



NSET
Earthquake Safe Communities in Nepal

Earthquake Safety

भूकम्प प्रविधि राष्ट्रिय समाज-नेपालद्वारा प्रकाशित

Newsletter

Baliyo Ghar - Year IV Special

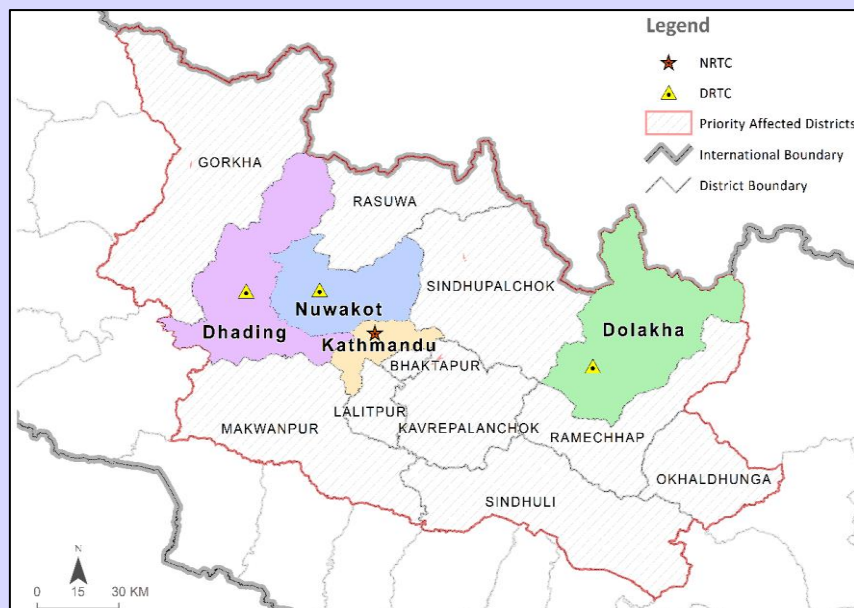
Dec 2019 | Issue: IV

Baliyo Ghar Program: Towards scaling up Retrofit and Support to vulnerable households

"Baliyo Ghar Program," a technical support program for housing reconstruction in Nepal implemented by National Society for Earthquake Technology–Nepal (NSET) with support from United States Agency for International Development (USAID) is in final year of implementation. "Baliyo Ghar Program" is an initiative to support Government of Nepal (GON)'s wider national goal of "Building Back Safer" in the wake of April 25, 2015 Gorkha Earthquake struck in Nepal. The program has completed Year IV on 30th September 2019. **This newsletter covers the activities of Baliyo Ghar program from October 1, 2018 to September 30, 2019.** Among 14 severely earthquake affected districts, Baliyo Ghar program is implemented in four districts namely, Dhading, Dolakha, Nuwakot and Kathmandu. In four districts, Baliyo Ghar program covers 23 wards of three Urban Municipalities (UM) and 43 wards of 12 Rural Municipalities (RM). In total, Baliyo Ghar Program is providing technical support for 21.4% and 34.5% of the wards in rural and urban municipalities of the three districts outside Kathmandu through its comprehensive coverage. In Kathmandu, Baliyo Ghar Program covers 3 wards in 1 municipality. Similarly, another 13 RMs and 4 UMs were also covered through one-time OJT surge activities.

The major focus of Year 4 was in supporting **the retrofit of partially damaged houses**, an important shift from prior emphasis on housing reconstruction. Altogether 51 partial damaged masonry houses have been retrofitted under the program as a part of On-the-Job training to masons which eventually will serve as model in the communities to retrofit numerous numbers of houses with partial damage during Gorkha Earthquake. At least 6 masons from each site are trained on knowledge and skills of retrofit during the implementation. They can implement retrofitting in other houses in the community if required. Developed as model houses, the retrofitted houses under the program are very nominal among 70 thousand households to be retrofitted in quake affected areas. The necessity to convince house-owners and retrofit the partial damaged houses is crucial at this moment. Baliyo Ghar experience shows that it is possible to scale up the retrofit if it is done as a campaign. If the houses within quake affected areas get retrofitted, it certainly has larger impact because we have thousands of houses to be retrofitted in other parts of Nepal.

In the 5th year of program implementation, Baliyo Ghar plans to raise awareness for the effective implementation of retrofit and more focused in supporting vulnerable households to rebuild their houses. About 1200 families are identified as vulnerable households who have not rebuilt their houses yet in Baliyo Ghar program areas. NRA has identified 18000 more households as vulnerable who are waiting for special support. Hence supporting those families to bring in the mainstream of reconstruction and help them to reside under the quake safe house is the subject of focus in the preceding months. Also strengthening the coordination with local authorities to institutionalize the efforts of reconstruction and help local authorities in mitigating disaster risks by enhancing the capacities is another major focus of Year V.



Map of Baliyo Ghar program coverage.

Reconstruction in the verge of completion in some areas, beneficiaries increased

By the end of Year 4 of program implementation, the reconstruction in program areas has been seen accelerated and thriving for completion. Several wards like Bigu, Aalampu, Babare, Marpak, Tipling and Talakhu are on the verge of completion. Recently, National Reconstruction Authority (NRA) conducted further assessments and re-verifications of the damaged houses where the homeowners had filed a grievance for having not been initially included on the beneficiaries list. Local governments had recommended they be reassessed for possible inclusion. As such, the number of beneficiaries in Baliyo Ghar Program areas has risen by 6.7% to 61168. This increase in the number of beneficiaries has been a challenge in ascertaining the timeframe of completion of reconstruction as well as for demobilization of program teams. Baliyo Ghar program contributed significantly through the Socio-Technical support to the overall earthquake reconstruction in Nepal. With significant achievement in output and outcome level activities, fourth year of Baliyo Ghar implementation has been a success. By the end of fourth year, Baliyo Ghar program has made significant progress in terms of achieving output level actions implementation as well as outcome level changes as per the theory of change set by the program. The program is heading towards achieving impact set by the results framework.

Despite the satisfactory level of achievements, certain issues in reconstruction, such as in urban areas, of vulnerable population and retrofitting of partially damaged houses still persist, which will pose a challenge in the upcoming year. However, learnings gathered during the implementation of the program in Year 4, especially in understanding the capacities of local governments in institutionalizing the reconstruction efforts shows way forward to resolve these issues and move towards the exit of the program, gradually building the sustainability of DRR incorporating DRM in development practices by engaging locally enhanced capacity and awareness through local governments.

