence, Hollow concrete Manual was developed to help in the retrofitting of Hollow blocks masonry buildings.



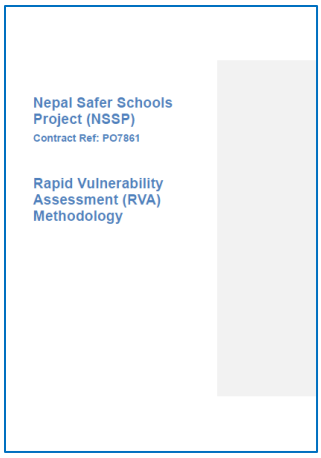
Training Manual on Basics on Repair and Retrofitting of Buildings

Under the housing reconstruction program, a training manual on basics on Repair and Retrofitting of Buildings was prepared. This manual covers the chapters which are fundamental to understand the repair and retrofitting of buildings. This manual forms the curricula to conduct a training focusing the retrofitting of masonry and RC buildings. It can be asserted that participants of this training will be able to understand the retrofitting drawings and can implement the retrofitting works.

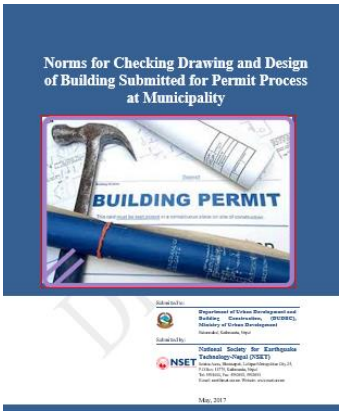


Technical Support in Developing Documents, Guidelines, Manuals and Survey Forms for NSSP

As part of NSSP project, NSET conducted Rapid Vulnerability Assessment (RVA) methodology and detail Assessment and Retrofit/New Design Methodology. NSET is working as a lead of Output 1 of NSSP-Construction of Safer Learning Facilities through seismically resilient retrofitting and rebuilding. NSET has been involved in developing the documents, guidelines, manuals and survey forms required at the inception phase of NSSP project. Further, it has also involved in the training material preparation for the mason trainings, TOT, SMC training and Engineers, Sub Engineers training. Currently it is also exploring new design methodologies for retrofit design of about 700 school buildings with the support from ARUP International.



Building Permit System Checklist: 2018



NSET has developed a Building Permit System Checklist while working together with TSBCIN program. This document is prepared to systemize and ease the building permit process, especially, technical aspects of building permit system. This document guides municipal engineers who are responsible for checking the analysis, design, and drawings of buildings in a systematic and effective way. The building design and drawing that is submitted to the Municipality can be immediately checked and evaluated according to the codal provisions and conceptual requirements of earthquake engineering using the checklists.

Retrofit Design and Inspection Works

Under Baliyo Ghar Program, retrofit demonstration and On-The-Job Training was planned to conduct in sixty-four houses of the working districts that were damaged during Gorkha Earthquake 2015. Among them, retrofit design of thirty buildings has been accomplished in this period and retrofit demonstration and on the job trainings were conducted in twenty buildings. Inspection of the buildings retrofitted under OJT was also done at different phases.

Inspection of OJT retrofit by NSET team at Dhading and Nuwakot

Retrofit Design and On-the-Job Retrofit Training in Ghorahi, Dang

With view to make the mason understand the basic of retrofit and to develop manpower for the implementation of retrofit, an On-Job-Training was conducted in Ghorahi. This training was successful to demonstrate the fact that retrofitting is one option to strengthen the buildings that was constructed before the implementation of building code and constructed without considering the earthquake resistance element, instead of demolished them.

Engineers Training

With a view to enhance their capacity of engineers in Earthquake Resistant Buildings design and construction, NSET conducted various types and level of engineers' trainings under different NSET projects. Under the TSBCIN program, two Engineers' Trainings on Seismic Evaluation of Building Designs and Drawings were held at Kathmandu and Dhangadhi. The purpose of this training course was to enhance the technical capacity of practitioner, professional engineers and Regulatory agencies on Seismic Evaluation of Building Designs and Drawings.

Likewise, NSET involved in training material preparation and conducting trainings for Engineers of Baliyo Ghar Project where participants from Nepal Government, POs, Consultancies, Academia were involved. The participants were from Housing Reconstruction Program. Through these trainings, it contributed to enhance their capacity on reconstruction of Earthquake Resistant Buildings such as Basic Technical capacity, Earthquake Resistant Design of RC Frame Buildings, Basics on Repair and Retrofitting of Buildings and Seismic Retrofit Design of Masonry Buildings.

Participants and Instructors of Training on Seismic Retrofit Design of Masonry Buildings in Lalitpur

Training on NLPO and NLKA

A nine-day intensive hands on training on NLPO (Non Linear Pushover and NLKA (Non Linear Kinematic Analysis) Training was conducted in April-May 2019 by the NSSP project. The objective of the training was to enhance the capacity of the Design Engineers and Structural Engineers of NSET in nonlinear design of masonry building using a commercial software 3MURI which can be beneficial during the execution of the NSSP. The instructors were four professionals from ARUP International: Timurhan Timur, Associate Director

ARUP; Esref Serhan TAKO, Senior Structural Engineer and Michele Malaspina, Structural Engineer.The participants of the training were twelve Civil Engineers and Structural Engineers from NSET and ESS who are involved in design works. All participants were provided with Certificate of Completion.

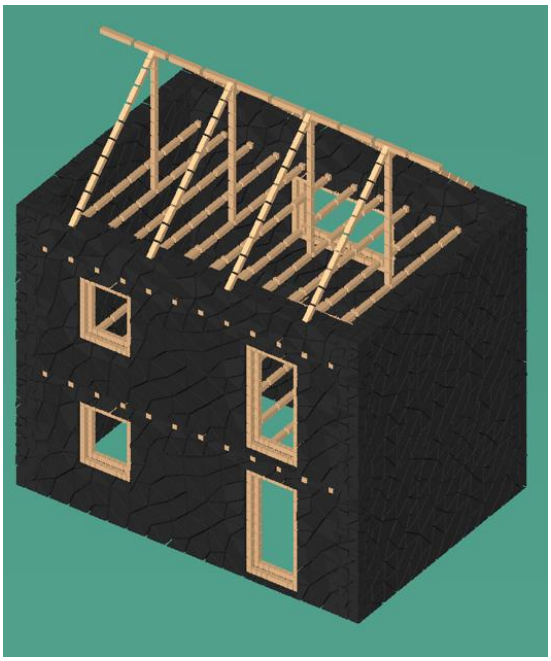
AEM (Applied Element Method) Analysis of Trilingeshwor Sadashiva Temple at Patan

An Applied Element Model of the 16th century Trilingeshwor Sadashiva Temple at Patan, was done to study its behaviour during earthquakes and its failure pattern. The study helped identify the critical locations of the temple in need of special attention in repair and maintenance and also for retrofitting. The study is also hoped to give an idea for better planning of conservation efforts of cultural heritage structures in Nepal.

AEM modelling and analysis of Trilingeshwor Sadashiva Temple at Patan

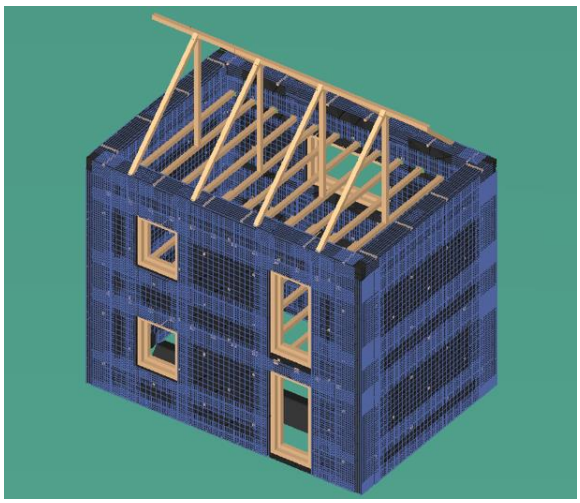
AEM (Applied Element Method) Analysis of Stone in Mud Buildings of Nepal with Different Retrofit Options

Several trials with retrofitting options were modelled using the Applied Element Method to observe the behaviour of typical stone in mud masonry buildings in Nepal. Different options like Gabion wire jacketing, Splint and Bandage methods were modelled. The results showed a good outcome with the retrofitting options improving the performance of the structure on Gorkha Earthquake Loading.



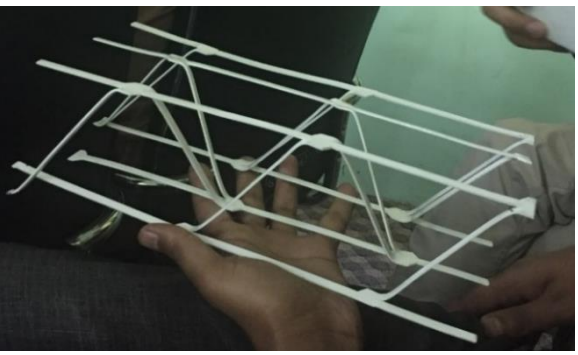
AEM Model of Stone Masonry Mud Mortar Building

Damage to Stone Masonry Building at 0.2g level of Gorkha Earthquake



Retrofitted Model at 0.8g level of Gorkha Earthquake

Innovative Technology for Slope Stability in Nepal



NSET professionals participated in a presentation on Innovative Technology for Slope Stability in Nepal organized by KRISMER Handelsgesellschagt, Austria and Sahiba International Pvt. Ltd, Nepal incorporation in association with DOR, DORW, DOLI, IPPAN, Geological, and Geotechnical Societies. The program was held in Lalitpur on March 7, 2019. A total of 35 people from Nepal Geological Society, Nepal Geotechnical Society, TU, DMG and NSET participated the event.

KRISMER is the 3D steel frame which is used to stable by installing it with geotextile, soil nailing and spreading gravel over the steel frame and covering the whole slope with the green grass. It can be done to give the asthenic beauty to any concrete structure and make the environment greener.

NSET, OGS Jointy Conducted Microtremors Survey, HVSR and Arrays

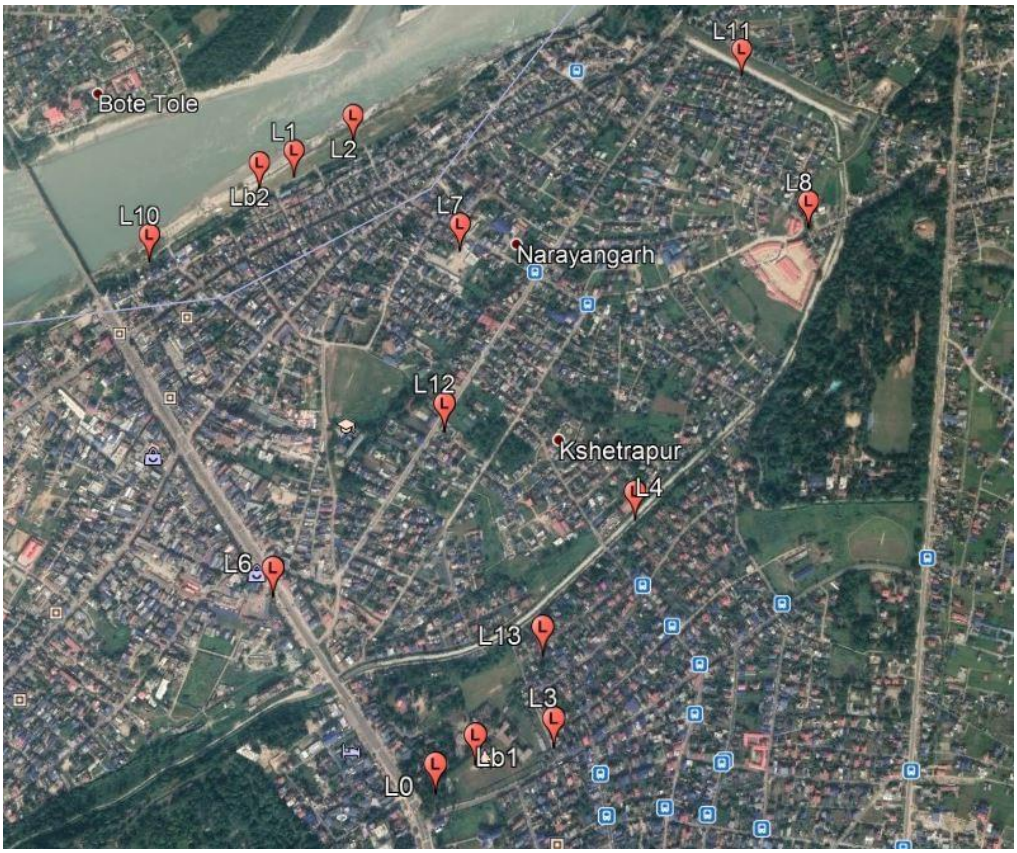
Under the collaboration of Oceanographic Geophysic experiment (OGS) and NSET**,** Microtremors surveys, HVSR and Arrays Microtremors Survey have been conducted in Ratnapark, Trivuwan University, Kupandol, Bharatpur and Vyas. NSET personnel along with Italian Professor Franco Pettenati were involved during the process.

Under the task, wide area was covered as the research area to make a subsurface map in Bharatpur Metropolitan City where array and single terminal survey was carried out. Array Microtremors Surveys were carried out in the premise of Birendra Multiple Campus and around Narayani River bank.

Likewise, same type of survey was carried out in Damauli as per the request of the Vyas Municipality. As part of it, a seismic antenna consists of a set of synchronized seismic sensors distributed on the surface of the ground with variable geometries also done**.** Information on the characteristics of the subsoil is obtained from a correlation analysis between the signals recorded by the different sensors at the different frequencies.

The primary objective of this analysis was the characterization of the propagation modalities of the wave sources that pass through the seismic antenna (array) during the measurement interval.

Location of Microtremors Survey at Vyas, Tanahun



Location of Microtremors Survey at Bharatpur, Chitwan

Section 2 NSET Efforts in Past One Year (June 2018–May 2019)

2.7 Major Events of the Year

RISK2RESILIENCE (R2R): International Conference on Experience of Earthquake Risk Management, Preparedness and Reconstruction in Nepal

Nepal hosted RISK2RESILIENCE (R2R): An International Conference on Experience of Earthquake Risk Management, Preparedness and Reconstruction in Nepal during June 18-20, 2018 in Kathmandu, Nepal. The Government of Nepal, Ministry of Home Affairs (MoHA), National Reconstruction Authority (NRA), Nepal Academy of Science and Technology (NAST), and National Society for Earthquake Technology-Nepal (NSET) jointly organized the Conference in association with Kathmandu Metropolitan City, Lalitpur Metropolitan City, USAID and Durham University as Conference Partners. Nepal Engineers' Association (NEA), Society of Nepalese Architects (SONA), Society of Consulting Architectural and Engineering Firms (SCAEF) Nepal, Disaster Preparedness Network (DPNet Nepal) and Nepal Red Cross Society joined as knowledge partners. Leading private sector business, Jagdamba Steels Pvt Ltd also partnered to organize the Conference.

Risk2Resilience Conference was attended by both Nepali and international experts and professionals across continents in order to learn about the progress of Nepal in areas of Disaster Risk Management, to share the results of scientific researches, to share concerns about the growing social and technological risks in Nepal to collectively explore ways for Nepal to further strengthen the efforts in Disaster Risk Reduction and to pledge continual support to the people of Nepal to their excellent and innovative works of Disaster Risk Reduction and Preparedness. Risk2Resilience Conference was based on three major themes: Learning from the Past three decades, Understanding the Present and Searching the Future.

The Conference was inaugurated by the Home Minister Ram Bahadur Thapa. In his inaugural address, Minister Thapa remarked, "Government of Nepal is working on Disaster Risk Management in more organized ways. Government has passed Disaster Policy and Action Plan defining roles and responsibilities of all tiers of governments. These policy documents are as guided by Constitution of Nepal and in line with Disaster Risk Reduction and Management (DRRM) Act that was promulgated last year." Minister Thapa also expressed hope that the Conference would help to draw a solution to impending multi-disaster risks including the earthquake risk faced by Nepali citizens. Minister Thapa stressed the need to consider the disasters in the development process.

Addressing the Inaugural Session, Mr. Yuba Raj Bhusal, then CEO of National Reconstruction Authority remarked; "You may observe that the impact of reconstruction is way beyond its spatial and temporal boundaries. And, that is exactly what we want. This effort of "building back better" reconstruction serves as a solid foundation block for future development works that would effectively encompass disaster risk reduction measures." Mr. Bhusal further expressed his confidence that the country would accomplish its total reconstruction target in two years down the road; and focused to accelerate the process in infrastructures and cultural heritage sector.

The Conference brought together 240 people including national and international participants. A total of 40 international professionals from 13 different countries were present. Throughout the proceeding of the Conference, there were 15 Key-Note Speeches made on key issues; and total 220 more persons including government officials, DRR Experts, Practitioners and Academia shared their ideas and views as speakers, presenters or panelists. Total 12 Technical Sessions, 11 Panel Discussions and 2 Side Events were held in the conference.

While concluding the Conference, Mr. Prem Kumar Rai, Secretary, Ministry of Home Affairs remarked, "This 3-day International Conference came up with important conclusions and way forward for the country to lessen the adverse impacts of disasters in Nepal based on lessons from the past. I assure you all that Nepal Government highly acknowledges all these recommendations". He further mentioned that on June 18, 2018 when the Conference was about to begin, the Meeting of National Council for Disaster Risk Reduction and Management Chaired by Rt. Hon. Prime Minister of Nepal had endorsed National Disaster Risk Reduction Policy 2018 and National Disaster Risk Reduction Action Plan 2018-2030.

The Risk2Resilience Conference concluded successfully with the Conference Resolution endorsed by Conference participants incorporating their final comments and suggestions.

R2R RESOLUTION

(Kathmandu Declaration-2018)

Background

Nepal hosted RISK2RESILIENCE (R2R): An International Conference on Experience of Earthquake Risk Management, Preparedness and Reconstruction in Nepal during June 18-20, 2018 in Kathmandu, Nepal. The Government of Nepal, Ministry of Home Affairs, Nepal (MoHA), National Reconstruction Authority (NRA), Nepal Academy of Science and Technology (NAST), and National Society for Earthquake Technology-Nepal (NSET) in association with various agencies and partners jointly organized the Conference.

The Conference was held with the main Objectives to:

- Critically look back at what we all collectively did for Earthquake Risk Reduction & Preparedness in Nepal in the past decades in the Light of 2015 Gorkha Earthquake sequence
- Critically examine the experience of Earthquake Reconstruction so far, and also
- Looking forward to helping set the Way Forward in the Long Journey of Disaster Risk Management in Nepal

The Conference brought together 240 participants including national and international citizens. A total of 40 international professionals from 13 different countries participated. Throughout the proceeding of the Conference, there were 15 Keynote Speeches made on key issues; and total 220 more persons including government officials, DRR Experts, Practitioners and Academia shared their ideas and views as speakers, presenters or panelists. Total 12 Technical Sessions, 11 Panel Discussions and 2 Side Events were held in the conference.

The Risk2Resilience Conference has resulted successfully with the approval of the Conference Resolution endorsed by Conference participants incorporating their final comments and suggestions.

We, the organizers and the participants of the RISK 2 RESILIENCE (R2R) International Conference on Experience of Earthquake Risk Management, Preparedness and Reconstruction in Nepal, organized jointly by Government of Nepal, Ministry of Home Affairs (MOHA), National Reconstruction Authority (NRA), Nepal Academy of Science and Technology (NAST) and National Society for Earthquake Technology-Nepal (NSET), held on June 18-20, 2018, in Kathmandu, Nepal, with both Nepalese and those from countries across continents, having attended the Conference in order to:

Learn about Nepal's progress in areas of Disaster Risk Management,

Share the results of our scientific research,

Share our concern about the growing disaster risks in Nepal,

Collectively explore ways for Nepal to further strengthen its efforts in Disaster Risk Reduction, and

Pledge continued support to the people of Nepal for their excellent and innovative work on Disaster Risk Reduction and Preparedness under the leadership of the Government of Nepal,

hereby:

ACKNOWLEDGE that the Constitution of the Federal Democratic Republic of Nepal, 2015 embodies Right to live with dignity and Right to property as fundamental rights of the people;

RECOGNIZE Nepal's tremendous achievements, despite political uncertainty and economic hardships, in aspects of multi-hazard disaster risk management, especially earthquake risk management, including:

- Development, enunciation and incremental implementation of policy and legal instruments such as the recently enunciated Disaster Risk Reduction and Management Act - 2017 (DRR&MA-2017), National Disaster Risk Management Policy – 2018, Disaster Risk Reduction and Management Strategic Action Plan (2018-2030), which pave way for development and enunciation of corresponding bylaws. Earlier, the Government has promulgated the National Disaster Response Framework (NDRF), and made implementation of the National Building Code mandatory throughout the country. These legal provisions will surely be instrumental in linking Disaster Risk Reduction (DRR) actions to the legal requirements and strengthening collaboration and cooperation among DRR actors, thereby comprehensively energizing the Disaster Risk Management (DRM) sector in Nepal.
- Development and implementation of innovative methods of earthquake risk reduction including simple and cost-effective seismic retrofitting of vernacular buildings and schools as well as non-structural retrofitting of hospitals.
- Promotion of earthquake awareness in sustained ways by efficient use of electronic and print mass media and nationwide campaign like the annual observance of National Earthquake Safety Day (ESD) first observed in 1999, and the building of national and local capacity in medical first response, collapsed structure search and rescue, community level emergency response which has also included the enhancement of women's capacity to lead emergency response.
- Implementation of comprehensive school earthquake safety programs, with integrated community engagement, and the establishment of a sustained system of training of engineers, code enforcement officials, builders, and masons in earthquake-resistant construction of urban and rural buildings.
- Development and piloting of methodologies for hazard assessment, exposure mapping, and vulnerability assessment.
- The technical and financial assistance to Nepal and Nepalese institutions provided by research institutions, academia, UN Agencies, bilateral, multilateral and inter-governmental agencies, International Financial Institutions and well-wishers to attain these significant accomplishments.
- In light of Nepal's ever-increasing vulnerabilities to a host of hazards and, therefore, the urgency in implementing actions for containing risk creation, for reducing existing risks, and, for enhancing disaster preparedness at all levels and in every part of the country.

APPRECIATE the work of the Government of Nepal and the Nepalese people for:

- Responding to the 2015 Gorkha Earthquake with dignity, exhibiting a sense of self-help and cooperation between individuals, communities and agencies, and avoiding chaos and social anarchy.
- Mobilizing existing national resources and effectively coordinating and mobilizing international assistance in emergency response and relief.
- Establishing appropriate policies, approaches and guidelines for temporary shelter, conducting Post Disaster Needs Assessment (PDNA) and Post Disaster Recovery Framework (PDRF),
- Initiating early recovery and reconstruction based on the principles of Build Back Better (BBB), and incorporating lessons learned from the recent earthquake reconstruction following the Gujarat and Kashmir earthquakes.
- The actions of the Government of Nepal to make compliance to the National Building Code mandatory for all urban and rural settlements of Nepal.
- Successfully embarking upon rural housing reconstruction based upon scientific assessment of damage extent and grade, and for devising procedures for providing equitable assistance to the affected households for Build Back Better reconstruction by a combination of financial assistance, technical assistance, and governance assistance to ensure compliance.
- Clarifying the roles and responsibilities in disaster risk reduction to all 753 rural and urban local governments of Nepal and pledging to support them in capacity development and discharging their responsibilities.
- Mobilizing national and international assistance for the earthquake reconstruction of schools, hospitals and other critical facilities and infrastructure, cultural monuments and heritage sites.

Call on the Government and all Stakeholders to Ensure:

- A shift from disaster management to disaster risk management, from damage assessment to vulnerability assessment and reduction, and from relief and response to risk reduction and preparedness.
- Adherence to the commitments made to global frameworks - including the Sendai Framework for Disaster Risk Reduction (SFDRR), the Sustainable Development Goals (SDG), the Paris Agreement, and the New Urban Agenda - by developing and enacting appropriate additional policies, by clarifying roles, responsibilities and accountability, and by developing appropriate monitoring and evaluation mechanisms.
- Development and implementation of a new program for disaster risk reduction nationwide, with special emphasis on earthquake vulnerability reduction, to be achieved by the 25th anniversary of the Gorkha Earthquake in 2040.
- Integration of scientific and technological evidences as well as the local wisdom and indigenous technologies, into disaster risk reduction activities.

- Involvement of the private sector by assigning clear roles, responsibilities and accountability and by helping businesses to conduct Business Continuity Planning (BCP), and Disaster Risk Reduction (DRR) as a part of their Corporate Social Responsibility (CSR).
- Respect for the principles of environment preservation, gender and social inclusion, and the commitment to "leave no one behind" in all actions in disaster risk reduction.
- Development and implementation of national programs for hazards-specific DRM such as for earthquake, landslide, flood, fire etc., and involvement of all stakeholders including the government agencies and scientific research organizations to work in cooperation and collaboration, and breaking across silos, to achieve Nepal's national targets and goals.
- Support achievement of the seven SDFRR global targets in the context of Nepal by 2030, through the following actions.

Adopt the Following as Strategic Actions for Disaster Risk Reduction

1 Under SFDRR Priority 1: Understanding Disaster Risk

1. Create a freely-available National Hazard Map and National Vulnerability Assessment, and make the use of these assessments mandatory for all national and provincial level development projects.
2. Create detail maps in GIS for all urban municipalities by 2020 that includes all development programs, municipal taxation, utility services, insurance, mortgages, and building permits.
3. Assist all rural and urban municipalities (Gaunpalika and Nagarpalika) to prepare multi-hazard maps at appropriate scales and ensure their use for infrastructure and development planning. Promote hazard risk understanding by engaging school teachers and students in school-based hazard monitoring and early warning systems such as weather stations, accelerometers, extensometers etc.
4. Develop a system to capture and inventory all large and small-scale hazard events at national to local levels. Use the analysis of data into development planning, disaster risk management planning and implementation.

2 Under SFDRR Priority 2: Strengthening Disaster Risk Governance to Manage Disaster Risk

1. Encourage and support municipalities to ensure meaningful participation and representation of women and other groups disproportionately affected.
2. Support children and youth and persons with disabilities in leadership roles within disaster risk reduction programs.
3. Support rural and urban municipalities (Gaunpalika and Nagarpalika) to prepare risk-sensitive land use plans.
4. Develop a science and technology strategic plan to support disaster risk reduction, and support research for evidence-based DRR policies, practices and solutions.
5. Initiate multi-year, long-term (min. 15 years) programs involving multiple institutions at multiple levels to support the government at various levels.
6. Support local governments in rural and urban municipalities (Gaunpalika and Nagarpalika) in DRR through closer engagement with Universities and research institutions.

3 Under SFDRR Priority 3: Investing in Disaster Risk Reduction for Resilience

1. Ensure all new schools and hospitals are built disaster resilient.
2. Retrofit at least 50% of existing schools and all health institutions and public buildings by 2035.
3. Ensure that all school new construction and retrofit projects are enveloped in robust programs of community engagement and capacity building that provide risk awareness and education, hazard resistant construction training, and support for school disaster management.
4. Establish and implement 15-year national programs for earthquake, flood, landslide and fire risk reduction.
5. Ensure all new infrastructure are disaster resilient following national standards developed for specific infrastructure.
6. Ensure at least 5% of development budget is spent on DRR including a significant proportion in disaster research and mainstreaming of DRM in economic development initiatives.
7. Ensure that all large private sector businesses (industry, trade, insurance, banking, hotels, travel, tourism industry etc.) develop and operationalize their Business Continuity Plans (BCP) by 2020 to address all major natural and non-natural hazards.
8. Engage the private sector in targeted investments in DRR in their respective sectors (tourism, industry, trade, hydropower etc.).
9. Require hazard insurance for all major public investments and promote the expansion of hazard insurance to all households.
10. Develop a special program for preserving, rehabilitating, and strengthening cultural heritage structures to insure they meet required level of safety for natural hazards.
11. Ensure livelihood concerns are explicitly integrated into risk reduction programs.
12. Enhance mass media's capacity to accurately and effectively cover disaster preparedness and risk management.

4 Under SFDRR Priority 4: Enhancing Disaster Preparedness for Effective Response and to "Build Back Better" in Recovery, Rehabilitation and Reconstruction

1. Establish a well-resourced system of institutions, people and equipment for disaster preparedness at all levels of government, including all rural and urban municipalities (Gaunpalika and Nagarpalika).
2. Make sure all rural and urban municipalities (Gaunpalika and Nagarpalika) have disaster preparedness plans that consider self-help, mutual support and public support, and pre-positioning of food/non-food items.
3. Develop a system of national disaster volunteers at all levels in all rural and urban municipalities (Gaunpalika and Nagarpalika).
4. Equip all volunteers with basic training as well as search and rescue equipment.
5. Scale-up programs for First Aid, Medical First Response, Collapse Structures Search and Rescue, Hospital Preparedness for Emergencies, Swift Water Rescue and other trainings to reach to the community and household levels.
6. Develop evidence-based, consensus key messages for disaster safety and insure these messages are effectively disseminated.
7. Expand and strengthen ongoing efforts of accurate and effective risk communication through mass media.
8. Make sure the institutions, capacities, and lessons learned during reconstruction are retained and adapted to ensure complete recovery and no further risk accumulation.

And; Call on All Major Groups and Stakeholder Groups

1. To deliver on their Voluntary Statements of Action within 2018, and periodically report on progress by reviewing, revising and renewing commitments to the above action items in the years 2020, 2025, 2030, and 2035;
2. Appreciate the leaderships of the Ministry of Home Affairs (MOHA), the National Reconstruction Authority (NRA), and the National Academy of Science and Technology (NAST) in hosting the Risk to Resilience (R2R) Conference and engaging NSET in the organization of the conference; and
3. Express our sincere gratitude and appreciation to the foreign participants for their continuous concern and support to the cause of enhancing disaster resilience in Nepal.

ADOPTED on June 20, 2018 in Kathmandu, Nepal

21st Earthquake Safety Day

Nepal commemorated the 21st edition of ESD with the theme: "Committed governments at all levels to ensure Citizen's Right to Safety from Disasters" focusing on role of all three tiers of governments in earthquake risk reduction efforts in the country.

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

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

MoHA organized and Lalitpur Metropolitan City (LMC) hosted 21st ESD National Programs this year. The ESD events, as in the previous years, were conducted nationwide through collaborative efforts of various stakeholders. Chief Guest Prime Minister KP Sharma Oli, other guests and participants present at the ESD National Meeting held in Lalitpur.

National Meeting

The 21st National Earthquake Safety Day (#21stESD) was marked on January 16, 2019 with various activities nationwide. Rt. Honorable Prime Minister KP Sharma Oli inaugurated the National Meeting held at Staff College auditorium hall in Jawalakhel, Lalitpur. In his address, Prime Minister Oli urged all stakeholders to join hands for minimizing impending earthquake risks in Nepal. On the occasion, he re-iterated the commitment of Nepal Government to work together to enhance earthquake safety and help building disaster resilient communities in Nepal. "Collapse of a house in Nepal is not just the collapse of an ordinary physical structure, it's related to our attachment, livelihood and even to the confidence of house-owner. Let's focus on building our houses safer", remarked Prime Minister Oli. Prime Minister highlighted that Government of Nepal is considering for more organized and institutionalized DRR efforts to devise and implement so that efforts are more sustained and result-oriented.

The National Meeting was chaired by Home Minster and Chairperson of the ESD National Organizing Committee Hon. Ram Bahadur Thapa 'Badal'. Addressing the meeting, Home Minister Mr. Thapa stated that Government of Nepal is giving top priority to Disaster Risk Reduction and emphasized the need of localization of DRR initiatives. Minister Thapa also focused on effective implementation of National Building Code and adopting safer construction practices to minimize the earthquake risks.

Mr. Sushil Gyewali, Chief Executive Officer of National Reconstruction Authority (NRA), briefed the progress of the ongoing post-earthquake reconstruction works. CEO Gyawali remarked, "reconstruction of 55 percent of schools, 50 percent of the health posts and around 50 percent of private housings has been accomplished so far."

Mr. Chiri Babu Maharjan, Mayor of Lalitpur Metropolitan City, highlighted Metropolitan City's efforts on implementation of National Building Code claiming that early and effective enforcement of Building Code contributed to minimize the human casualty and property loss during 2015 Gorkha Earthquake.

At the program Mr. Maniram Gelal, Coordinator, ESD Publicity Sub-Committee and Director General, Department of Urban Development and Building Construction (DUDBC) briefed on how Building Code implementation is progressing in Nepal.

Ms. Valery Julliard, UN Resident Coordinator of UN addressing the meeting opined, "given Nepal's seismological risk, Earthquake Safety Day is a significant reminder to understand its underlying risk &to put necessary preparedness measures in place so that people across Nepal whether they are at home, school or work remain safe".

Mr. Surya Narayan Shrestha, Member Secretary of ESD National Organizing Committee and NSET Executive Director presented highlighted the importance of marking the Earthquake Safety Day. Executive Director Shrestha also briefly presented the key outcomes of Panel Discussion held prior to the National Meeting.

Rank and file government officials, professional from various organizations and dignitaries from diplomatic missions were also present at the program.

Earthquake Memorial Meeting

Earthquake Safety Rallies started from four different places of Lalitpur, namely, Balkumari, Gaahiti, Pulchowk and Lagankhel of Lalitpur with the awareness-raising messages had converted into Earthquake Memorial Meeting at Patan Durbar Square. Hon. Home Minister Mr. Ram Bahadur Thapa briefly addressed the participants on the occasion. Government Officials, Elected Representatives, Security Officials and participants from various sections gathered on the occasion paid tributes in memory of all those who had lost their lives in past earthquakes. Memorial meeting is one of the key events of ESD being held every year. The meeting was chaired by Mayor of LMC as the meeting was hosted LMC.