53 houses retrofitted as demonstration models, 300 masons trained on Retrofitting

During Oct 2018 – September 2019, 53 houses in BG Program areas were retrofitted as part of mason trainings. On one hand, more than 300 local masons have been trained in retrofitting while on the other, the houses retrofitted as part of the training served as a retrofitting technology demonstration house for the communities; they observed the process of retrofitting, evaluated the technology for replication and examined the benefits of retrofitting of houses. Many other trainings, including retrofit demonstration, inspection trainings and design trainings for engineers and training for government officials included sessions of retrofit observation at these demonstration houses. In total, 488 engineers received retrofit training in Year 4. In addition, during implementation of retrofitting trainings, 851 persons (including government officials, elected representatives, partner organizations' representatives and community people) visited retrofitting sites and became more aware of the process, technology and affordability. This number includes the number of visitors to the demonstration site as part of the various retrofit related trainings conducted.

The learning in this aspect is positive and people are seeing the benefits of retrofitting.

Sensitized local governments towards Disaster Risk Management and Building Code Implementation

Another major Baliyo Ghar Program activity in Year 4 was *Training for Government Officials*, mainly the local government representatives and officials. The trainings were primarily focused on sensitizing and enhancing knowledge and capacity of local government's officials through discussion that covered the roles of local governments in reconstruction and DRR, issues and challenges of reconstruction including retrofitting, and the institutionalization of reconstruction efforts through the enactment of the building code and establishment of building permit systems in municipalities. Altogether, 184 participants attended 6 trainings. A key impact of these trainings is that several rural municipalities now have promulgated action plans and are urging beneficiaries to implement retrofitting. The learning in this aspect is positive and people are seeing the benefits of retrofitting.

9 refresher trainings conducted to train 252 masons

Near the end of Year 3, there was an increased demand from trained masons. In some of the area, local masons who had received training in rural construction had also started working in urban construction. To meet such demands and to meet the need of continuing education for previously trained masons, Baliyo Ghar Program conducted refresher courses for masons in Year 4. As such, a 4 day training course was designed for enhancing skills of rural trained masons in urban construction, as per the need of the community. All nine of these trainings planned in Year 4 have been completed with 252 masons trained.

Reached to 9429 additional houses through Door-to-door technical assistance

Where housing reconstruction was ongoing, the Door to Door socio-technical assistance teams continued in Year 4 as well. In total, 9429 additional houses were reached through door-to-door campaigns in Year 4, raising the total beneficiary count to 47640. Further, the mobile teams continued to track beneficiaries to ascertain the reasons behind reconstruction delays.

Surveys conducted to document the impact of program

To document the impact of the program, Mason Retention Survey was carried out in the month of September 2019. Similarly, Building Compliance Survey of under construction and completed houses also continued in Year 4. The results of survey will be shared among all the reconstruction stakeholders in Year 5 of program implementation.

Additional 166 episodes of Radio programs and 34 episodes of TV program produced and broadcasted

As part of Awareness raising Campaign of Baliyo Ghar Program, NSET is partnering with different media houses to produce and broadcast Radio and TV magazine to promote safer reconstruction practices. Mass media is one of the major components of the Baliyo Ghar awareness program to share and disseminate information, knowledge and ideas on safer construction technologies and also on various aspects of reconstruction process. Baliyo Ghar program is collaborating with media partners (TV and Radio) in program districts for district level media and also in Kathmandu Valley for the central and national level media advocacies and campaigns. In the Year IV, 166 unique episodes of Radio program have been produced and get broadcasted twice a week (i.e. 332) through 4 Radio stations and 34 episodes of TV program have been produced and aired twice a week (i.e. 68) through 2 TV channels (Nepal Television and Kantipur Television).

With the lucid understanding that mass media are one of the most effective means to disseminate information and share knowledge amongst a wide range of stakeholders, Baliyo Ghar Program, since its initiation, has partnered with national and local radio stations and television production houses to produce and broadcast programs on housing reconstruction. The mass media platform was used to document and share the learnings gained during the reconstruction campaign, and focused not only on studio talks but also covered field issues, challenges and good practices seen in reconstruction.

Shared the learnings on reconstruction through different workshops

Year 4 was also a time for stakeholders to share program implementation lessons with each other. In a media workshop conducted in Dhading, participants highlighted the need to disseminate retrofitting awareness to communities, especially utilizing retrofitting demonstration sites. Similarly, a National Workshop on "Need, Possibilities and Challenges for Seismic Retrofit of Non-Engineered Buildings" was conducted during the Annual Earthquake Safety Day framed the issue by stating, "[clear policies from the government with adequate capacity building and awareness activities is necessary to expedite retrofitting of partially damaged houses in the current reconstruction campaign.](#)" A "Learning and Sharing Workshop on Socio-Technical Assistance in Reconstruction" held in Dhading in June and the workshop highlighted the different approaches and strategies of socio-technical assistance, pertinent issues of reconstruction such as retrofitting and vulnerable groups, along with challenges and way forward and scope of building code implementation in Baliyo Ghar Program municipalities. By the end of Year 4, a national media workshop on "Roles of Mass Media in Institutionalizing the Reconstruction Efforts and Promoting Resilient Communities" was held in September, which discussed the role of mass media, both national and local, in covering the various issues of reconstruction and towards scaling up retrofit.



1. Development of training curriculum on Retrofitting of Masonry Buildings for existing masons and submitted to NRA/CLPIU for approval after pilot testing
2. Development of training curriculum on "Training on Social Mobilization for Reconstruction"
3. 3 workshops conducted on various issues of reconstruction in presence of multiple of stakeholders.