Chief guest Minister for Home Affairs Honorable Mr. Ram Bahadur Thapa paying tribute to deceased of the past earthquakes in Bhugol Park, New Road, Kathmandu.

Organizers, distinguished guests among other attending the Earthquake Memorial Meeting Ceremony at Patan Durbar Square, Lalitpur.

Meanwhile, addressing a brief memorial meeting held in the Bhugol Park, Mr. Thapa mentioned about the irreparable losses of past earthquakes that remains the tragic memory for all of us. Mayor of Kathmandu Metropolitan City, Mr. Bidya Sundar Shakya stated that coming to the monument keeps us reminding about those people who lost lives in past earthquakes and gives us strength to work together so that future earthquake would incur less losses. Mr. Nilkaji Shakya, Ward Chairperson and Head of Disaster Management Committee of Metropolitan City opened the meeting with key notes of his heartfelt condolences to the people we lost in past earthquakes. On the occasion, Minister Thapa and Mayor Shakya had also released "Disaster focused Information Directory" published by Metropolitan City.

Earthquake Safety Rally

Earthquake Safety Rally is one of the major events of ESD being held every year. The rally is organized before the National Meeting 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 reconstruction practices.

The rally, started from Pulchowk, was led by Hon. Minister for Home Affairs Mr. Ram Bahadur Thapa, the rally started from Lagankhel was led by Mr. Prem Raj Joshi, Chief District Officer of Lalitpur, the rally started from Balkumari led by Mr. Chiribabu Maharjan, Mayor of Lalitpur Metropolitan City while the rally started from Gaahiti was led by Ms. Gita Satyal, Deputy mayor of Lalitpur Metropolitan City.

The rallies were joined by personnel from various Government Offices, Community Groups, Police Forces, Nepal Army, NGOs, INGOs, Scouts, Students, Volunteers, Participants, Businesses, Local Community people, CBOs and many more.

Minister for Home Affairs, Honorable Ram bahadur Thapa 'Badal' cutting ribbon to inaugurate earthquake safety rally in Pulchowk, Lalitpur.

Mayor of Lalitpur Metropolitan City, Mr. Chiri Babu Maharjan cutting ribbon to inaugurate earthquake safety rally at Balkumari, Lalitpur.

Awareness Raising Events/Simulations on Earthquake Safety and Preparedness

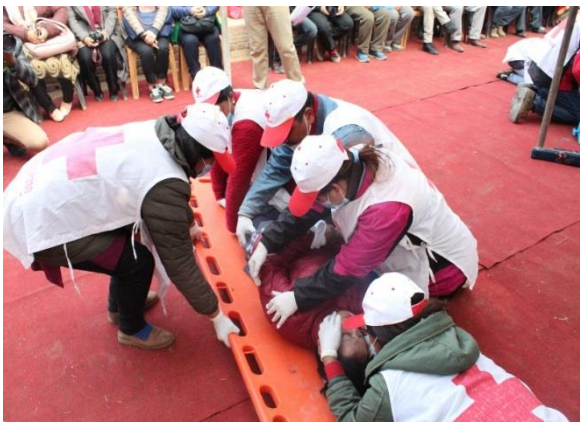
As part of 21st ESD, various awareness events, namely, Street Drama, First Aid, Community Search and Rescue and Fire Fighting Response simulations held in four locations of Lalitpur.

Street Drama

As an event under the ESD, a street drama "Balaiyo Ghar" was performed by a group of artists called "Dabali Natya Samuha" at Lagankhel, Lalitpur. Safer construction or earthquake resilient construction is critical issue of earthquake safety and preparedness. Therefore, the "Balaiyo Ghar" drama focused on raising public awareness on various aspects of safer construction techniques a building including retrofitting. Surakshit Sahar Pariyojana (Safer Cities Project), implemented by ISET-Nepal, organized the program. The consortium partners of project are ADRA, DCA, LWR and WVI.

First Aid Simulation

First Aid is one of important tools to support in disaster response activities at the time of emergency. As part of raising awareness of community people about the basic techniques of First Aid, which could be useful them during emergencies, a simulation exercise was conducted in Balkumari Lalitpur as part of 21st ESD 2019.



Nepal Red Cross Society organized the event demonstrating how to respond during emergencies situations with available means. During the simulation, several emergency situations with mock causalities was simulated enabling people to assess and respond to the emergency. This included providing First Aid to casualties, splinting and bandaging, evacuation using available vehicles, stretchers among others.

Fire Fighting Response Simulation

With view to making community people aware on the basics of fire safety and also help teach hands-on skills on responding to fire disasters that could be useful during emergency situation, a fire response simulation was conducted at Pulchowk, premises of Lalitpur Metropolitan City on the occasion of 21st ESD. The simulation basically demonstrated how to extinguish gas cylinder and also operating fire extinguishers. NSET had organized and conducted the simulation.

Emergency Search and Rescue Simulation

With view to making community people help learn basic response skills such as search technique, victim extrication technique, heavy object lifting, moving and stabilizing, and emergency search and rescue(SAR), a SAR simulation was performed at Gaahiti of Lalitpur. NSET had organized and conducted the simulation...

National Earthquake Safety Demonstration

National Earthquake Demonstration is one of the regular events of ESD. During the National Meeting, a special siren was aired from Radio Nepal and other FM stations across the country at 2.24 PM as a notification of an earthquake, coinciding with the devastating 1934 earthquake. The safe behavior (Drop, Cover and Hold on) demonstration was conducted by a team of NSET. Then, each one of the participants joined into a Human Chain by holding hands as a symbolic gesture of working together in reducing the earthquake risk in days to come.

Interaction Session on Earthquake Safety

As part of the ESD, an 'Interaction Session on Earthquake Safety' was held as one of the main event of this year ahead of National Meeting on January 16, 2019 at Staff Collage, Jawalakhel, Lalitpur.

The Interaction session was organized consisting a panel discussion among the pertinent professionals representing various sectors including Governmental Bodies, Local Authorities, Professional Organizations, Politicians, Private Firms, Civil Society Organizations and Civil Society Individuals. There were;

1. Prem Kumar Rai, Secretary, MOHA
2. Chandra Bahadur Shrestha, NRA
3. Ashok Byanju, Chief, MUAN
4. Madan Krishna Shrestha, Actor
5. Nirmala Sharma, Journalist
6. Kush Kumar Joshi, Industrialist

The major objective and key areas of discussion were to evaluate role of various sectors in DRR, identify strategical approaches to fortify

the initiatives and advance it in every corners of the nation, identify the ways to sustain the efforts of reconstruction and institutionalize the achievements and critically analyze the efforts made and way forward to be adopted.

The session covered, evaluated and discussed wide range of topics including approaches and programs that were conceptualized and implemented in recent decades to reduce the earthquake risks in Nepal, implementation of National Building Code, Emergency Response Programs, schools retrofitting, post-Gorkha Earthquake reconstruction in Nepal among others. The discussion helped enlighten the endeavors made in the field of disaster risk management and provide way forward to be adopted in coming days. Some of the recommendations made by the interaction program are as follows;

- Disaster Risk Reduction and Management Act, 2017 enacted but need of formation of Disaster Risk Reduction and Management Authority at the earliest.
- Clarity needed in the allocation of roles and responsibilities among the three tiers of governments on DRR and DRM.
- Continuation of awareness promotion activities on DRR and DRM in the societies and sectors. Needed to specially DRR and DRM awareness enhancement of political parties and its leaders.
- Optimum utilization of limited economic and human resources for the effective works in regard to DRR and DRM.
- Need to opt inclusiveness in regard to DRR, DRM and Post disaster reconstruction.
- Need to promote joint work with private sectors for disaster response; relief distribution, search and rescue, recovery and reconstruction.
- Need of adopting new technology in reconstruction
- Effective mobilization of trained contraction workforce including masons and engineers.

More than 200 participants including officials, representatives and professionals from government authorities, policy and decision makers, security agencies. foreign delegates, journalists, academia, PR actioners and Implementers, professional organizations, private firms and business house, and technical professionals who were directly/indirectly allied to the sectors of disaster management attended the session.

National Symposium on Earthquake Risk Reduction and Management in Nepal

The National Symposium is a regular program as a part of the annual ESD which Nepal observes every year on 15 or 16 January and around commemorating the Great Nepal-Bihar Earthquake of 1934. National Symposium is a sharing and learning forum for the DRR stakeholders to review the DRR efforts of past year and discourse and explore the way forward in Earthquake Risk Management.

As a regular event of ESD, National Symposium on “Earthquake Risk Reduction and Risk Management in Nepal" was held in Kathmandu during January 22, 2019 with the view to provide a forum for the corresponding development sectors and stakeholders to discuss on the past experiences, progress and pertinent issues and way forward

towards reconstruction and preparedness to minimize the future impacts of large-scale earthquakes in the communities. The symposium organized at BougainVilla Banquet, Teku discoursed intensively on the various issues of earthquake risk reduction and safer reconstruction and reviewed the efforts on reconstruction, risk reduction and preparedness.

Chief guest Mr. Sushil Gyewali, CEO of NRA, addressing the inaugural session of the National Symposium 2019 held in Kathmandu on the occasion of 21st ESD on January 22, 2019.

The symposium began with an inaugural session where invitees from ministries, government departments and other government and non-governmental institutions put forth their views about the significance of the program.

National Symposium on "Earthquake Risk Reduction and Management in Nepal" was organized in Kathmandu on January 22, 2019 on the occasion of 21st ESD. Various experts and professionals at the program highlighted the collaborative and integrated roles and responsibilities of all three tiers of governments on disaster risk reduction and management efforts in the changed context of new federal governance structures.

Addressing at the Opening Ceremony, CEO of NRA, Mr. Sushil Gyewali said that NRA has redesigned its approach and is moving ahead in collaboration with Local Governments in its reconstruction bid in line with the Nepal's changed context of governance system. Adding that the reconstruction process is progressing satisfactorily, Mr. Gyewali remarked, "Villages and settlements are on the verge of concluding their reconstruction works as there has been 80 percent of private housings are either accomplished its rebuilding process or being rebuilt. Only 20 percent are left to be rebuilt and half of them probably never going to rebuild their houses."

The Chair of the program, Mr. Maniram Gelal, Director General of Department of Urban Development and Building Construction (DUDBC) highlighted the need of paying efforts to reducing disaster risk by enhancing preparedness as country is prone to high level of multi hazards including earthquakes. "Constructing structures resilient to earthquakes is important aspect of preparedness," Mr. Gelal said.

Addressing the ceremony, Ms. Indu Ghimire, Joint Secretary and Head of Disaster Management Division at Ministry of Home Affairs (MoHA) shared that MoHA is all set to promulgate Disaster Risk Reduction and Management Regulation and form the Disaster Risk and Management Authority soon in line with the newly enacted Disaster Risk Reduction and Management Act, 2017. "It took the country 30 years to focus reduction-centric disaster management approach from rescue-centric approach. Now, we are working day-night to develop an integrated disaster information system so that it could help in disaster risk reduction planning efforts in future," Ms. Ghimire remarked.

Mr. Dev Ratna Dhakhwa, Secretary General, Nepal Red Cross Society (NRCS) emphasized the need of implementing the Earthquake Contingency Plans at level as part of DRR initiatives as the Earthquake is distinct nature of hazard.

On the occasion, Mr. Chhabi Raj Pokharel, General Secretary of Nepal Engineers' Association, extended his commitment of Nepali Engineering fraternity to work together with various stakeholders on building resilient buildings and infrastructures. Mr. Pokharel added, "the roles that Engineers have to play in safer and earthquake resilient construction is huge and we are committed to contribute from our end".

Mr. Krishna Raj Kaphle from United Nations Development Program said that Nepal has promulgated Disaster Risk Reduction and Management Act and Action Plan for 2018-2030 in line with international commitments and national requirements. "But the effective implementation of the policy into actions is more important", MR. Kafle added.

Initially, Mr. Surya Narayan Shrestha, Executive Director, NSET had highlighted the objectives of Earthquake Safety Day and its one of the regular events, the National Symposium. On the occasion, Mr. Shrestha remarked, "symposiums have become an important platform every year to discuss upon burning issues of Nepal's Disaster Risk Reduction efforts and the outcomes and the recommendations are not just for documentation but go for immediate actions."

In the beginning, Mr. Dwarika Shrestha, Deputy Director General of DUDBC, in his welcome note on behalf of all the organizers, gave a glimpse of Nepal's efforts on promoting resilient construction. "Effective enforcement of Building Codes is key to ensure resilient structures and we are progressing much in terms of developing better understanding and building local capacity as well" MR. Shrestha remarked.

In the Symposium this year, total four thematic sessions organized:

- Disaster Risk Reduction and Management in the Context of Localization in Nepal,
- Role of Mass Media for Resilient Communities in the context of Federalization,
- Need, Possibilities and Challenges for Seismic Retrofit of Non-Engineered Buildings, and

- Young Researcher's Session on Disaster Risk Reduction in Nepal.

The DUDBC and NSET in association with various government and non-governmental organizations organized this year's symposium. About 200 people representing different DRR stakeholders, professionals, teachers and students participated the National Symposium, 2019.

Also series of ESD activities reported held in District Headquarters, Municipalities, Schools, Communities, and various social forums.

Earthquake Safety Campaigns held in Various Municipalities to Mark 21st Earthquake Safety Day

NSET assisted various program municipalities to conduct the ESD activities in their municipalities.

Rally Around the Main Streets

The objectives of these rallies were to increase the level of public awareness, perception and attitude towards earthquake risk management. Banners, placards and speeches were used to disseminate the messages. Rallies were conducted in all TSBCIN program municipalities under the leadership of the respective municipalities. Participants were representatives from province government, local government, local development organizations, masons, engineers, house-owners etc.

Among the municipalities, Janakpurdham Sub-Metropolitan City of Dhanusha, Birendranagar Municipality of Surkhet, Nepalgunj Sub-Metropolitan City of Banke, Vyas Municipality of Tanahu, Damak Municipality of Jhapa, Mithila Municipality of Dhanusha and Kamal Rural Municipality of Jhapa organized the earthquake sfety rallies.

Interaction Programs

Interaction programs with different stakeholders i.e. Mayors, elected representatives of municipalities, masons, contractors, engineers, etc were held to increase the awareness, share knowledge and information about earthquake safety and to share the experiences on building code implementation. Janakpurdham Sub-Metropolitan City, Itahari Sub-Metropolitan City, Birendranagar Municipality, Nepalgunj Sub-Metropolitan City, Ghorahi Sub-Metropolitan City, Damak Municipality, Vyas Municipality, Mithila Municipality and Kawasoti Municipality sucessfully conducted the programs.

Shake Table Demonstration

Shake table Demonstration is used to demonstrate risk-reduction techniques in building construction and convince people about the effectivness of integrating earthquake-resistance techniques in building construction. Ghorahi Sub-Metropolitan City, Janakpurdham Sub-Metropolitan City and Birendranagar Municipality organized the Shake Table Demonstrations. In these demonstrations, around 1,500 people including provincial government, chief district officers, elected municipal representatives, municipal officials, engineers, academic institutions, Nepal army, Nepal police, Armed police force, construction workers, journalists and house owners participated.

Media Workshop

One-day workshop on 'Role of Media in Disaster Risk Reduction and Earthquake Safer Construction' were conducted in Janakpurdham Sub Metropolitan City and Vyas Municipality. Participants of the program were journalists from different local media such as newspapers, radios, televisions and online news portals etc. Total 80 media professionals benefitted from this one-day training workshop.

Street Drama and Simulation

With the view to raise awareness of general people regarding the impending earthquake risk and impact of disaster, Street Dramas were performed in Dhangadhi Sub-Metropolitan City of Kailali and Birendranagar Municipality of Surkhet. Likewise, simulations on Search and Rescue and First-Aid were also held in Janakpur Sub-Metropolitan City. The event was conducted in leadership of Armed Police Force.

Earthquake Safety Day Marked by Schools

The 21st Earthquake Safety Day (ESD) 2019, has been marked under School Earthquake Safety Program in various districts. An Earthquake Safety Awareness Rally was conducted in Achham with active involvement from Nepal Police, Nepal Army, DRR stakeholders, partners, students, Government officials and local community people with the national slogan "Committed Governments at All Levels to Ensure Citizen's Right to Safety from Disasters".

Similarly, the occasion was also marked in Jumla to raise the awareness of local level and community people. The event was organized NSSP with close coordination of District Coordination Committee with view to lobby, develop and follow the policies concerning the different disasters. Various sub-events such as speech competition, Deuda competition, demonstration (Simulation) of earthquake and awareness rally with posters and play cards were also organized.

In coordination with Earthquake Measurement Center, NSET organized orientation in schools in Surkhet. The topic for the orientation was, 'Presentation about earthquake risk mitigation'. On the main day (Magh 2, 2075) Shake Table Demonstration was also conducted. The program was organized by NSET in coordination with Birendranagar Municipality, Surkhet and Earthquake Safety *Main Day Ceremony*-2075, Surkhet. The Shake Table was observed by around of 200 participants including community members and government officials.