1. Interaction with 35320 persons through 1668 orientation events.
2. Door to Door technical assistance to 9429 additional houses



1. Development of 46 new masons from 8 OJTs.
2. Trainings to 431 existing masons through 16 trainings
3. Training on urban construction to 252 rural trained masons from 9 refresher courses
4. 53* retrofit mason trainings completed and 328 masons trained.
(2 trainings with 12 masons on hold due to unfavourable circumstances)*



1. 239 engineers trained on 9 retrofit demonstration training and 7 retrofit building inspection training held for 186 engineers
2. 2 trainings conducted on seismic retrofit design of masonry buildings for 63 engineers
3. 184 number of local government officials trained from 6 trainings



1. 200 Number of awareness materials produced
2. 7400 Number of awareness materials disseminated
3. 100 Demonstration models constructed

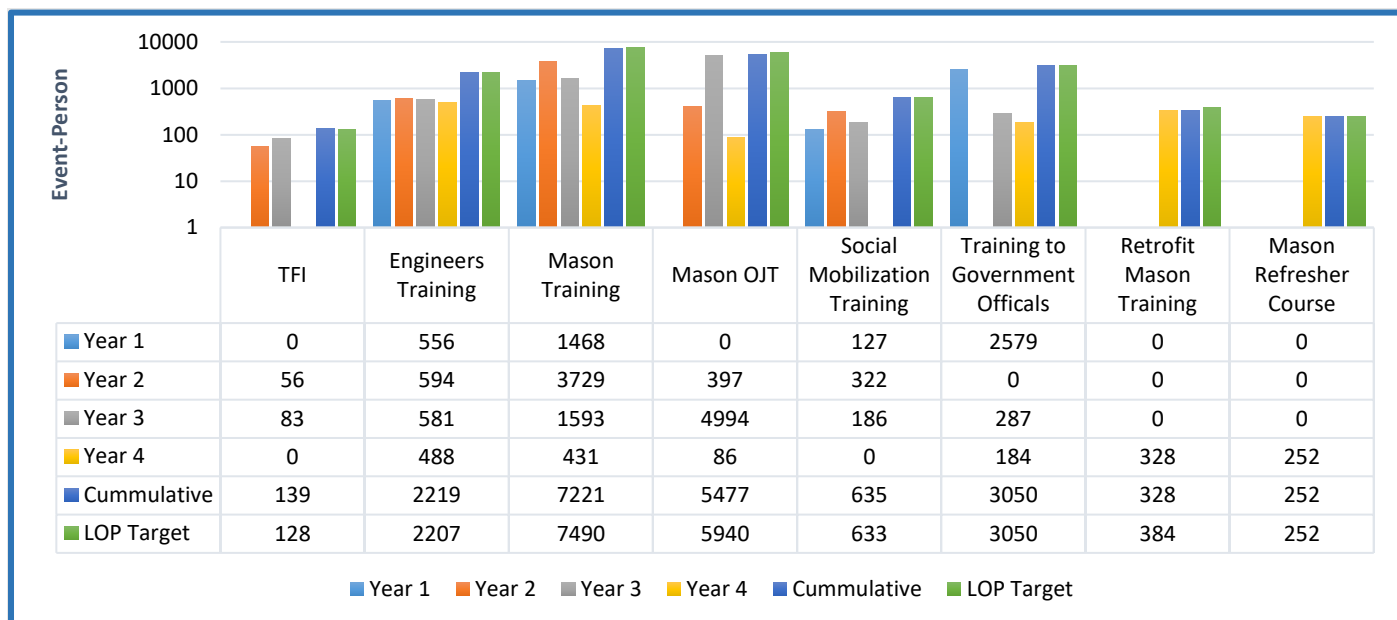


45% Female and 69% DSG participation in overall program activities

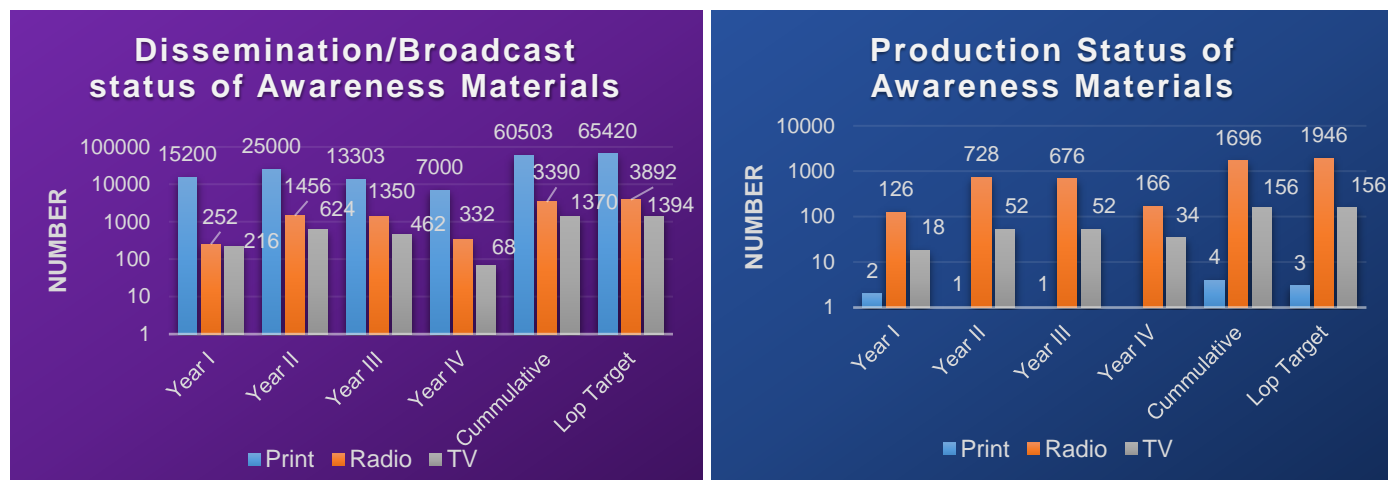
Highlights of Baliyo Ghar Activities, Year 4

Baliyo Ghar Achievement: Year 4 (As of September 2019)

(Capacity Building Activities)