4th Anniversary of 2015 Gorkha Earthquake

On April 25, 2019, the 4th Anniversary of the 2015 Gorkha Earthquake has been commemorated in Nepal. Rt. Honorable Prime Minister KP Sharma Oli addressed the Memorial Meeting organized at Basantapur Durbar Square. On the occasion, Hon. PM Oli expressed confidence that the reconstruction of private housings, government buildings and the heritage buildings would be completed within the current tenure of the NRA.

Mr. Sushil Gyewali, CEO of NRA vowed to make Nepal's reconstruction a model work and urged everyone to work together in so doing. Mr. Bidhya Sundar Shakya, Mayor of KMC, said that the KMC is committed to accomplish the reconstruction of heritages and private housings.

In the program, a tribute was also paid to the people who lost their lives in the 2015 Gorkha Earthquake. Prime Minister Oli had

felicitated various Urban Municipalities, Rural Municipalities and District Project Implementation Units for their best performances in the earthquake hit areas.

The program was jointly organized by NRA and the KMC.

After the function, Hon. PM Oli and a team also observed reconstruction works in and around the Basantapur Durbar Square, including Kasthamandap and the nine-storey palace. Before the memorial function, Hon. PM Oli had observed the Tripurasundari temple being reconstructed in Tripureshwor.

Photo: Skanda Gautam/THT

Photo: Dipesh Shrestha/Republica

Photo: Onlinekhabar

NSET Showcases Photos and Stories of Reconstruction to Mark the 4th Anniversary of Gorkha Earthquake

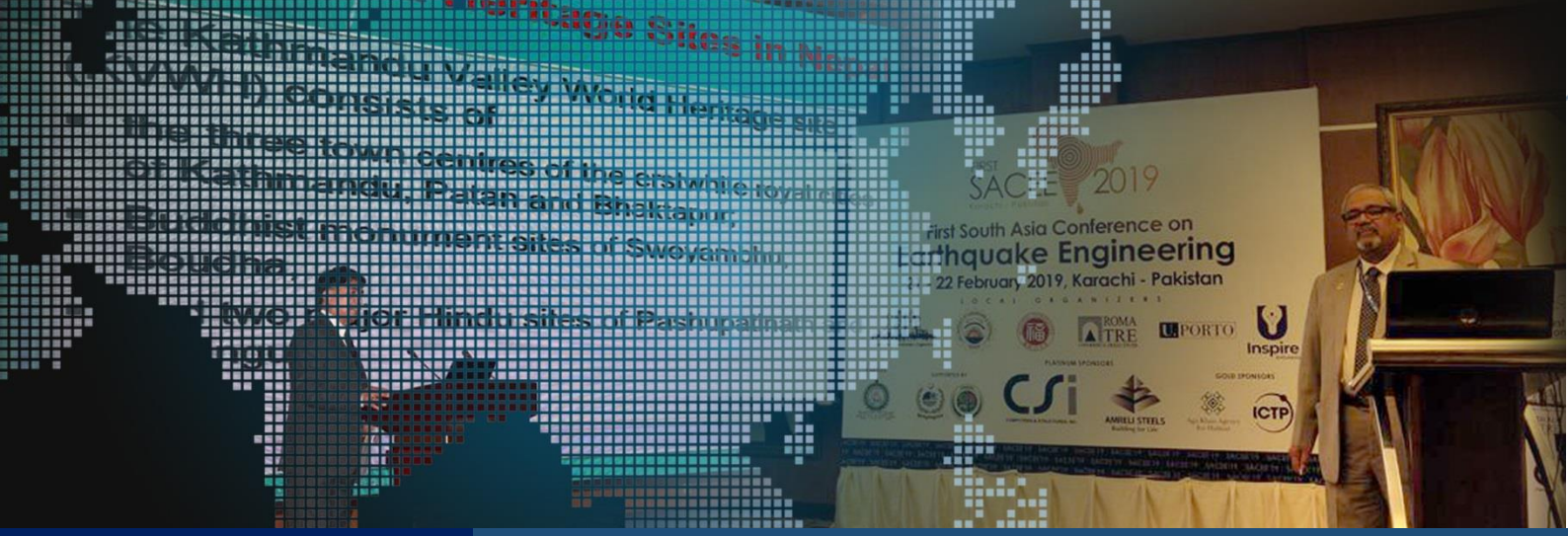
A Photo Exhibition entitled "**NSET Efforts on Reconstruction**" was organized by NSET at NSET Office premises during April 25-30, 2019. The Exhibition organized by NSET commenced on April 25, 2019, the day to commemorate 2015 Gorkha Earthquake. The main aim was to share the experiences and showcase stories gathered during reconstruction activities of NSET through USAID supported Baliyo Ghar program. Groups of visitors from government offices, municipalities, media, communities, rotary, DRR practitioners, teachers, students and NSET staff observed the Exhibition and have shared their reflections, experiences and ideas. The exhibition started with informal sharing among NSET staff.

Addressing the Closing Session, CEO of NRA, Mr. Sushil Gyewali highlighted the achievements made in reconstruction so far. "Though delayed with some obstacles, we have been marching towards successful reconstruction which eventually would be a model for rest of the world. Till date, we have finished above 50% of the reconstruction tasks which we are committed to accelerate in the year forth," Mr. Gyewali stated. Former Chancellor of Nepal Academy of Fine Arts (NAFA) and Senior Artist Mr. Kiran Manandhar shared on how fine arts could help in promoting public awareness on earthquakes and other disasters and also in enhancing culture of safety in our societies. Senior Litterateur Mr. Santa Das Manandhar, who is the writer of award-winning book on earthquake education “Hajuramako Katha” (Grandma’s Story), stressed on importance of civic education to tackle the disaster adversities including earthquakes.

Dr. Amod Mani Dixit, General Secretary of NSET urged NRA to organize an international conference to share and showcase the learnings of Nepal's reconstruction. Mr. Andrew Golda from USAID Nepal briefed

about USAID support for Nepal's reconstruction efforts to achieve "Build Back Better". On the occasion, Mr. Surya Narayan Shrestha, Executive Director of NSET, had highlighted the experiences of reconstruction that NSET has collected and emphasized on the objectives of organizing photo exhibition.

The exhibition included basically 6 major themes; Resilient Communities, Happy Families, Reconstruction Heroes, Knowledge and Technology Transfer, Baliyo Ghar Program Activities among end-users; and Inclusion in Reconstruction. More than 100 photos collected from Baliyo Ghar Program areas were displayed during the Exhibition. With the support from USAID, NSET is providing technical assistance in reconstruction of Nepal through Baliyo Ghar Program.



Section 2 NSET Efforts in Past One Year (June 2018–May 2019)

2.8 Sharing and Cross Learning: NSET's involvement in National, Regional and Global Initiatives

Sharing information and developing and strengthening networking, cooperation and collaboration among the like-minded organizations, disaster management practioners, policy makers and others at national, regional and international level are undoubtedly an important step for making resilient communities. NSET, therefore, has been actively involved in cross learning processes since past 25 years. It has been well connected with many national and international organizations including Asian Disaster Reduction and Response Network (ADRRN), Global Disaster Network of CSOs in Disaster Reduction (GNDR) Disaster Preparedness Network (DPNet-Nepal), Disaster Management Network-Nepal (DiMANN) Coalition for Global School Safety (COGSS), International Live Lessons Transfer Network (TeLLNet), International Association for Earthquake Engineering (IAEE) and World Seismic Safety Initiative (WSSI) and Many more.NSET has been contributing to various initiatives at national, regional and global level as well. It also constantly participates in various regional and international meetings, workshops and seminars.

GNDR Consultation Meeting

National Workshop on "Collective Efforts of Civil Society Organizations for DRR and National Workshop on "Collective National Workshop on "Collective Efforts of Civil Society Organizations for DRR and Management" conducted on the occasion of 'International Day for Disaster Reduction 2018' on October 8, 2018 in Kathmandu. The one-day workshop was jointly organized by GNDR, NSET, Practical Action, DPNET and DiMaNN.

The main objective of the workshop was to review their DRR and DRM initiatives and evolve an effective system with practical methodologies against the backdrop of various national and international non-governmental organization, civil society organizations and networks are assisting government Nepal to make Nepali communities safe from disaster and investing millions of dollars each year for the purpose.

Presentations were made from GNDR, DPNET, DiMaNN, NGO Federation Nepal and Human Rights Alliance with major focus on the experiences and lesson learnt of institutions in carrying out disaster risk reduction and management initiatives.

NEAR Consultation Workshop

Network for Empowering Aid Response (NEAR) Consultation Workshop was conducted with the Civil Society Organizations of Sunsari district on October 12, 2018 with main objectives to introduce the network, the need and rational of pooled funding mechanism; to request for providing the detailed data/information of the organization and to discuss the lessons, experiences of humanitarian support during recent disasters. Currently, nine NGOs of Nepal are in the NEAR network.

Similarly, a two-day "Consultation Workshop on Pooled Funding Mechanism" was organized to formulate concepts for Pooled Funding Mechanism in Nepal among the relevant organizations and experts in Kathmandu. The workshop was organized jointly by NEAR, NSET and NEAR Partners in Nepal on 29-30 October 2018. 26 professionals representing 10 civil society organizations and networks participated in the workshop. The objective of the workshop was to share the outcome of CSO Mapping Survey conducted under NEAR program on September, to create a common understanding on pooled funding mechanism and suggest different options of PFM mechanism suitable for Nepal.

VFL 2019 Implementation

The implementation process of Views From Frontline (VFL) 2019 is currently underway in Nepal. NSET is serving as the National Coordinating Organization for implementing the VFL-2019 in Nepal.

A meeting of VFL National Advisory Committee (NAC) held on February 8, 2019 had identified and selected rural and urban municipalities as potential Risk Areas and Districts (as enlisted below) for VFL 2019 implementation based on the physiographic regions of Nepal; (Plain Area/Terai, Hill and Mountain), Urban and Rural and the HDI and the HPI Index of Nepal. The NAC is an apex body in decision making for the implementation of VFL 2019. It is comprised of members from civil society organizations, networks, academia, private stakeholders and government officials. NAC also provides overall guidance and coordination among the relevant departments and institutions for the effective implementation of VFL 2019.

The NAC meeting also identified Flood, Landslide, Fire, Avalanche, and Earthquakes. Lightening and Cold waves as major hazard in the country based on the frequency of occurrence the major five disasters in Nepal. For the risk zonation on the basis of hazards, the DesInventar Study Report and the DRR portal of the Ministry of Home Affairs was referred. The NAC meet also discussed on the process of selecting communities for VFL and Call for Application from the civil society organizations to work as the Partner Organizations (POs).

SN	District	Selected Municipality /Gaupalika	Category	Province	Geography	Primary Hazards	DRR works
1	Jhapa	Kamal Gaupalika	R	1	Plain	Flood/Fire/Lightening	Partial
2	Solukhumbu	Khumbu Pasanglhamo Gaupalika	R	1	Mountain	Avalanche/Landslide / Lightening	Initial
3	Udaypur	Udaypurgadi Gaupalika	R	1	Mountain	Flood/Landslide	Initial
4	Udaypur	Triyuga Municipality	U	1	Plain	Cold Wave/Fire	Partial
5	Dolakha	Kalinchok Rural Municipality	R	1	Mountain	Flood/Landslide	Partial
6	Lalitpur	Lalitpur Metrppolitan City	U	3	Hill	Flood/Fire	Initial
7	Bhaktapur	Chagunarayan Municipality	U	3	Hill	Fire/Floo/Landslide	Partial
8	Kathmandu	Chandragiri Municipality	U	3	Hill	Fire/Flood/Landslide	Initial
9	Syangja	Galyang Municipality	U	4	Hill	Fire/Flood/Landslide	Initial
10	Tanahu	Vyas Municipality	U	Gandaki	Hill	Fire/Flood	Partial
11	Gorkha	Gandaki Gaupalika	R	4	Hill	Landslide/Flood/Lightening	Initial
12	Surkhet	Birendranagar Municipality	U	6	Hill	Flood/Landslide/Lightening	Partial
13		Chaukune	R	6	Hill	Flood/Landslide	Initial
14	Jumla	Sinja Gaupalika	R	6	Mountain	Avalanche/Fire/Landslide	Initial
15	Jumla	Chandannath Mujnicipality	R	7	Mountain	Avalanche/Fire/Landslide	Initial

Likewise, a National Training for four selected Partner Organizations (POs) was conducted in Devghat, Tanahun during 12-14 March, 2019. The POs are the one who implement the VFL 2019 in their respective areas. Forum for Awareness and Youth Activity (FAYA), Fulvari Integrated Rural Development Organization (FIRDO), Friends Service Council Nepal (FSCN) and Nava Prabhat Nepal are the four POs who will be supporting NSET for the implementation of VFL-2019.

The training was organized to train POs to conduct community surveys and consultations as well as facilitate development and implementation of local plans in the communities. Altogether 30 participants, two each from 4 POs and the local surveyors from the selected communities participated in the training program. The concept of VFL-2019, its approach, tools and methods, which enumerators and community facilitators need to apply, were discussed during the training program.

NSET's Participation in Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) 2018

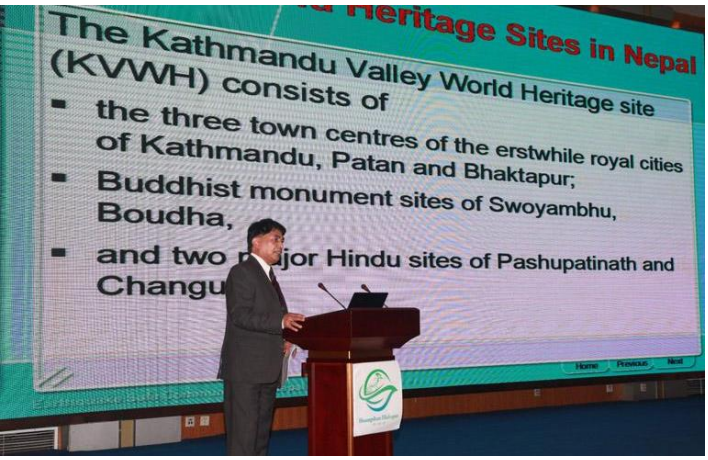
The Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR), supported by the ISDR-Asia Partnership Forum, and together with the sub-regional platforms and forums in the Pacific, forms the regional platform structure of the Asia-Pacific region. Held from July 3-6, 2018, Ulaanbaatar, Mongolia, the AMCDRR also serves as a forum for other stakeholders to take a shared responsibility and make actionable commitments to reduce disaster risk.

The conference, true to the multi-stakeholder spirit of the Sendai Framework, enables governments and stakeholders to exchange experiences on successful practices and innovative approaches to prevent, reduce and manage disaster risk. This results in forward-looking action plans based on a mutual sharing status of DRR implementation. Three professionals attended the 8th AMCDRR from NSET: Dr. Amod Mani Dixit, General Secretary of NSET, Mr. Surya Narayan Shrestha Executive Director of NSET and Dr. Ramesh Guragain, Deputy Director of NSET. NSET organized four sessions as part of the Side Events during the conference in which NSET professionals participated as panelists and moderators. The four sessions were;

1. Building Resilient Schools for Imminent Earthquakes: A hope for the future jointly organized by Department of Education (DOE), NSET, Crown Agents (CA) and Save the Children Nepal.
2. Enhancing Urban Resilience in the Region: Successes, Challenges and Lessons, organized by National Reconstruction Authority (NRA), NSET and City Net.
3. Owner Built Approaches in Reconstruction: Lessons LEARNED-Lessons NOT LEARNED, organized by National Reconstruction Authority (NRA), NSET, Catholic Relief Services (CRS) and Housing Reconstruction and Recovery Platform (HRRP)-Nepal.
4. Mainstreaming Disaster Risk Reduction through Community Based Disaster Risk Reduction, jointly organized by NSET, LalitpurMetropolitan City, Lumanti Support Group for Shelter and Disaster Preparedness Network Nepal (DPNET-Nepal)

Experiences Shared at Huangshan Dialogue on UNESCO Sites and Sustainable Development

The 3rd Huangshan Dialogue on UNESCO Sites and Sustainable Development has been held in Huangshan City, Anhui Province, People's Republic of China, during Oct 31 to Nov 3, 2018. The International Centre on Space Technologies for Natural and Cultural Heritage (HIST) under the auspices of UNESCO, hosted by the Institute of Remote Sensing and Digital Earth (RADI) of the Chinese Academy of Sciences (CAS), in collaboration with the Huangshan City Administration in Anhui Province, China have convened three “Huangshan Dialogue for Sustainable Development” in 2014, 2016 and 2018.



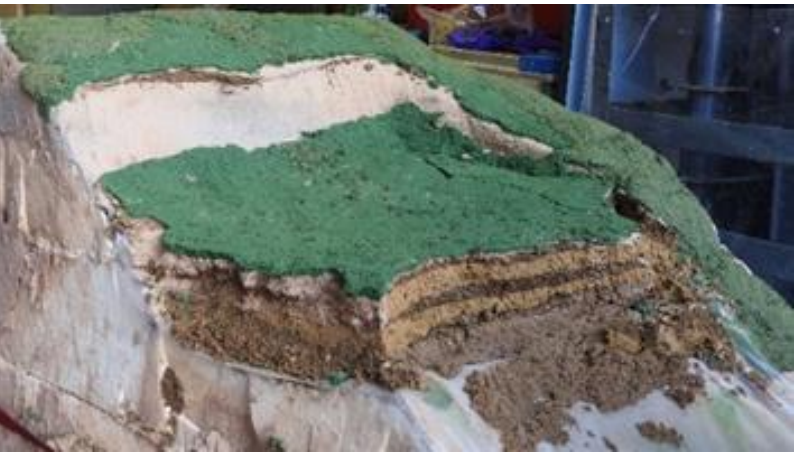
The event concluded with commitment for Cooperation to Create a Collaborative Network of UNESCO Designated Places along One Belt and One Road (OBOR) to Reach Sustainable Development Goals (SDGs). Representatives and participants unanimously adopted the "Huangshan Consensus" at the conclusion of the Dialogue, the important output of the process that will support efforts in their own countries as well as within the larger region along One Belt and One Road to develop a collaborative network of

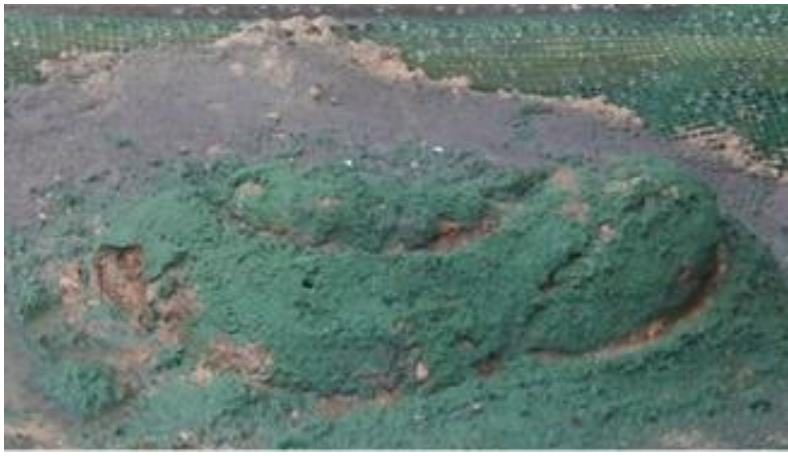
UNESCO designated World Heritage sites, World Biosphere Reserves and Global Geoparks dedicated to attaining SDGs during the period between 2020 and 2030. From NSET, Senior Technical Advisor Mr. Surya Bhakta Sangachhe presented Nepal's experiences on "Heritage Conservation for Sustainable Development" in the Conference.

Live Demonstration on Landslide Risk Reduction in UK

The Landslide Demonstration (two types) was conducted in Durham University, United Kingdom in March 2019. Off the two demonstrations, one was dry rotational landslide and another was a rainfall-triggered landslide. For the Rotational Dry Landslide Demonstration, Kingspan Fabric was used for the landslide mold and different color sand was used to make the layer in the subsurface. Along with Live Demonstrator, Grain size analysis and shear strength test of soil taken from four different places of Nepal were done. For the preparation of Landslide Demonstrator and rain simulator, Mr. Bijay Krishna Upadhyay and Ms. Sarmila Paudyal had been to Durham University of United Kingdom.

Landslide-induced by rainfall demonstration was done by the help of rainfall simulator for which small scale hilly terrain was made by the soil carried from Nepal.





Nepal's Experiences and Lessons on Post-Earthquake Reconstruction Shared in SACEE, Pakistan

NSET Professionals shared the experiences and lessons learned from Gorkha Earthquake and Reconstruction of Nepal during the South Asia Conference on Earthquake Engineering (SACEE) in Karachi, Pakistan on Feb 21-22, 2019. Dr. Amod Mani Dixit, ERM Specialist and General Secretary, NSET as keynote speaker in the conference shared "The 2015 Gorkha Earthquake: Some Lessons Learned". Mr. Manish Raj Gouli, Engineer, NSET-Baliyo Ghar presented on "Post-Earthquake Reconstruction: Its Communal Impacts and Essence of Socio-Technical Assistance" whereas Ms. Rita Thakuri, Crisis Management Scholar/Executive Secretary-NSET, presented on "The Gorkha Earthquake Sequence of 2015 and Role of Women in Earthquake Reconstruction of Nepal."

The Conference was organized in order to provide a platform for scientists/professionals from South Asia and all around the world to share the experiences on disaster risk management and reconstruction issues. The conference was organized by South Asia Earthquake Network (SHAKE) with other local organizers; NED University of Engineering & Technology, University of Porto, University of Fuzhou and University of Roma Tre.

NSET Research Works & Experiences Shared at Nepal Geological Congress, 2018

The 9th Nepal Geological Congress has been held in Kathmandu during November 19-21, 2018. The conference was conducted in the collaboration with different Departments of Government, Tribhuvan University, NSET and partners. Conference was divided into three sessions; Keynote Presentation and Invited Lecture Session as a starter, Parallel Technical Sessions and poster presentations. Total 400 participants from 15 countries, including Nepal participated the conference. Altogether there were 90 oral and 42 poster presentations. The conference included 13 different Technical sessions and 1 interdisciplinary/miscellaneous session. There were 12 participants from NSET.

Training on Earthquake Hazard Assessment and Aftershock Forecasting

NSET is collaborating with different international institutes and organizations to enhance understanding on seismic hazard in Nepal and the possible risk reduction measures. As a continuation of this effort, NSET and USGS organized a four-day training course on "Earthquake Hazard Assessment and Aftershock Forecasting" during 9-12 April 2019 under the guidance of Department of Mine and Geology and in collaboration with Earthquake Safety Solutions (ESS). The overall aim of the collaboration was to enhance our national capacity in earthquake hazard in Nepal and to develop a process of regular updater of Probabilistic seismic hazard (PSHA) map.

A total of 35 participants from government agencies, academia, NSET and ESS participated. A team of facilitators including experts and senior professionals from Nepal Government, Academia, NSET, and USGS conducted the course. Also, as a part, a half-day seminar on "Aftershock Forecasting" organized on April 11, 2019, targeting for the participants from media, government offices, academia, and DRR community. The seminar was focused on the basics of aftershock forecasting, principles, methods, and tools.

Earthquake Vulnerability Walk for GNDR Delegates

Earthquake Vulnerability Tour that NSET regularly executes is an attempt to identify, visualize and perceive the prevailing risks so that subsequent steps to improve the safety level could be placed more accurately. Such tour will help to know the ground reality of our cities which may help directly or indirectly to reduce the level of earthquake risk in Kathmandu Valley.

An Earthquake Vulnerability Tour was organized by NSET for Mr. Bijay Kumar and Mr. Rouf Mohammad from Global Network of Civil Society Organizations for Disaster Reduction (GNDR) on 21 December 2019. Kathmandu Valley – the seat of Nepal's capital – has been identified as one of the most vulnerable cities in the world. Such high risk is mainly because of the poor construction practices, unplanned and haphazard development activities and chhalange for preparedness.

Interactive seminar held on applicability of Global Earthquake Hazard and Risk Models in Nepal

An interactive seminar on "Potential Applicability of Global Earthquake Hazard and Risk Models in Nepal" was held at NSET auditorium hall on March 22, 2019. The seminar was jointly organized by The Global Earthquake Model (GEM) Foundation and NSET.

The seminar saw the participation of 25 people representing government, academic institutions and civil society organizations in Nepal including Ministry of Home Affairs (MoHA), Department of Urban Development and Building Construction (DUDBC), Institute of Engineering (IOE), Nepal Geological Society, Society of Nepalese Architects (SoNA), Department of Geology, Tribhuvan University, Nepal Government, Survey Department, Department of Mine and Geology, Kathmandu Metropolitan City, Lalitpur Metropolitan City, Build Change and NSET among others.

During the seminar, Mr. Vitor Silva, Risk Coordinator and Mr. Anirudh Rao, Risk Analyst from The Global Earthquake Model (GEM) Foundation made the presentation on functionality, approaches, objectives and accomplishments of GEM in addition to briefing about various disaster risk and seismic evaluation models developed by it.

Various participants have also put forth their views opinions and raise questions on the occasion regarding the applicability of the hazard/risk models during the seminar that was facilitated by Mr. Surya Narayan Shrestha, Executive Director of NSET.

International Conference on Silk Road Disaster Risk Reduction and Sustainable Development, China

International Conference on Silk Road Disaster Risk Reduction and Sustainable Development was organized at Beijing, China during May 11-12. NSET professionals attended the conference where Dr. Amod Mani Dixit, General Secretary of NSET, seated in Panel of Session 6 and presented paper on "Post-Gorkha Earthquake Initiatives Towards improving Policy-Science-Technology Interface in Nepal", Dr. Ramesh Guragain, Deputy Executive Director of NSET, presented paper on "Different approaches on Earthquake Risk Assessment for effective earthquake risk reduction planning and implementation: An experience from Nepal", and Ms. Hima Shrestha, Director of EERT Division of NSET, presented paper on "Linking Science and Technology for Earthquake Risk Awareness and Reduction: Experience from Nepal". Similarly, Dr. Dixit also made presentation at the Beijing Normal University and Institute of Earthquake Forecasting, Beijing, China.

Sharing at South Asia Conference on Deliberative Role of Local Authorities on Energy, Climate Actions and Disaster Management

South Asia Conference on Deliberative Role of Local Authorities on Energy, Climate Actions and Disaster Management was organized in Kathmandu on June 10-11, 2019. The program was organized by Municipal Association of Nepal (MuAN) and National Association of Rural Municipalities in Nepal (NARMIN) in collaboration with United Cities and Local Governments in Asia Pacific (UCLG-ASPAC). NSET Executive Director made presentation at the Plenary Session 1: Disaster Management on topic "Experience sharing and Reflections from Pakistan" at the event.

Participation in First Himalayan Engineering Geological Congress

Structural Engineers from NSET Mr Suman Pradhan, Ranjan Dhungel and Vibek Manandhar attended the First Himalayan Engineering Geological Congress organized by the Nepalese Society of Engineering Geologist (NSEG) during 12-13 May 2019, where Mr. Manandhar presented paper on "Effectiveness of Welder Wire Meshing as a Retrofitting Measure for Stone in Mud Masonry Walls", Mr. Dhungel presented paper on "Learning on Implementation of Stone Masonry Building Retrofitting in a Context of Gorkha Earthquake Reconstruction", and Mr. Pradhan presented paper on "Mechanism for reducing seismic vulnerabilities of existing buildings: Case study from Ghorahi Sub Metropolitan City".

Participation in Geological Exhibition

NSET participated in the three-day "**Third Geological Exhibition"** held from 11 to 13 February in the premises of Central Department of geology, TU, Kirtipur. It was organized by Nepal Geological Student Society with close coordination and collaboration with Central Department of Geology (CDG) and Nepal Geological Society (NGS). Honorable Minister of Education, Science, and technology, Mr. Giriraj Mani Pokharel inaugurated the program. Almost 5,000 visitors from School, college and other sectors visited the exhibition.

More Activities

- Mr. Surya Narayan Shrestha, Executive Director of NSET as a Governing Board Member attended the Governing Board Meeting of the Global Earthquake Model (GEM) Foundation in Pavia, Italy during 28-29, June 2018.
- Dr. Amod Mani Dixit, General Secretary of NSET, attended and spoke on the 15th International Exhibition & Conference on SMART & SUSTAINABLE City Solutions–Municipalika SMART & SUSTAINABLE Cities during 19-21 September 2018 in Mumbai.
- Dr. Amod Manni Dixit, General Secretary of NSET, as a ICOE of IRDR attended the 19th Scientific Committee Meeting of IRDR during 15-18 October, 2018.
- Dr. Amod Mani Dixit, General Secretary of NSET, as a ICOE of IRDR attended and reported at the 20th Scientific Committee Meeting of IRDR in Chengdu, China on 15-18 October, 2018.
- Dr. Amod Mani Dixit, General Secretary of NSET, attended the 7th Meeting of the Asian Science, Technology and Academia Advisory Group (ASTAAG) during 29 Nov to 1 December 2018 in Sendai, Japan.

- Dr. Amod Mani Dixit, General Secretary of NSET as a ICOE of IRDR and as a member of DBAR DRR Working group attended the 3nd Digital Belt and Road (DBAR)" Conference during 4-7 December, 2018 in Teng Chong City, Yunnan Province, China.
- Dr. Amod Mani Dixit, Dr. Ramesh Guragain, Mr. Khadga Sen Oli and Ms. Rita Thakuri from NSET attended the Asia-Pacific Regional Week on the occasion of ADRRN's Annual General Meeting (AGM) during 12-14 December 2018 in Bangkok, Thailand.
- Mr. Rabidra Suwal and Mr. Dambar Singh Pujara from NSET professionals attended IP Mapping and GIS Platform Training organized by USAID Nepal during Jan 2-4 &7, 2019.
- Mr. Surya Narayan Shrestha and Mr. Pryash Malla from NSET joined the sharing and discussion meeting on Confined Masonry with IIT Gandinagar where various pertinent professional attended the meeting from Nepal and India during 13-16 March, 2019 at Gandhinagar, India.
- Mr. Vivek Manandhar, Structural Engineer, and Mr. Ayush Baskota, Civil Engineer from NSET attended the International Conference on Earthquake Engineering and Post Disaster Reconstruction Planning ICEE-PDRR 2019, organized by Khwopa College of Engineering and Khwopa Engineering College, Bhaktapr on April 26, 2019.
- Mr. Ranjan Dhungel, Manager of NSET's Baliyo Ghar Program, attended the seminar on "Sharing of experiences and lessons on Build Back Better organized by National Reconstruction Authority (NRA) and JICA on the occasion of 4th Anniversary of the Gorkha Earthquake on April 26, 2019 in Kathmandu.
- Under NSSP Project NSET jointly with Arup International organized 9 days Training on Non-Linear Push Over Analysis and Non-Linear Kinematic Analyses for structural and civil engineers from NSET, Crown Agents, Save the Children and ESS during April 22-May 2, 2019 in Kathmandu.
- NSET's Senior Technical Advisor, Mr. Surya Bhakta Sangachen attended the "Sharing Workshop on Findings and Studies of DRRM in Nepal" organized by PIF and UN RC Office in Kathmandu on May 10, 2019.
- Mr. Bijaya Krishna Upaddhyay, Director of NSET CBDRM division, attended the Sharing of DRRM Needs and Capacity Assessment Report of Selected 14 Municipalities across seven provinces organized by MOFAGA and IFRC on May 10, 2019
- NSET Executive Director, Mr. Surya Narayan Shrestha, attended the Global Platform for Disaster Risk Reduction in Geneva during 13-17 May, 2019.

Section 2 NSET Efforts in Past One Year (June 2018–May 2019)

2.9 Monitoring, Evaluation and Learning at NSET

NSET, in the year 2014, established the Monitoring and Evaluation (M&E) Unit to track implementation and outputs systematically, and measure the effectiveness of its activities. Through the M&E Unit, a systematic monitoring, evaluation and learning practice has been ensured in all programs and activities of NSET. The main aim of NSET M&E Unit is to establish a common structure and standard that govern the application of effective and timely monitoring, evaluation and learning. M&E Unit has been analyzing performance against targets set, ensuring the five core standards of 'relevance', 'effectiveness', 'efficiency, 'impact' and 'sustainability'. The objectives of M&E Unit at NSET has been outlined as:

- *Monitoring the progress:* To ensure effective and efficient implementation of the activities and delivery of the intended results.
- *Learning and Improvement:* To study the extent to which intended results are achieved or not achieved and suggest corrective actions accordingly.
- *Accountability:* To enhance creditability of NSET in the eyes of client, donors, partners and people by holding NSET staff and its partners responsible for their performance.
- *Evidence-based Management:* To serve as an important input to decision making within wide range of management process at NSET.