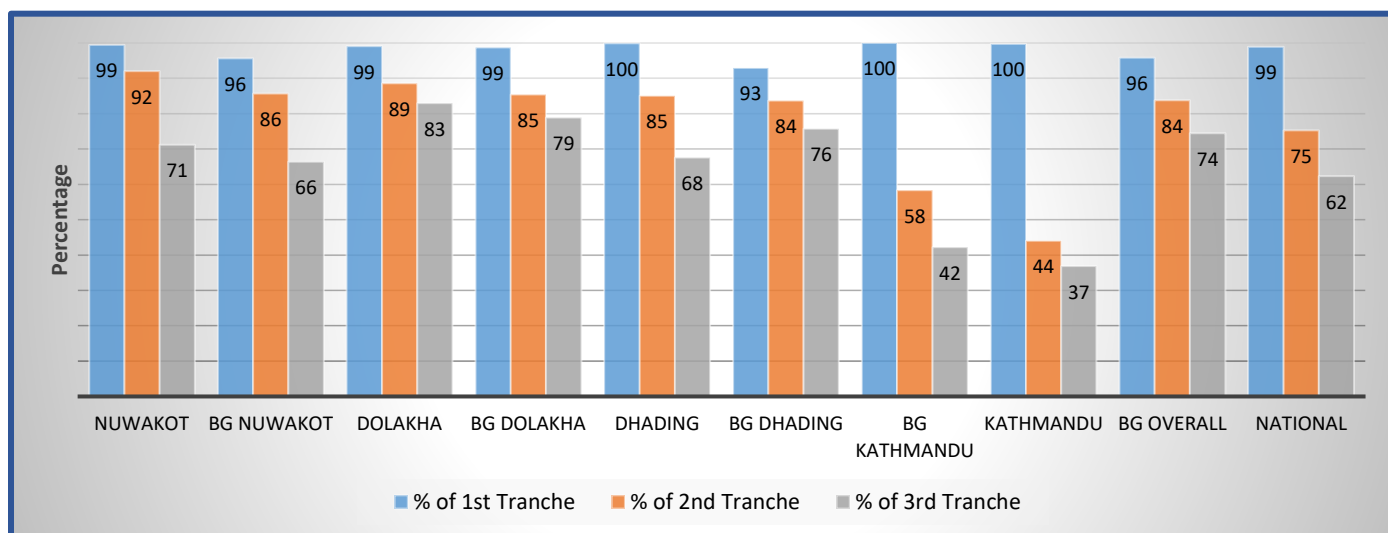


(Awareness Materials Produced and Disseminated)



Reconstruction Scenario (As of September 2019)

(Comparison among Baliyo Ghar program districts / areas with total reconstruction)



Retrofitting: Socio-Technical Assistance in Program Areas

In the preceding three years of program implementation, Baliyo Ghar Program focused largely on the reconstruction of private houses, through policy development, capacity building and awareness raising. With appropriate socio-technical assistance techniques, Baliyo Ghar Program areas have achieved significant reconstruction progress, some areas achieving more than 90% completion. However, the reconstruction campaign also faced serious issues in terms of low reconstruction in urban areas, among vulnerable groups, and retrofitting of partially damaged houses. Hence, the major focus of Year 4 was in supporting [the retrofit of partially damaged houses](#), an important shift from prior emphasis on housing reconstruction. Retrofitting of partially damaged houses is a substantially different technical undertaking from the straightforward task of incorporating earthquake-resistant construction techniques into new construction. The retrofit technical solutions, especially in stone masonry buildings damaged by the earthquake are relatively new to communities as well as for engineering professionals and often more difficult to implement. The existing, partially damaged houses may not confirm to house size, window placement, foundation size and other aspects of earthquake-resistant construction. These issues must be addressed, alongside the overall strengthening of the existing walls and roof.

As part of its ongoing technical support to the NRA, Baliyo Ghar Program provided significant contribution for the preparation and publishing of [“Repair and Retrofitting Manual for Masonry Structures”](#). Similarly, to enhance the capacities of construction workforce, the program prepared separate curricula for short- and long-term trainings for engineers and masons respectively. The 4-day [“Training Manual on Basics of Repair and Retrofitting of Buildings”](#) is targeted towards enhancing understanding among engineers while the

25-day curriculum on [“Training on Retrofitting of Masonry Buildings for Existing Masons”](#) is targeted towards training masons to undertake the retrofitting of partially damaged houses. Both of these curricula have been tested through pilot implementation under Baliyo Ghar Program and are under review at the NRA.

Retrofit Activities

- Development of [orientation package](#) regarding basics of retrofitting and conduction of orientation and door to door information campaigns regarding retrofitting. [Prepared IEC materials, posters, media programs](#) etc. related to retrofitting of buildings.
- [Conduction of trainings](#); “Training on Basics of Repair and Retrofitting of Buildings”, “Retrofitting Demonstration Trainings” and “Retrofitting Inspection Trainings” for engineers, sub engineers and assistant sub engineers. And [conducted 5-day “Training on Seismic Retrofit Design of Masonry Buildings”](#).
- Conduction of Trainings on [“Training for Local Government Officials and Social Leaders on Disaster Risk Reduction and Retrofit”](#). The training program also organized exposure visits to participants' demonstration site at the time when the retrofitting work was ongoing.
- [Construction of 53 retrofit demonstration models](#) in Baliyo Ghar Program areas, in proportion to the density of retrofitting beneficiaries. In retrofitting those houses, program conducted 25-day [“Training on Retrofitting of Masonry Buildings for Existing Masons”](#), where at least 6 practicing masons were involved in an on-site training.

Retrofit Technology Handed Over at Nalang, Dhading

Retrofitting partially damaged houses is a technical and social challenge. When it occurs, it needs celebration. Mr. Sushil Gyewali, CEO of NRA along with officials from the NRA, CLPIU GMALI, CLPIU Building and DLPIUs in Dhading, representatives from Siddhalek RM, USAID, partner organizations and media personnel did just that in Dhading. They attended the Retrofit Technology Handover Program organized by Baliyo Ghar on 3rd July 2019.

6 houses that were retrofitted as part of trainings under NSET-Baliyo Ghar were handed over to the beneficiaries in Siddhalekh Rural Municipality, Nalang, Dhading. Addressing the ceremony, Mr. Gyewali stressed on the need of retrofitting 70 thousand more houses in quake-hit 32 districts. "Some organizations like NSET have developed retrofit model houses, though it will not be enough, we need to scale up the retrofit to strengthen the seismic capacity of 70 thousand more houses. There are no other options than to demolish or retrofit for the partial damaged houses during Gorkha Earthquake," he said. He also believed the retrofitted houses in quake hit areas like Nalang can be the model houses for quake-hit and quake-non-hit areas.

The field visit of government officials and formal handover ceremony was organized by Baliyo Ghar Program in collaboration with Siddhalek



Mr. Gyewali, CEO of NRA handing over the retrofitted house of Mr. Ram Prasad Naharki resident of Aprichap, Nalang

RM office. More than 376 beneficiaries are enlisted as retrofitting beneficiaries in wards 1 and 2 of the municipality. The officials, community people and retrofit beneficiaries have seen field level interventions on Retrofit being carried out and the potential for scaling up elsewhere.

"Indeed it was a right decision to retrofit my house"



Mr. Manilal Shretha,
Kakani Rural Municipality-08,
Thansing, Nuwakot

"After the Gorkha Earthquake shattered our house with partial damages seen, I was advised to demolish the house. Initially I was distressed to demolish the partial damaged house and rebuild a new one. As I had to lose the traditional house with plenty of rooms and enough area to accommodate our agricultural products, I was in perplexed condition. Though I could find no other options than to demolish 2 and half storeyed house and rebuilt two-roomed house. Though couldn't start rebuilding new one due to economic factors. In due course of time, after 1 year of stay in temporary shelter, we shifted to the same house. The plan to demolish was postponed. I was not aware about the feasibility of retrofitting in masonry buildings which later Baliyo Ghar team oriented me.