Scope of M&E in NSET

- Standard setting and implementation
- Routine data collection and reporting of the activities
- Qualitative and Quantitative data collection and analysis as per the need of the NSET's programs
- Periodic Assessment and Evaluation
- Preparation of program specific M&E plan
- Ensure data quality through Data Quality Assessment Guideline and Gender Equality and Social Inclusion (GESI) in development and implementation of M&E plan
- Establish a feedback loop by providing and receiving feedback to and from all stakeholders, concerned and follow-up

Major Recent Accomplishments Under the TSBCIN Program

Status of Municipalities in terms of Institutional Mechanisms and Technical Capacities for Risk Based Planning and Enforcement of Building Code

Baseline information about the current status of building code implementation in TSBCIN program municipalities have been collected and analyzed. This baseline information of each municipality includes data mainly on building construction rates, availability of technical and construction manpower within the municipal area, main building types and materials, technical manpower capacity and mechanism for building permits in the municipal office, budget allocation for activities supporting building code implementation and perceived major challenges for building code implementation. The information was collected using a set of structured questionnaires through telephonic conversation, emails, in-person interviews and exploratory visit to the municipalities. Guided by the experience of the previous BCIPN program, TSBCIN municipalities have been classified into three categories. Municipalities under BCI Status Level 3 were found to have better institutional system, technical capacities and provision of budget allocation for effective BCI process. More than 90% of the buildings are built with permit and the construction is observed by an average of 7 municipal engineers and 8 sub-engineers in those municipalities. Permit rate in level 2 municipalities is just over 70% and the construction is observed by an average of 3 engineers and 4 sub-engineers. Comprised of non-BCIPN municipalities, building permit rate in level 1 municipalities is nearly 40% under the supervision of less than 2 engineers and 3 sub-engineers, on an average. Almost all of the municipalities surveyed lack of an advisory committee for BCI, retrofitting provision, Risk Sensitive Land Use Plan and Urban Development Plan.

An end line survey on the same has been planned towards the end of the program period to study the changes in the key components of building code implementation.

Survey on General Perception of House-Owners and Professionals towards Disaster Resilience and Safer Construction

TSBCIN program aims to raise awareness of people, professionals and practitioners regarding the need and possibilities of disaster resilient construction technology. To meet this, several awareness-raising activities are being conducted in the program municipalities.

The perception of people towards disaster resilience and safer construction is measured under the Risk Perception Survey that uses KAP (Knowledge, Attitude and Practice) approach. Two such surveys (Baseline and End line) are planned during the life of the program. As such, the baseline survey has been completed among the house-owners who participated in orientation programs. Nearly 600 people from different program municipalities have been surveyed.

Moreover, a study on the perception of elected local representatives and administrative officers towards earthquake risk has been carried out. The study found that nearly 50% of them, at some instance before the 2015 Gorkha earthquake, had predicted an earthquake striking any time in Nepal. Similarly, having experienced the Gorkha earthquake, almost all of the elected local representatives are aware that the country could face another big one at any time in the near future. 2 among 3 local representatives considered weak houses as the major factor for the loss of lives and property during earthquakes.

Conducting Building Compliance Survey

Survey on status of safer building construction practices in program municipalities

Increased percentage of newly constructed building complying with National Building Code is an impact indicator of the TSBCIN program. To assess this, building drawings submitted to the municipal offices for building permit process as well as building construction on the field are inspected to establish baseline compliance figures. Altogether 955 building drawings and equal number on field is being surveyed.

Additional Evaluation Surveys under TSBCIN Program

In addition to the major surveys, the M&E Unit has been conducting a number of evaluation studies to study effectiveness of the interventions from the TSBCIN program. Particularly, the training outcomes on masons and engineers benefitted by the program have been studied under the retention survey. The survey gathers information on the knowledge and profession retention levels of training graduates, ongoing construction practice, graduates' achievements, challenges and future needs of training to promote safe construction in the communities.

Evaluation of the effectiveness of the training programs and courses have been continuously carried out by the unit. The evaluation results have provided insights to the quality of training in terms of content, presentations, logistic and other aspects, thereby helping to standardize and strengthen program efforts.

CASE STUDY: MASON TRAINING CONTRIBUTES TO ENHANCE KNOWLEDGE AND LIVELIHOOD

"Shyam Rai, a mason by profession, is working as petty contractor in Jhapa and adjoining districts. Mr. Rai joined the profession some 15 years back following the footstep of his father. He acquired the basic masonry skill while working along with his father as a construction worker.

For Mr. Rai, whatever he did as a mason was learning by doing as he never received any training on construction methods and he also did not realize it was necessary either. Long after his engagement with the profession, Mr. Rai got an opportunity to participate in a mason training organized by Kamal Rural Municipality and NSET in 2017 where he acquired various tips on safer construction techniques including the need of foundation beam, sill band, lintel band, proper arrangement of rods in pillars and ceilings among others. Further, Mr. Rai also became aware that every type of houses: stone-mud, brick-mud, concrete-brick, bamboo and wooden can be made earthquake resistant if we could slightly change construction approach and methodology.

Mr Rai arrived at a conclusion that the training was tremendously useful in that it helped getting more work. The training ultimately boosted his overall income. He, however, finds unhealthy compititions among the masons and contractors as one of the obstaclels in implementing construction skills aquired during the training. He feels that the municipality must monitor and act against it.

Evaluation of the Earthquake Safety Day (ESD)-2019

This year Nepal marked the 21st Annual Earthquake Safety Day on 16 January 2019 in the leadership of Government of Nepal. On this occasion, Lalitpur Metropolitan City hosted national meeting, main event and activities such as rallies, street drama and interaction. The

day was marked throughout the country with various awareness raising activities. The slogan of this year's ESD was: Committed Governments at all levels to ensure Citizen's Right to Safety from Disasters.

With an objective to assess the effectiveness of the program and to collect participant's recommendations for enhancing the effectiveness of the future programs, NSET M&E Unit conducted an evaluation survey. The evaluation survey was carried out during the main event in Lalitpur as well as in Nuwakot and Dhading district. In-person interview method was applied to collect responses from two target groups-general public and stakeholders.

The interview was completed with 45 respondents who observed and/or directly participated in events organized in the three districts. The interviews were recorded which were later transcribed, processed and analyzed. The conclusions of the evaluation survey are as listed below:

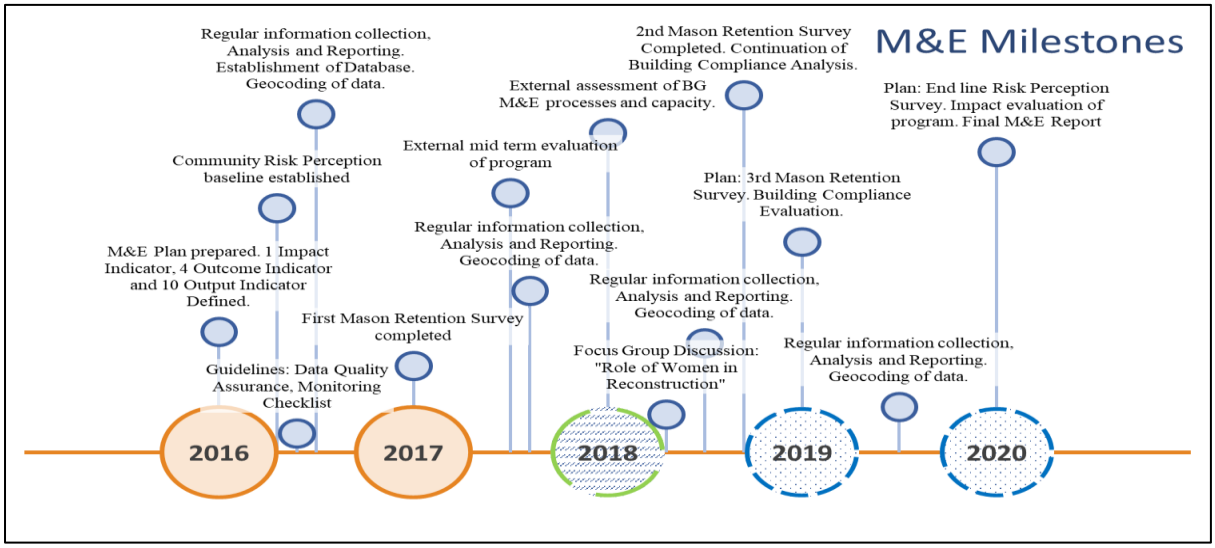
- ESD is important for raising awareness among general public towards earthquake risk and risk reduction measures. This should be further expanded to community levels for more effective results. Individuals and communities have major responsibilities for earthquake preparedness and risk reduction.
- A short national drill with a particular action to remind people throughout the country.
- The main slogan for ESD was not grasped fully by general public as well as stakeholders. During the interviews, no respondent spelled/referred to the message that was intended to deliver through the slogan. Future ESDs should therefore coin simplified slogans with message that is easily perceived by the general public.

As a regular event of Earthquake Safety Day, National Symposium on "Earthquake Disaster Management and Risk Reduction in Nepal" was held at Teku, Kathmandu on 22 January, 2018. During the event, a survey was conducted to collect the perception of participants towards the symposium. The responses were collected from 111 participants using a set of structured questionnaire. The survey participants identified knowledge dissemination, participation of experts and professionals, coverage of disaster risk management issues and the overall event design concept as the main strengths of symposium. On the other hand, participants recommended for more comprehensive discussions, better management of sessions and promotion of the event in the future years.

Continuous Monitoring and Evaluation under Baliyo Ghar Program

The overall success and failure of a program is ascertained by its ability to reach the outputs of the activities that it had set. The regular monitoring and evaluation of performance ensures that the activities will lead to achieve the goal of program. The learnings from program provide evidence for informed decision. Figure below shows Baliyo Ghar M&E milestone achieved and future plan of milestones.

In order to serve the purpose of monitoring and evaluation, regular information and data are collected through standard forms and formats. To assure data quality, Data Quality Assurance guideline is developed and is in regular use. An activity monitoring checklist is in use to ensure quality and effectiveness of program activities.



The achievement and future plan of M&E milestones of Baliyo Ghar

Mason Retention Survey

Mason Retention Survey is the measurement of trained masons' current working status and their level of knowledge retained one year after the training. This survey examined the masons' opinion in continuing their profession and retention of technical knowledge. The targeted group of this survey were construction work force trained for disaster resilient construction from the Baliyo Ghar Program. Retention in work means construction workforce continuing their work in the earthquake affected areas, a year after the mason training.

This year, second round of Mason Retention Survey was carried out among 3,162 randomly selected masons who were trained one year before the survey. Of the total trained masons, 140 were female and 3022 were male. The survey findings have been summarized in following points.

- A huge proportion of the masons (88%) have been still working as a mason after the training. Male and female masons were equally likely to be active mason as well as inactive mason.
- The mean knowledge score of trained mason after one year was 78 out of 100. The mean score retained by masons participating in urban and rural training did not differ significantly. Similarly, the knowledge retention level of female and male masons did not differ. In addition, the knowledge retention level within ethnic groups did not differ.
- Active masons had utilized the skill gained from mason training. The acquired skills were used for the construction of own and other's houses, convincing house-owners and coaching fellow masons.
- Active masons were confident that nearly 92% houses built with their involvement fulfil construction compliance.

Engagement of Trained Masons in Reconstruction

Proportion of houses that engage at least one trained mason while constructing their house is another outcome indicator of Baliyo Ghar Program. This reflects the awareness level of house owner. During this reporting period, building compliance survey of 5902 construction completed houses was done. The finding of survey shows 90% houses were constructed with the involvement of at least one trained mason. For the previous year, it was 78% out of 408 completed houses.

Application of Kirkpatrick Model in Assessing Training Effectiveness

The capacity building of masons on earthquake resistant building construction is a key component for reconstruction. The effectiveness of mason training was analyzed in terms of Kirkpatrick Model developed by Donald Kirkpatrick in 1967.

The Kirkpatrick Model compromises following four levels of evaluation:

- Level 1-Reaction: Participants perception towards the training program
- Level 2-Learning: The extent of improvement in knowledge, skills and change
- Level 3-Behavior: The extent to which learning have been applied into workplace behavior
- Level 4-Result: The benefit resulted from training

The first level i.e. immediate reaction from participants about training was assessed through the information collected during training monitoring. During monitoring of training, it was found that the participants were selected unbiasedly, satisfied on training logistic arrangement, received appropriate answers to their queries and were given equal opportunity during practical session.

The learning level of participants was assessed from the pre and post test score gained by them. The statistical test on the score received by participants established that the average post-test score was significantly higher than the pre-test score, implying enhanced knowledge of the participants.

Level 3 i.e. the transfer of the knowledge, skills and attitudes to the workplace was assessed from the information collected during second Mason Retention Survey. The survey result showed that 94% out of total 2795 active masons fully utilized the knowledge gained from training in reconstruction of houses while the rest of the masons responded partial use of knowledge in real field.

In level 4, regarding the benefit resulted from the training, the performance of trained mason was evaluated through information collected in Building Compliance Survey. The survey completed on 260 houses taken randomly found that among 57 total compliance components, 48 components were followed by least 85% reconstructed houses. The shape of building, geological condition, foundation, horizontal bands, vertical reinforcement compliance were highly accurate. The compliance level in roofing and construction materials was low.

The application of Kirkpatrick Model to evaluate effectiveness of mason training reflected the pivotal role of trained masons in reconstruction suggesting that the training have been highly effective.

End line Surveys under Program for Enhancement of Emergency Response (PEER)

Results of PEER Stage 4 (2017-2019), is being assessed by a total of 15 indicators (6 outcome and 9 output level). The baseline figures on the status of PEER graduates, partner institutions and nodal agencies have been established during the baseline surveys. At this stage, end line survey is being administered to identify the changes brought about by the program. The survey result will reflect progress and impact of the PEER efforts in program implemented countries namely Nepal, India, Bangladesh and Pakistan.

M &E Conclusion

Since its inception in 2014, M&E Unit has been carrying out regular monitoring and evaluation works, as defined by the M&E plan prepared under specific projects. The unit has been successful in tracking the inputs, activities, outputs and outcomes of the various NSET projects. In addition to the project specific monitoring and evaluation, the unit has been continuously working to set standards for effective and efficient delivery of NSET efforts and providing utmost support to evidence-based decision making of the organization.

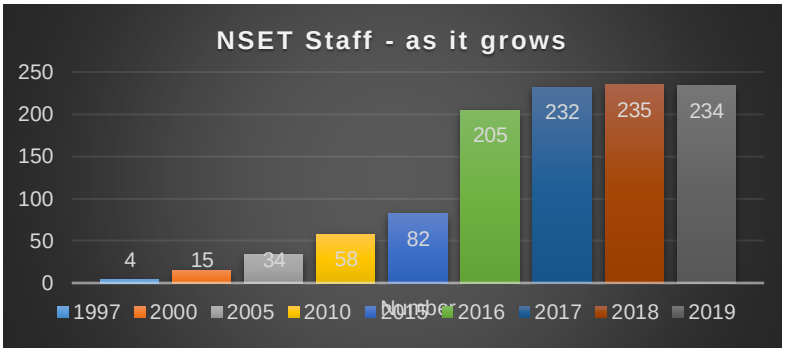
Session 3 Organizational Development

As it began, it progressed and as it progressed, it succeeded!

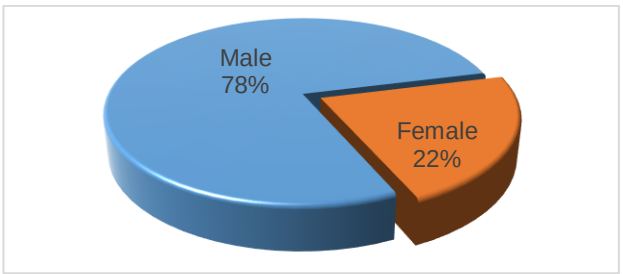
NSET is an organization that started with a few professionals with a mission of earthquake safe communities in Nepal has completed 26 years in action. Last year, on June 18, 2018; NSET marked glorious silver jubilee. Over the years, NSET has contributed to Earthquake Risk Management and Disaster Risk Reduction spectrums at not just the local and national level, but also at the regional and global levels.

NSET Staff – as it grows

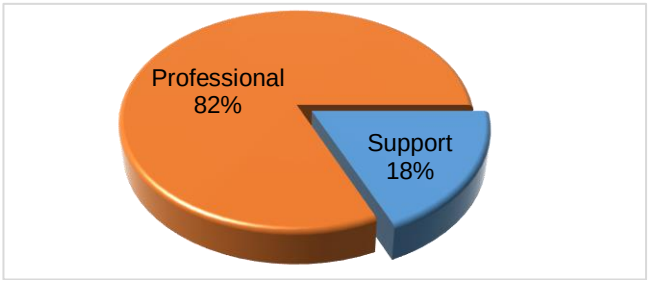
NSET has now grown significantly into one of the leading organizations with a large number of qualified professionals and with adequate physical facilities. With a total of 4 staff back in 1997, we are now 234 professionals and supporting staff (as of May 2019) who dedicatedly serve in various programs/projects across the country and beyond.