Neighbors and relatives were giving pressure to demolish and reconstruct new one which I never wanted. It was indeed a right decision that we decided to retrofit our house. Every day 4/5 people come to see my retrofitted house, I am quite pleased to inform them about the technology implemented in my house, and some of the visitors have shown interest in implementing retrofit in their house too. There are several houses in Thansing and nearby areas which were partially damaged by the Gorkha Earthquake and the families are residing under the vulnerability. I urge them to retrofit their house as soon as possible. When I walk around my village and nearby areas, I cannot stop myself without briefing about the benefits of retrofitting house and the process to go with."

Baliyo Ghar Workshops: Learning sharing of reconstruction and seeking the respective roles in scaling up of Retrofit and Institutionalization

In regard with the objective of providing a platform for the local government, community stakeholders, authorities and mass media practitioners to share the learnings derived from reconstruction and discuss respective roles in scaling up Retrofit and Institutionalizing the reconstruction efforts, in Year 4, Baliyo Ghar Program conducted a total of 4 workshops involving various stakeholders. In line with the current status of reconstruction, these workshops primarily focused issues related to the sustainability of reconstruction, the role of local governments and the retrofitting of partially damaged houses in earthquake affected areas.



As the pace of rebuilding flattened houses was seen accelerated up and Retrofit was the burning issue, NSET-Baliyo Ghar comprehensively discussed with the journals of Dhading district on the roles of mass media for resilient reconstruction and successful implementation of Retrofit. To build better understanding among the mass media practitioners particularly on Retrofit along with ongoing reconstruction progress, a **Media Workshop on Reconstruction and Retrofit** was organized in DhadingBesi on 8 Feb, 2019. 27 active journalists working for national broadsheets and local media based in Dhading along with 10 more Retrofit beneficiaries participated the one-day workshop. 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.

Likewise, two days national workshop on the *“Role of Mass Media in Institutionalizing the Reconstruction Efforts and Promoting Resilient Communities”* was conducted on 18th-19th September 2019 at Dhulikhel, Nepal. Workshop participants discussed on the experiences of media personnel reporting in the field of housing reconstruction and DRR in Nepal. A total of 25 media personnel representing national and local broadsheets, national television and different radio stations were present during the workshop.

The workshop concluded that it was very important that local government units in earthquake affected areas be sensitized towards institutionalizing the current efforts and achievements of reconstruction by enacting appropriate earthquake risk management measures, including enactment of the National Building Code. The role of mass media should be to produce and broadcast programs based on sustainable development and dig out issues of reconstruction to increase accountability of the stakeholders. Also the participant



journalists unanimously agreed and committed to dig out seismic vulnerability in Nepal and promote retrofit.

Two panel discussions were conducted during the two day workshop. On the first day a panel discussion was conducted to share the grassroots experiences of reconstruction and socio-technical assistance as well as experience of implementing building code in municipalities. Likewise, on the second day, to summarize the roles of mass media in post disaster reconstruction, in promoting retrofit, dig out the unheard stories and media's role in localizing the current efforts, a panel discussion was conducted among the participants.

The key shared experiences throughout the workshop were:

- While reconstruction for many beneficiaries is nearing completion, the reconstruction of urban areas, densely populated areas, and heritage settlements, along with the retrofit of partially damaged houses are still major challenges. Concerted efforts are necessary.
- Media organizations and personnel have played an important role during the entire process in the aftermath of the 2015 Gorkha earthquake, from rescue, relief and recovery. Their role for scaling up retrofit and to institutionalize the current efforts is sought.
- While reconstruction of many rural municipalities is nearing completion, the local governments must now focus on establishing systems within their administrative offices to continue the culture of safer construction through the enactment and enforcement of the building code.
- In implementing the National building code and a building permit system, rural municipalities can greatly benefit from examples of other municipalities, such as the Ghorahi municipality of Dang.
- The role of mass media in enhancing public awareness is unprecedented. Similarly, the role of local governments in promulgating and enacting local level DRR initiatives is also important. Thus, media should now focus on collaborating with local governments to produce and broadcast DRR related programs.



Similarly, a National Workshop on *“Need, Possibilities and Challenges for Seismic Retrofit of Non-Engineered Buildings”* conducted during the Annual Earthquake Safety Day framed the issue by stating, *“clear policies from the government with adequate capacity building and awareness activities is necessary to expedite retrofitting of partially damaged houses in the current reconstruction campaign.”* A *“Learning Sharing Workshop on Socio-Technical Assistance in Reconstruction”* held in Dhading in June highlighted the different approaches and strategies of socio-technical assistance, pertinent issues of reconstruction such as retrofitting and vulnerable groups, along with challenges and way forward and scope of building code implementation in Baliyo Ghar Program municipalities.

Training to Local Authorities: Localizing the Reconstruction Efforts and seeking roles for Resilient Communities

In the initial phase of reconstruction, the local bodies were vacant which got fulfilled after local elections in May-June 2017. In the absence of local authorities, somehow it was hindering the reconstruction activities basically in decision making and facilitating the process. After the local bodies came to force, now 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 their 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.



Participants of TLA conducted in Dhading

In this year too, 4 trainings for local authorities and social activists on Disaster Risk Reduction, Building Code Implementation, Sustainable Reconstruction and Retrofit were organized in the program areas. The two-day training package included 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 included the planning discussion for DRR measures. A separate curricula has been developed and followed for the training. Local authorities representing Nilkantha Municipality, Siddhalekh Rural Municipality and Galchi 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 and representatives of Kageshwori Manahara Municipality, Kathmandu participated the training conducted in Thali.



Participants of TLA in Nuwakot observing a ongoing retrofit site in Thansing

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 execution of building code and building permit system in their respective municipalities. Also, they have been facilitating in retrofitting the non-damaged houses and existing vulnerable houses in their areas along with promoting retrofit from their ends.

The main objectives of the training was to localize the disaster risk reduction knowledge, aware and sensitize on the need of building code implementation along with its structural process and promote sustainable construction practice and stimulate retrofit. The aim of resilient communities can be achieved only if the local governments own these subjects to mainstream them in their regular business and concerted efforts are made.