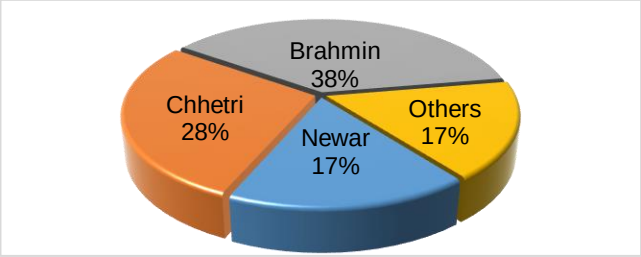
We Work Hand-In-Hand Together



Our Staff

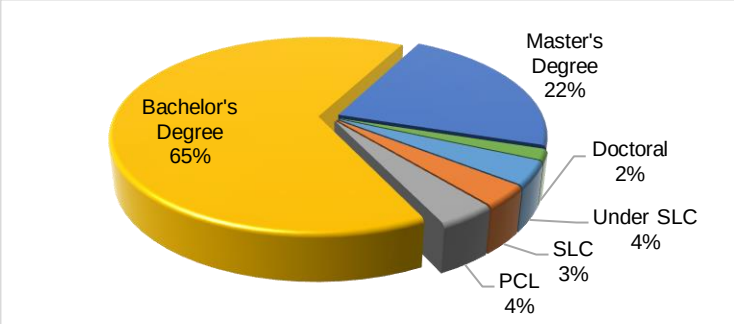


We are Nepal

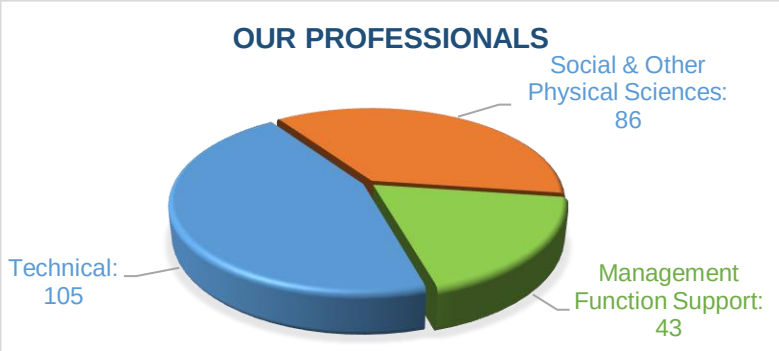


NSET staff consists of professionals from diverse academic backgrounds in terms of level of education and disciplines they come from.

Our Level of Education

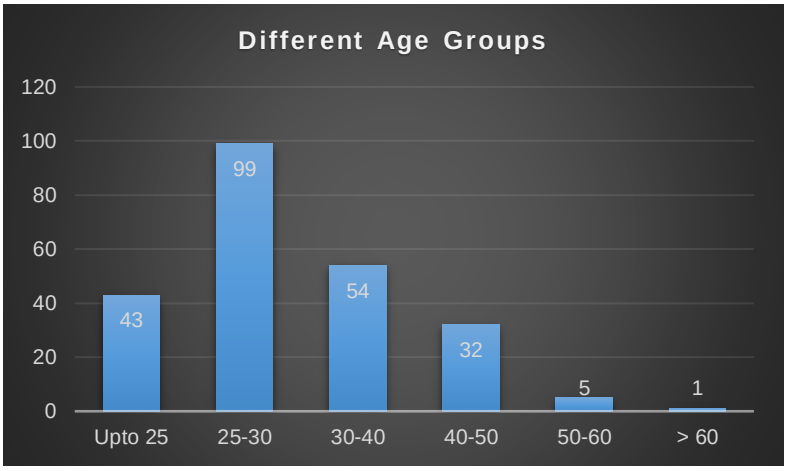


Our Professionals

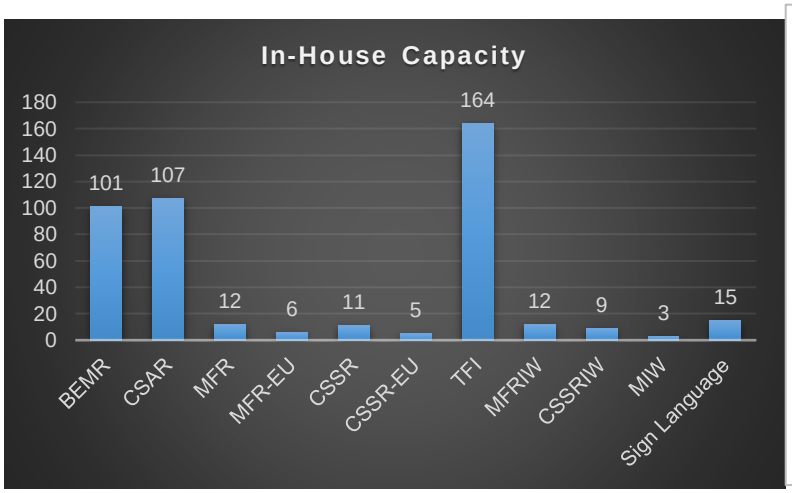


Also, there is a diversity in age-groups too with big majority of youths.

Different Age Group



Capacity of Emergency Responsce



BEMR: Basic Emergency Medical Response
CSAR: Community Search and Rescue
MFR: Medical First Responder
EU: End User
CSSR: Collapsed Structure Search and Rescue
TFI: Training for Instructors
IW: Instructors' Workshop
MIW: Master Instructors' Workshop

NSET In-House Human Resource Management and Development

NSET In-House Capacity: NSET staff are trained on various life-saving skills to ensure their own safety first and also viewing their potential roles in disaster emergencies. Many of NSET staff are trained on specialized courses on Emergency Response. NSET manages Instructor development and other various professional courses for enhancing quality services in the work areas.

NSET and Nepal Mediciti Hospital sign MoU for joint works and cooperation: A Memorandum of Understanding (MoU) was signed between NSET and Nepal Mediciti Hospital for joint works and cooperation in reducing disaster risk, increasing earthquake safety and enhancing emergency medical preparedness. As per the MoU, NSET will support hospital in preparation and testing emergency response plan and enhance hospital's emergency prapedness. Likewise, the hospital will also provide best services to NSET staff at the hospital with reasonable price.

Health Insurance Orientation: NSET introduced medical health insurance plan to its staff members covering medical expenses upto 10 lakh in a year. An orientation was conducted to let staff members know about the plan, its coverage and claiming procedure. Mr. Badri Basnet, an officer, health insurance unit of Shikhar Insurance, conducted the orientation. Total 35 staff members participated the event.

Basic Mental Health and Stress Management Workshop: NSET conducted one-day Workshop for the NSET staff to make staff aware on mental illness and its treament process. The workshop was conducted by Dr. Pawan Sharma from Arogin healthcare and Research Center, Banshidhara.Total 44 participants participated the workshop.

Orientation on Code of Ethics/Conduct and Conflict of Interest: NSET conducted one-day orientation on NSET policy on Code of Ethics/Conduct and Conflict of Interest. Three H Management conducted the workshop where 28 staff members were present.

Field Orientation: NSET has also conducted field orientation at Dolakha District to its 41 staff members about Medical Health Insurance plan that NSET introduced its staff members, NSET personnel policy, procurement policyduring 23-27 Dec 2018. It also conducted HRM survey to analyze

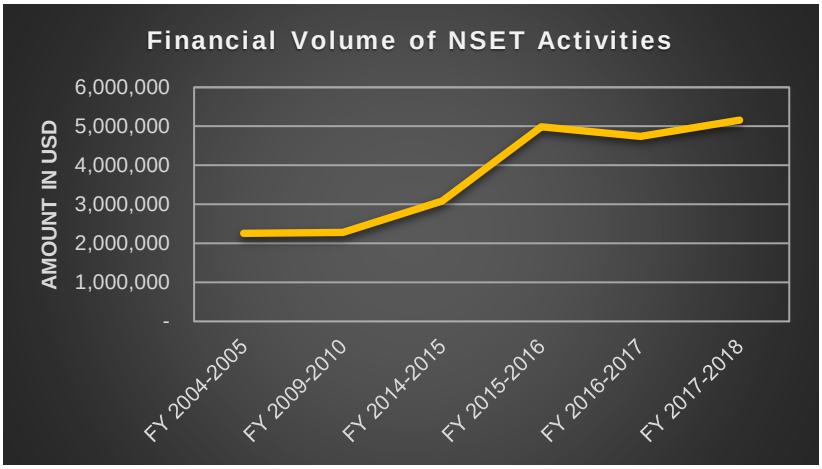
the effectiveness of the existing system, policies as well as understanding about policies being operationalized by NSET.

Regular Orientation: NSET has been providing regular orientation to its staff members to update with NSET policies and to enhance the capacity of NSET staff members. The past year, NSET held orientations on New Procurement Manual, Personal Policy, Travel Policy, IT Policy and Security, Health Insurance and Orientation on Roles and Responsibilities of Secretary and Receptionists.

NSET Finances

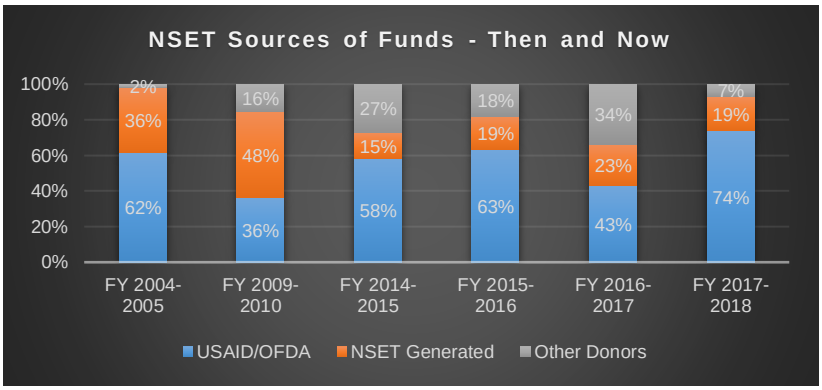
Financial Volume of NSET Activities

The financial volume of NSET has been increasing with the growth in the number of staff and programs. The annual turnover of around 80 thousand USD that was back in 1997 from 2.2 Million USD in 2004/2005 has now reached 5.1 Million USD. This shows tremendous growth in the financial volume of NSET.

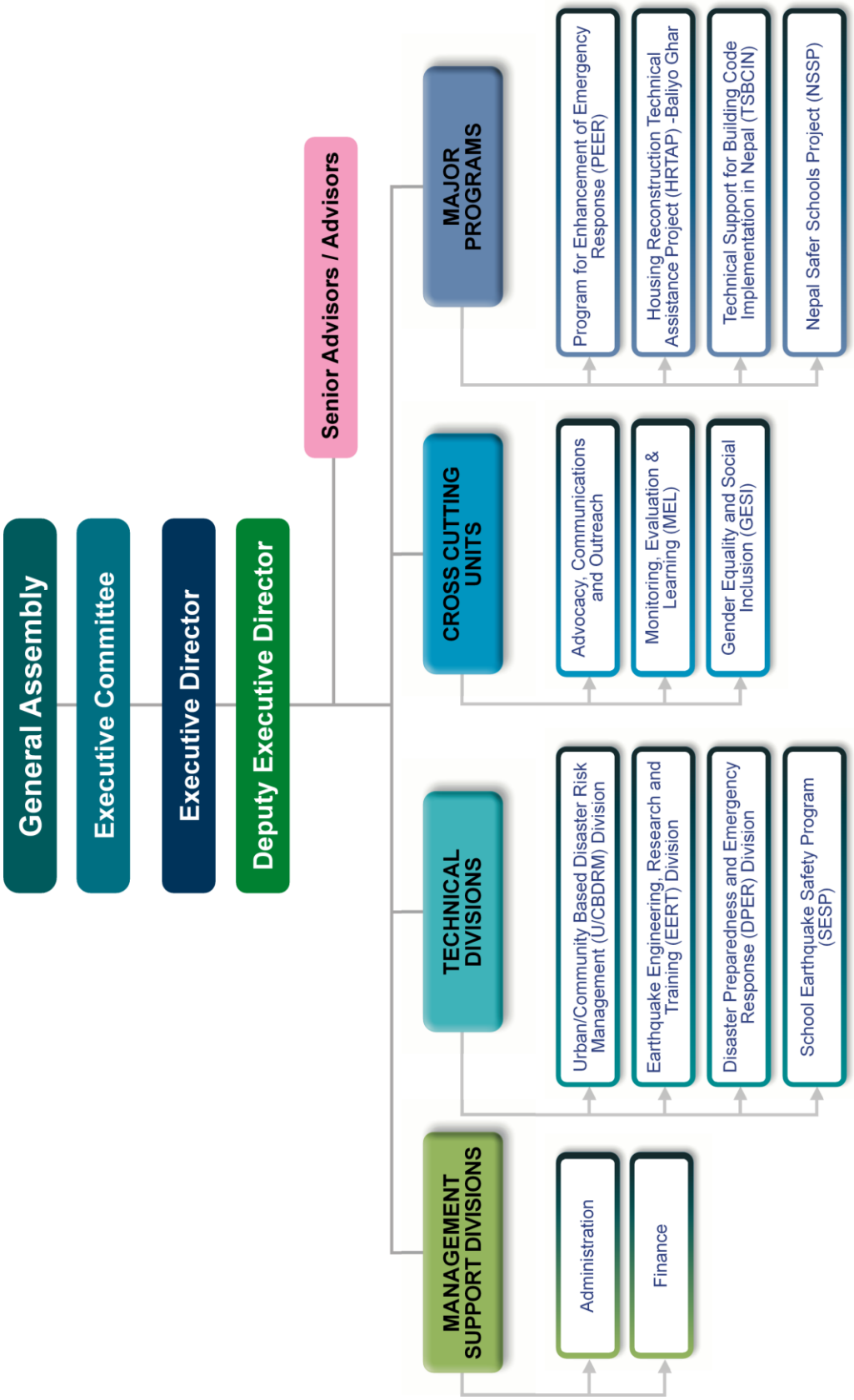


Source of Fund then and Now

There is a gradual increase in NSET funds generated through its services in the form of building vulnerability assessment of existing buildings, orientation programs and emergency preparedness planning and drills. NSET has been prioritizing to diversify the sources of fund. It has also expanded its funding sources and now there are several key sources of funds including USAID project funding other bilateral agencies, and funds generated by selling technical services.



NSET Organogram



Annex 1: Income and Expenditure Statement

National Society for Earthquake Technology - Nepal

Income and Expenditure Statement
for period July 16, 2017 to July 16, 2018

Particulars	Schedule	NSET Nepal	PEER IV/USAID	Baliyo Ghar (HRTAP)	BCIPN/USAID	TSBCIN/USAID	HRRP	Sakura Net	NSSP	PLAN	Elimination of inter-project balance	Total	Previous Year (2016/17)
Income		NRs	NRs	NRs	NRs	NRs	NRs	NRs	NRs	NRs		NRs	NRs
Grant Income		17,222,356.47	97,379,854.39	385,775,407.11	10,003,264.21	24,178,378.23	18,298,826.54	1,874,830.32	-	-		554,732,917.27	423,500,722.34
Contribution towards awarness programs and trainings		2,009,202.40	-	-	-	-	-	-	-	-		2,009,202.40	2,600,525.07
Contribution towards Earthquake Safety Day		549,892.45	-	-	-	-	-	-	-	-		549,892.45	954,488.00
Contribution towards GO Bag/ HH LSAR Kit		20,000.00	-	-	-	-	-	-	-	-		20,000.00	382,101.00
Donor's Contribution towards overheads		84,112,583.66	-	-	-	-	-	-	-	-	(83,247,963.89)	864,619.77	86,192,899.53
Total Income		**103,914,034.98**	**97,379,854.39**	**385,775,407.11**	**10,003,264.21**	**24,178,378.23**	**18,298,826.54**	**1,874,830.32**	-	-	**(83,247,963.89)**	**558,176,631.89**	**513,630,735.94**
Expenses													
Administrative Expenses	V	101,834,192.95	50,285,400.22	173,321,244.82	272,089.32	32,552,225.21	16,665,737.18	2,441,999.54	55,871.54	131,855.49	(83,247,963.89)	294,312,652.38	388,342,040.62
SESP related expenses	VI	10,580.00	-	-	-	-	-	-	-	-	-	10,580.00	253,906.50
Event Expenses	VII	2,228,899.49	-	-	-	-	-	-	-	-	-	2,228,899.49	2,729,798.40
Workshop/Training/Seminar and other program costs	VIII	7,489,453.35	22,643,480.23	87,041,886.28	224,345.77	485,351.97	-	2,371,641.49	-	4,956.18	-	120,261,115.27	95,463,213.94
Travel Expenses	IX	4,354,847.18	-	1,622,415.54	-	1,932,619.69	969,181.57	-	-	8,400.00	-	8,887,463.98	12,926,523.47
Public Awareness	X	-	-	14,463,464.25	-	-	-	-	-	-	-	14,463,464.25	13,823,165.75
Exchange (Gain)/Loss		(178,736.02)	326,164.31	-	99,236.48	(5,905.43)	-	-	-	-	-	240,759.35	397,010.73
Total Expenditure		**115,739,236.95**	**73,255,044.76**	**276,449,010.89**	**595,671.57**	**34,964,291.44**	**17,634,918.75**	**4,813,641.03**	**55,871.54**	**145,211.67**	**(83,247,963.89)**	**440,404,934.72**	**513,935,659.41**
Excess of Income Over		(11,825,201.97)	24,124,809.63	109,326,396.22	9,407,592.64	(10,785,913.21)	663,907.79	(2,938,810.71)	(55,871.54)	(145,211.67)	-	117,771,697.17	(304,923.47)
Opening Balance		98,237,487.11	(13,884,097.05)	36,271,458.15	(9,294,964.62)	-	154,412.35	4,224,740.59	-	353,215.90	-	116,062,252.43	119,319,141.60
Refund to donor		-	-	-	-	-	-	-	-	(208,003.83)	-	(208,003.83)	(3,605,385.83)
Foreign Exchange Translation Gain/ (Loss)		-	336,305.36	-	(112,628.01)	(540,277.04)	-	-	(1,730.79)	-	-	(318,330.88)	653,420.13
Balance of funds as on July 16, 2018		**86,412,285.14**	**10,577,017.94**	**145,597,854.37**	-	**(11,326,190.25)**	**818,320.14**	**1,285,929.88**	**(57,602.33)**	-	-	**233,307,614.90**	**116,062,252.43**