Reflections from Local Representatives

Mrs. Apsara Thapa, Deputy Chair of District Coordination Committee, Nuwakot: "Had been the trainings targeted to implement retrofit conducted earlier, possibly a year ago, many more houses which now have been demolished would have been retrofitted. Though, it's never late, we should convince the house-owners to retrofit in the existing vulnerable houses. Definitely it's our duty to preserve the traditional architecture and our rural characteristics."

Mr. Yudhistir Khadka, Chief of Bigu Rural Municipality, Dolakha: "Our thoughts have drawn to prepare a concrete plan to implement building code and disaster risk reduction/management. As we are to finish the reconstruction, our actions of priorities have to be directed towards making our communities resilient."

Mrs. Radha Timilsena, Deputy Chief of Galchi Rural Municipality, Dhading: "Our efforts for disaster risk reduction and management have just begun, through these trainings definitely we have got the concrete ideas to prioritize our actions."

Mr. Krishna Prasad Timilsena, Local Teacher and Advisor to Chief of Siddhalekh Rural Municipality, Dhading: "We are in fact excited by the training basically the retrofit-on-site visit has motivated us to implement retrofit in our localities. Also the simulation for building code implementation have candedled us to understand the building permit system. It was a great opportunity to learn, obviously we will impart the knowledge in our rural municipality."

Rampyari Nagarkoti and Dal Bahadur Tamang, ward members of Kageshwori Municipality, Kathmandu: "Had been the concept of the retrofitting come earlier then many houses with partial damagae would have been retrofitted instead of getting demolished. Though it's never late again. We have a tremendous number of houses that lack the earthquake resistant capacity which we can retrofit. Also the disaster risk mitigation measures would be applied in concert with stakeholders in our wards."

Baliyo Ghar Activities in DOLAKHA

NSET/Baliyo Ghar program is providing technical assistance to 4 rural municipalities and 1 urban municipality (Erstwhile 13 VDCs and 1 Municipality) in Dolakha district for safer reconstruction. And through on-the Job Training (OJT) surge with partnership with training service providers, remaining parts of Dolakha had been covered by Baliyo Ghar program. 80 percent of the total reconstruction in program areas has been completed in Dolakha.

Mason Refresher Course

As the targeted 7 days trainings for existing masons went near to the saturation level and 96% of the target accomplished, Baliyo Ghar targeted the rural masons to enhance their capacity on urban construction techniques. Hence, conducted mason refresher course as there is a gradual change in the trend of building construction in rural and semi-urban areas where people have started to build Brick Cement and RC frame buildings, though in few numbers.

In Year IV, Baliyo Ghar program accomplished 3 mason refresher trainings in Dolakha where 77 rural masons enhanced their capacity regarding urban construction. As rural reconstruction has progressed a lot, the masons working in rural areas have started migrating towards the peri-urban and urban areas, where they are exposed to urban construction. However, due to the lack of adequate knowledge and skills, these masons, although certified, are making errors in construction of urban buildings. As the migration process goes on, it is important that these masons trained in urban construction to be better skilled for further livelihood development in urban construction field.



Participants of mason refresher training being briefed about the foundation in Dolakha.

Retrofit Demonstration Training for Engineers



With the major objective of imparting knowledge on different repair and retrofit methodologies to the technical professionals involved in

technical support, supervision and inspection of such houses “Retrofit Demonstration Training” was conducted. In Dolakha 3 such trainings were conducted to help engineers be acquainted with different failure patterns of load bearing and frame structures and different methodologies adopted to repair and retrofit such buildings and to help them adopt suitable retrofit option based on the repair and retrofit manual.

The technical professionals from partner organizations, municipality offices and other areas were also targeted to ensure that the knowledge is imparted to all the technical professionals equally and further, it is expected that they will impart and promote retrofitting of possible houses in days to come. Considering the limited number of training the participants were selected as per the demand on number of houses that needs to be retrofitted.

Training for the Local Authorities on DRR, BCI and Retrofit held in Singati

Local authorities representing Bigu Rural Municipality and Kalinchowk Rural Municipality of Dolakha have drawn-on in proceeding the execution 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. In a training conducted during May 16-17, 2019 at Singati, Dolakha the representatives vowed their actions of priority for the resilient communities. Two-days training on **Disaster Risk Reduction/Management, Building Code Implementation and Retrofit** was organized to discuss the roles of local authority in reducing the risk of multiple disasters, follow building permit system and implement retrofit. Altogether 32 participants including 6 ward chairs of Bigu and Kalinchowk rural municipality actively participated the sessions.

Chief of Bigu Rural Municipality, Mr. Yudhistir Khadka at a ceremony to close the training emphasized on the plans for sustainable reconstruction and disaster risk mitigation measures that his municipality is pondering these days. He said, "Our thoughts have drawn to prepare a concrete plan to implement building code and disaster risk reduction/management. As we are to finish the

reconstruction, our actions of priorities have to be directed towards making our communities resilient."



Mr. Yudhistir Khadka addressing the closing ceremony of Training to local authorities in Singati

"I ignored the advise to demolish my house, villagers regret of what they did"



Mr. Rudra Prasad Subedi and his retrofitted house in background in Mathani, Bhimeshwar -05 Dolakha. He retrofitted his partial damaged traditional house with support from Baliyo Ghar Program

"After working on government services for 20 more years, I could build my 2 and half storeyed house which got partial damage during Gorkha Earthquake. Our family stayed in temporary shelter for 2 years. Many of the villagers advised me to demolish the house, but my heart couldn't do so as I was attached to the house emotionally. In the due course, I happened to meet Baliyo Ghar Program team who helped my house get retrofitted. With 25 days intensive works, my house has been retrofitted and turned a quake safe house. I am damn sure, no such earthquakes like 2015's would damage our house, as it has been tied up by splint and bandage and jacketing around the walls. The persons who used to force me to demolish the house now come to see its original shape but with resilient capacity and get astonished. Local authorities appreciate my decision to retrofit the house as they say, I have preserved our traditional and cultural identity. I am quite satisfied and happy by the retrofit technology that our upcoming generations can also use this house without any despair and worries. There were several houses enlisted for the retrofit in the village but almost all have been demolished just to receive 3 lakhs rupees of government grant. The house-owners never thought to preserve the traditional architecture with enough rooms to accommodate. Observing my home in its original form, now they regret of what they did. "

U.S. Ambassador to Nepal, His Excellency Randy Berry and NRA CEO, Mr. Gyewali visited Baliyo Ghar Program areas