Significant accounting policies and other explanatory notes — XI

As per our report of even date

Varun Parsad Shrestha
President

Amod Mani Dixit
General Secretary

Yogeshwar K. Parajuli
Treasurer

Surya Narayan Shrestha
Executive Director

Suvarn Prasad Gautam
Finance Manager

Madan Krishna Sharma
Partner
CSC & Co.
Chartered Accountants

Date: 25 Sept 2018
Place: Kathmandu

Annex 2: Balance Sheet

National Society for Earthquake Technology - Nepal

Balance Sheet
As at July 16, 2018

Particulars	Schedule	As at July 16, 2018 NRs	As at July 15, 2017 NRs
Assets			
Fixed Assets	I	52,666,580.94	50,723,151.81
Receivables	II	74,351,755.12	70,812,888.56
Cash & Cash Equivalents	III	132,765,975.00	45,196,071.35
Total Assets		**259,784,311.06**	**166,732,111.72**
Liabilities			
Current Liabilities	IV	26,476,696.17	50,669,850.20
General Fund			
Opening Balance		116,062,252.43	119,319,141.60
Excess of Income Over Expenditure during the year		117,771,697.17	(304,923.47)
Exchange Fluctuation Gain/ (Loss)		(318,330.88)	653,420.13
Refund to Donor		(208,003.83)	(3,605,385.83)
Closing Balance		**233,307,614.90**	**116,062,252.43**
Total Liabilities		**259,784,311.06**	**166,732,111.72**

Significant accounting policies and other explanatory notes XI

As per our report of even date

Varun Parsad Shrestha
President

Amod Mani Dixit
General Secretary

Yogeshwar K. Parajuli
Treasurer

Madan Krishna Sharma
Partner
CSC & Co.
Chartered Accountants

NSET

Surya Narayan Shrestha
Executive Director

Suvarn Prasad Gautam
Finance Manager

Date: 25 Sept 2018
Place: Kathmandu

Annex 3: Executive Committee

Mr. Varun Prasad Shrestha
President

Dr. Amod Mani Dixit
General Secretary

Mr. Yogeshwor K. Parajuli
Treasurer

Mr. Shreeram S. Basnet
Executive Member

Mr. Surya Narayan Shrestha
Executive Member

Mr. Manohar Rajbhandari
Executive Member

Mr. Tika Sharma
Executive Member

Dr. Ramesh Guragain
Executive Member

Annex 4: Institutions that helped us grow through collaboration and support

National

- Armed Police Force (APF)
- Bhaktapur Sub-Metropolitan City
- Bagmati Rural Municipality
- Department of Education (DoE)/(Center for Education and Human Ressource Development)
- Curriculum Development Center (CDC)
- Department of Archeology (DoA)
- Department of Mines and Geology
- Department of Urban Development and Building Construction
- Disaster Management Committee, Alapot
- Disaster Management Committee, Ward No.12, Lalitpur Sub Metropolitan City
- Disaster Management Committee, Ward No. 18, Kathmandu Metropolitan City
- Disaster Preparedness Network (DPNet), Nepal
- Diploma Engineers' Association, Nepal
- Federation of Contactors' Associations of Nepal (FCAN)
- Federation of Nepalese Chamber of Commerce and Industries (FNCCI)
- Heavy Equipment Association Nepal (HEAN)
- Hotel Association of Nepal (HAN)
- Institute of Engineering, Tribhuvan University
- Institute of Medicine, Tribhuvan University
- Initiative Outdoor (IO), Nepal
- Kamal Rural Municipality
- Kathmandu Valley Development Authority (KVDA)
- Kathmandu University
- Kirtipur Women's' Network
- Lalitpur Metropolitan City
- Lumanti Support Group for Shelter
- Ministry of Education, Science and Technology
- Ministry of Health
- Ministry of Home Affairs (MoHA)
- Ministry of Federal Affairs and Local Development (MoFALD)
- Ministry of Environment, Science and Technology
- Ministry of Physical Infrastructure & Transport (MoPIT)
- Ministry of Urban Development (MoUD)
- Ministry of Women, Children and Social Welfare
- Municipalities of Kathmandu Valley and other districts
- National Disaster Management Network of Nepal (DiMaNN)
- National Network of Women for Community Resilience
- Nepal Academy of Fine Arts (NAFA)
- Nepal Amateur Radio Operators' Society (NAROS)
- Nepalese Army (NA)
- Nepal Association of Tour and Travel Agent (NATTA)
- Nepal Bankers' Association (NBA)
- Nepal Bureau of Standards and Metrology
- Nepal Engineering Council (NEC)
- Nepal Engineers Association (NEA)
- Nepal Forum for Environmental Journalists (NFEJ)
- Nepal Geological Society (NGS)
- Nepal Red Cross Society (NRCS)
- Nepal Mediciti Hospital
- Nepal Police (NP)
- Nepal Telecommunications Authority (NTA)
- Nepal Tourism Board (NTB)
- Nepal USA Chamber of Commerce and Industry (NUSACCI)
- National Police Academy
- Rotary Club, Bhainsepati
- Sakha & Co. Private Limited
- Shivam Cement Private limited
- Social Welfare Council
- Society of Consulting Architectural and Engineering Firms
- Society of Nepalese Architects
- Disaster Management Committee, Ward No.12, Lalitpur Sub Metropolitan City
- Bhaise, Bagmati Gaupalika- 3, Lalitpur

- Society for Urban Poor (SOUP)
- Shaplaneer
- Forum for Awareness and Youth Activity, Nepal (FAYA) Kailai
- Ratanchura VDC (Golonjor Gaupalika-5) sindhuli
- Jhagajholi Ratmata VDC (Sunkoshi Gaupalika 3,4) Sindhuli
- Katunjebeshi VDC (Roshi Gaupalika 7) Kabhre
- Banepa Municipality, Kabhre
- Dhangadhi Sub-Metropolitan City
- Bhimdutta Municipality
- Nepalgunj Sub-Metropolitan City
- Thankot Women's Cooperative Network
- Karnali Integrated Rural Development and Research Center (KIRDARC)
- Nepal Mediciti Hospital
- Nawa Prabhat Nepal
- Architects Sans Frontiers Nepal
- Institute for Social and Environmental Transition-Nepal (ISET)
- JICA Nepal
- Earthquake Safety Solutions
- Three H Management

Media Partners

- All Three Media Ghar, Ktm
- Bhimeshwor FM, Dolakha
- Bulbule FM, Surkhet
- Dinesh FM, Kailali
- Hamro Radio, Dolakha
- Kalinchowk FM, Dolakha
- Media Helpline, Ktm
- Mero FM, Ktm
- Nuwakot FM, Nuwakot
- Radio Audio, Ktm
- Radio Bihani, Dhading
- Radio Dhading, Dhading
- Radio Upatyaka FM
- Radio Jalapa, Nuwakot
- Radio Janasanchar FM, Bhaktapur
- Radio Krishnasar FM, Banke
- Radio Sagarmatha 102.4MHz, Ktm
- Radio Trishuli, Nuwakot
- Sailung FM, Dolakha
- Saptakoshi FM, Sunsari
- Ujyalo 90 Network, Ktm
- Vijaya FM, Nawalparasi
- Watch Dog Media
- Media Helpline

International

- Action Aid International Nepal
- All India Institute of Hygiene & Public Health (AIIH&PH), India
- Ambulance 118, Indonesia
- American Heart Association
- American Red Cross
- American Society of Nepalese Engineers
- Amity Public Safety Academy of Philippines
- Asian Development Bank (ADB)
- Asian Disaster Preparedness Center (ADPC)
- Asian Disaster Reduction Center (ADRC)
- Asian Disaster Reduction and Response Network (ADRRN)
- Asian Seismological Commission
- Alliance for Adaptation & Disaster Risk Reduction, India
- Badan Koordinasi National of Indonesia
- Badan Search and Rescue National of Indonesia
- Bangladesh Disaster Preparedness Centre
- Global Network of Civil Society Organisations for Disaster Reduction (GNDR)
- Bangladesh Red Cresent Society (BDRC)
- Beijing Normal University, China
- Boarder Security Force of India
- Building Research Institute of Japan
- CAN-USA
- Central Reserve Police Force, India
- Central Industrial Security Force, CISF, India

- Chittagong University of Engineering & Technology (CUET)
- Christian Aid-UK
- Commissioner ate of Health & Medical Services, Gujarat, India
- Center for Participatory Research and Development, Bangladesh
- Crown Agents, UK
- Danish Cultural Institute, Denmark
- Directorate General of Health Services (DGHS), Bangladesh
- Disaster Management Bureau of Bangladesh
- Disaster Prevention Research Institute DPRI/Kyoto University
- Durham University, Institute of Hazard, Risk and Resilience (IHRR)
- Earthquake and Megacities Initiatives (EMI)
- Earthquake Engineering and Research Institute
- Emergency Rescue Unit Foundation of Philippines
- Emergency Medical Relief (EMR)/ Directorate of Health Services, New Delhi, India
- Earthquake Reconstruction and Rehabilitation Authority (ERRA), Pakistan
- European Center of Training and Research in Earthquake Engineering (EUCENTRE), Italy
- EHIME University, Japan
- Fire National Training Institute of Philippines
- Fire Service and Civil Defense Directorate of Bangladesh
- Focus Humanitarian Assistance, Pakistan
- GeoHazards International
- Give2Asia
- Global Earthquake Model (GEM) Foundation, Italy
- Global Network of Civil Society Organizations for disaster Reduction (GNDR)
- Graduate Research Institute for Policy Studies (GRIPS) of Japan
- Handicap International
- Indian Tibetan Boarder Police (ITBP), India
- Indian Medical Association, (IMA), India
- Indonesian Red Cross
- Institute of Mountain Hazards and Environment, Chengdu
- Integrated Research on Disaster Risk (IRDR)
- International Association of Earthquake Engineering
- International Centre Integrated Mountain Development
- International Federation of Red Cross Crescent Societies (IFRC)
- International Resources Group
- Janathaksan, Sri Lanka
- Jakarta Fire Services, Indonesia
- Japanese International Cooperation Agency
- Jawaharlal Institute of Post Graduates Medical Education & Research (JIPMER), India
- Johns Hopkins University - Center for International Emergency, Disaster, and Refugee Studies
- Karlsruhe Institute of Technology (KIT)
- Kunming University, China
- Lutheran World Federation
- MERCY Malaysia
- Mercy Corps, Nepal
- Ministry of Food and Disaster Management, Bangladesh
- Ministry of Health and Family Welfare, Bangladesh
- Ministry of Health, Indonesia
- Ministry of Home Affairs, India
- National Disaster Management Authority of Pakistan
- National Disaster Coordinating Council of the Philippines
- National Disaster Response Force (NDRF), India
- National Health Emergency Preparedness and Response Network (NHEPRN), Pakistan
- National Industrial Security Academy of India
- Nat'l Institute of Preventive and Social Medicine of Bangladesh
- National Research Institute for Earth Science and Disaster Prevention of Japan
- Network of Disaster Management Practitioners (NDMP), Pakistan
- New Zealand Society for Earthquake Engineering
- OGS, Istituto Nazionale di Oceanografia e Geofisica Sperimentale (National Institute of Oceanography and Applied Geophysics)
- Oxfam GB Nepal
- Pakistan Red Crescent

- Plan Nepal
- Practical Action, Nepal
- Philippines General Hospital
- Punjab Emergency Services, Rescue 1122, Pakistan
- Reynolds Geo-Sciences Limited, UK
- SAARC Disaster Management Center, SDMC
- Safety Solutions Incorporated, USA
- Save the Children, Nepal
- Sustainable Environment and Ecological Development Society (SEEDS/India)
- Shanti Volunteer Association
- The International Institute for Geo-Information Science and Earth Observation (ITC)
- The World Bank
- United Mission to Nepal
- United Nations Center for Regional Development - Disaster Management Planning Hyogo Office
- United Nations Development Programme, Geneva, Pakistan, India, Nepal, China, Thailand offices)
- United Nations International Strategy for Disaster Reduction (UNISDR)
- United Nations Educational, Scientific and Cultural Organization
- United Nations International Children's Emergency Fund (UNICEF)
- United Nations World Food Programme (WFP)
- University of Basilicata, Potenza, Italy
- University of Sapienza, Rome, Italy
- University of Durham
- United Nations Human Settlements Programme (UN-Habitat)
- U.S. Office of Foreign Disaster Assistance (USAID/OFDA)
- World Health Organization
- World Seismic Safety Initiatives (WSSI)

BCIPN & TSBCIN Municipalities

- Amargadhi Municipality, Dadeldhura
- Baglung Municipality, Baglung
- Bardaghat Municipality, Nawalparasi
- Bardibas Municipality, Mahottari
- Besishahar Municipality, Lamjung
- Bhadrapur Municipality, Jhapa
- Bharatpur Metropolitan City, Chitwan
- Bheriganga Municipality, Surkhet
- Bhimeshwor Municipality, Dolakha
- Biratnagar Metropolitan City, Morang
- Birendranagar Municipality, Surkhet
- Birtamod Municipality, Jhapa
- Butwal Sub-Metropolitan City, Rupandehi
- Damak Municipality, Jhapa
- Dhangadhi Sub Metropolitan City, Kailali
- Dhankuta Municipality, Dhankuta
- Dharan Sub-Metropolitan City, Sunsari
- Gaindakot Municipality, Nawalparasi
- Ghorahi Municipality, Dang
- Godawari Municipality, Kailali
- Gorkha Municipality, Gorkha
- Siddharthanagar Municipality, Bhairahawa
- Tansen Municipality, Palpa
- Triyuga Municipality, Udaypur
- Guleriya Municipality, Bardiya
- Hetauda Sub Metropolitan City, Makwanpur
- Inaruwa Municipality, Sunsari
- Itahari Sub-Metropolitan City, Sunsari
- Janakpur Sub-Metropolitan City, Dhanusha
- Kamal Rural Municipality, Jhapa
- Kamalamai Municipality, Udaypur
- Karyabinayak Municipality, Lalitpur
- Kawasoti Municipality, Nawalparasi
- Khandbari Municipality, Sankhuwasabha
- Kohalpur Municipality, Banke
- Lalitpur Metropolitan City
- Manthali Municipality, Ramechhap
- Mithila Municipality, Dhanusha
- Narayan Municipality, Dailekh
- Nepalgunj Sub Metropolitan City, Banke
- Phidim Municipality, Panchthar
- Putalibazar Municipality, Syangja
- Sainamaina Municipality, Rupandehi
- Shuklagandaki Municipality, Tanahun
- Shuklaphata Municipality, Kanchanpu
- Tulsipur Municipality, Dang
- Vyas Municpiality, Tanahun

Abbreviations

ADRRN	Asian Disaster Reduction and Response Network
BCIPN	Building Code Implementation Program in Nepal
BEMR	Basic Emergency Medical Response
BTT	Basic Technical Training
CSSR	Collapsed Structure Search and Rescue
DMC	Disaster Management Committee
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DUDBC	Department of Urban Development and Building Construction
EPRP	Earthquake Preparedness and Response Plan
ERM	Earthquake Risk Management
ERR	Earthquake Risk Reduction
ESD	Earthquake Safety Day
ESS	Earthquake Safety Solutions
GEM	Global Earthquake Model
HSS	Higher Secondary School
HOPE	Hospital Preparedness for Emergencies
IAEE	International Association for Earthquake Engineering
IOE	Institute of Engineering
KMC	Kathmandu Metropolitan City
LSMC	Lalitpur Sub Metropolitan City
MFR	Medical First Responder
MIW	Master Instructors' Workshop
MT	Mason Training
NBC	National Building Code
NRCS	Nepal Red Cross Society
NRRC	Nepal Risk Reduction Consortium
NRTC	National Reconstruction Technology Center
NSET	National Society for Earthquake Technology – Nepal
OJT	On-the Job Training
PEER	Program for Enhancement of Emergency Response
3PERM	Promoting Public Private Partnerships for Earthquake Risk Management
SESP	School Earthquake Safety Program
SM	Social Mobilizers
TFI	Training for Instructors
TOT	Training of Trainers
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VCA	Vulnerability Capacity Assessment


BBQ

NSET
Earthquake Safe Communities in Nepal

National Society for Earthquake Technology-Nepal (NSET)
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