As the earthquake hit areas are witnessing safer reconstruction going through and some have completed the process, U.S Ambassador to Nepal, His Excellency Randy W. Berry and Chief Executive Officer (CEO) of NRA, Mr. Sushil Gyewali visited reconstruction sites in Dolakha. Both the VIPs visited Majhigaun, a village of fishermen in Bhirkot of Tamakoshi Rural Municipality, Dolakha where Baliyo Ghar program has been providing technical assistance for better and safer reconstruction. Majhigaun is returning back to the normal life just like before the Gorkha Earthquake, where 56 total houses were collapsed and now all of the houses have been rebuilt with the earthquake resistant technology incorporated. CEO of NRA visited the place on 2 Dec 2018 while US Ambassador Berry visited the very place on 3 Dec 2018. Both of them interacted with the house-owners and Baliyo Ghar trained masons. Berry and Gyewali were informed about the status of reconstruction in the village by Dr. Ramesh Guragain, Director to

Baliyo Ghar Program and Deputy Executive Director of NSET. In the meantime, mobile team of Baliyo Ghar program informed the socio-cultural features of Majhigaun to the VIPs.

They also visited the house headed by children which was rebuilt through the OJT of Baliyo Ghar program where Alina, Alisha, Yesha along with their infant brother got opportunity to interact with. Those 4 children who lost their father before Gorkha Earthquake and mother after the earthquake have been nursed by their uncle and aunt. Mr. Gyewali stressed on launching some special program to help such earthquake affected orphans very soon. Berry was also inquisitive about their livelihood and educational status. Mr. Gyewali and Berry were pleased to see the successful reconstruction going through in Majhigaun.



US Ambassador, His Excellency Mr. Randy Berry talking to Baliyo Ghar trained masons in Majhigaun



Mr. Sushil Gyewali, CEO of NRA talking to Alina, Alisha and Yesha, in Majhigaun

Baliyo Ghar Activities in NUWAKOT

NSET is providing technical assistance to 3 rural municipalities (erstwhile 9 VDCs) in Nuwakot district for safer reconstruction through Baliyo Ghar program. Coming to the end of 4 years of reconstruction

3 Mason Trainings Conducted



Participants of mason training Preparing Slab frame

after devastating earthquake, more than 65 percent of the total reconstruction in program areas has been completed in Nuwakot district.

In the Year IV of Baliyo Ghar Program's implementation, few trainings for existing masons were conducted. The 7-days mason training aims to enhance the local capacity of working masons expected to contribute in reconstructing their localities. Team Nuwakot accomplished 3 mason training boosting the capacities and knowledge of 80 local masons in the district.

One of the participants in the training conducted at Shivapuri Rural Municipality-03, Likhu, Mr. Kul Bahadur Chhetri, said, "The overall training was very effective and huge knowledgeable. I will try to apply all technique in the field which I learned during training period and aware the community about earthquake resistant building construction." In the same training invited at chief guest to close the training, ward chief, Mr. Ram Hari Thapa requested the participants to utilize the training knowledge and skill honestly in the field. He mentioned that the training on earthquake resilient house construction is very important after the earthquake and these types of trainings will prevent from loss of lives and property if knowledge and skills gained are followed.

3 Model House Constructed through On-the Job Trainings (OJT)



OJTs were the main focus of Year 3 of program implementation and few trainings were conducted in Year 4 too. Baliyo Ghar program team Nuwakot accomplished 3 on-the Job mason training in the district to enhance the skills, capacity and knowledge of 16 new masons. 3 model houses were constructed through 50-days OJT which will serve as demonstration model in the village. Those masons are expected to contribute in the reconstruction activities in their communities. On the other hand 3 vulnerable families have got support from the program to erect the flattened house.

In the year 3 massive number of OJT were conducted in the district targeting to develop new masons in the community. As per the request of ward committee and the need to support the vulnerable families reconstruct their house, such OJTs were conducted.

One of the female mason checking / inspecting if the wall is in plumb in one of the reconstruction sites in Damaitole, Samundradevi-8 Nuwakot. She was trained through Baliyo Ghar's OJT.

3 Mason Refresher Trainings Conducted

In the Year IV, mason refresher trainings were the new interventions of program. The refresher training course was planned for the masons who had participated in rural trainings earlier but have been working in construction of RCC houses. With most of the rural houses being completed, it was obvious that the masons would migrate to nearby wards, rural municipalities or district. They had to be involved in building houses whose construction practice was different from the training they took. The trend of masons switching from rural masons to urban masons was high and they had to be trained. Hence, such trainings were conducted in Nuwakot too. Altogether 3 mason refresher trainings were conducted to enhance the capacity of 79 masons. The major achievement of the training was that the skill of masons was further enhanced and they had new opportunities of working as masons in urban areas too. The houses built by untrained masons would not comply as per the building code and hence, training such masons helped to ensure the houses built in semi urban areas were resilient. The provision of including at least one trained mason in construction of houses at urban municipalities have been made mandatory in few municipalities and the masons who once had received rural trainings were not allowed to be involved in construction of such buildings. With refresher training course many masons had opportunity to work in the municipality too.



Community Orientations



In the Year IV, Baliyo Ghar program in Nuwakot oriented 8177 earthquake affected people to aware them about the safer reconstruction techniques and ideas. In the previous years, the orientation package included the subjects like; earthquake cause and effect, preparedness, non-structural mitigation and tips for safer reconstruction. But now the orientations have been targeted to aware people regarding retrofit and importance of building seismic resilient structures and also the importance of building code implementation with its benefit.

Retrofit Demonstration Training to the Engineers

With reconstruction of houses on verge of being completed, partially damaged buildings are still not retrofitted but are being used for several purposes putting people at risk. Through orientations and other series of trainings the technical officers were made aware about the concepts of repair and retrofit but were not confident on implementing it on field basis. To cater such need of the technical professionals training through demonstration was planned to enhance their capacity on implementation of retrofit. To help engineers adopt suitable retrofit options based on the repair and retrofit manual, 3 retrofit demonstration trainings were conducted in Nuwakot where 83 technical professionals participated.



Participants of Training on Retrofit Inspection and Demonstration in Nuwakot

Retrofit Trainings conducted / strengthened the seismic capacity of 9 houses



One of the female mason checking / inspecting if the wall is in plumb in one of the reconstruction sites in Damaitole, Samundradevi-8 Nuwakot. She was trained through Baliyo Ghar's OJT.

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 of masonry buildings. In its fourth year of implementation, program conducted 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. The primary task at hand, was to select an appropriate technique, suitable in terms of cost, strength, replication as well as sustainability through technical discussions based on several tests conducted beforehand. Separate training packages have been prepared for different target groups, all towards developing a common and comprehensive understanding among stakeholders regarding retrofitting. Masons are being trained through 25 days on-site training, whereby a demonstration model house is also being prepared. Baliyo Ghar team Nuwakot conducted such 9 trainings where 56 local masons have enhanced their technical capacity in regard to retrofit and 9 houses of retrofit beneficiaries have strengthened their seismic capacity.

"Retrofit is not only about making house earthquake safe, rather saving the cultural identity and traditional wisdom"



Mr. Sankar Nepali, Member, Municipal Executive, Kakani Rural Municipality, Nuwakot

"As the reconstruction process began, we were not aware about the ideas of retrofit. Neither the government engineers told anything nor did others. And I should confess, I along with other representatives were negative towards retrofit. We thought, it's the technology only feasible to implement in RCC houses. We never thought of retrofitting masonry buildings. But when I participated the Local Authority Training provided by NSET-Baliyo Ghar and got opportunity to observe the ongoing retrofit site in Thansing Nuwakot, our thoughts have been changed. We did great mistake by transforming the retrofit beneficiaries to reconstruction beneficiary just by seeing the grant amount which was a big mistake of my life. Through retrofit we could preserve our traditional assets, archeological identity. Also, many house-owners who have rebuilt new house by demolishing partial damaged house have been limited to 2 rooms which have hindered them in running their house. As a proverb says, "seeing is believing", after I came to see myself, it touched me. Retrofit is not only about making house earthquake safe, rather saving the cultural identity and traditional wisdom too."

Challenges in implementing Retrofit in Chaturale Nuwakot

Chaturale (previously a VDC) is a village located in Ward No. 7 of Kakani Rural Municipality in Nuwakot District. Nuwakot being one of the severely affected district of 2015 Gorkha Earthquake, Chaturale was no exception, As of Sep 2019, 821 number of beneficiaries have been identified for the Grant of Rs. 300,000 from Nepal Government for Housing Reconstruction in Kakani-7, Chaturale. Furthermore 12

The beneficiaries were not happy and satisfied for being listed in retrofit beneficiary and had held a meeting in the ward. Ward in coordination with NRA Engineers/Sub-Engineers indicated an option provided by NRA to transfer retrofit beneficiaries to reconstruction beneficiary, carried out a resurvey and recommended the retrofit beneficiary to be converted to reconstruction beneficiary who would be eligible to receive the grant of Rs. 300,000. The result of the resurvey hasn't been published. One of the beneficiary was keen on retrofitting his house after attending an orientation program with help from Baliyo Ghar Program under Retrofit Mason Training but was halted due to the financial investment needed to be done to retrofit his house.

Although the status of reconstruction in Chaturale has sky rocketed as compared to the initial phase, Chaturale is yet taking baby steps regarding retrofitting. We can partly blame the initial segregation of reconstruction beneficiary and retrofit beneficiary based on different surveys and criteria. But the main reason of retrofitting not accelerated doesn't lie in people lacking in confidence of its technology but the economic status of the people and no hard regulations from Government. People are not interested to invest their time and money on retrofitting as they feel it's easy to construct a 1 or 2 roomed house using the Rs. 300,000 grant from government, and use the new house for living and the old house for storage.



beneficiaries has been identified for Retrofitting subjected to grant of Rs. 100,000. Lately Chaturale gained a steady pace in reconstruction.

Although many houses were surveyed as severely damaged and the beneficiary recommended for reconstruction, most the houses constructed pre-earthquake are free standing and are in vulnerable condition. In Chaturale only 12 beneficiaries have been listed for retrofitting of their old houses compared to 821 for reconstruction. Among 12 beneficiaries many have already demolished their houses, some lack the technical criteria of retrofitting.



Retrofit able Houses in Chaturale with archeological importance



Baliyo Ghar Activities in DHADING

NSET is providing technical assistance at 5 rural municipalities and 1 urban municipality (Erstwhile 11 VDC and one municipality) in Dhading district for safer reconstruction through Baliyo Ghar program. Coming to the end of year 4 of reconstruction, more than 76 percent of total earthquake beneficiaries have completed reconstructing their homes in program areas. Like in previous years, different activities have been accomplished in the Year IV of Program implementation in Dhading.

5 Mason Trainings and 3 mason refresher trainings conducted

In the year IV, Baliyo Ghar - Team Dhading accomplished 5 mason trainings to enhance the skills, capacity and knowledge of 128 local masons of the district. The local masons with skill in hand to construct earthquake resistant houses have contributed their best to rebuild quake safe home in the communities. The masons who were trained for the rural construction lack the knowledge and ideas of constructing urban RCC houses. Hence, to upgrade their skills and support them to enhance themselves in construction field, refresher trainings to the rural masons were conducted. 3 such trainings were conducted in Dhading.



Participants in a practical session of mason refresher training conducted in Marpak, Dhading

Retrofit Demonstration and Inspection Training for Engineers

Reconstruction is in the verge of completion, though there can be seen some gaps as well. Those beneficiaries whose house are under the list of retrofitting are still in dilemma to either construct new building or to retrofit current building. Similarly, technical persons working on respective fields also lacks proper knowledge on retrofitting to give ideas to those beneficiaries. Keeping these realities in mind, Training

on Retrofit Demonstration and Inspection were conducted in Dhading too. Engineers, Sub-Engineers of DLPIU participated the training. This training aimed to provide basics retrofitting knowledge to technical persons which they can deliver in practical field. To make the participants more confident in persuading and implementing retrofit particularly in stone masonry houses, they were taken to one of the sites of retrofit in

Likewise, 25 Retrofit Trainings have been conducted in Dhading where 25 partial damaged houses have been retrofitted. 150 local masons have enhanced their knowledge and skills on retrofitting masonry buildings through these trainings conducted in different parts of Dhading.

Nilkantha Municipality, Dhading. 3 demonstration training and 3 Inspection training were conducted in Year IV in the district.



6305 more earthquake beneficiaries orientated for earthquake safety

Likewise, in the Year IV, Baliyo Ghar program Dhading accomplished 306 more community orientations to aware the locals for safer reconstruction. 6305 earthquake beneficiaries benefited by the orientations. The orientations were conducted through classroom based power point presentations, using flex in Chautara and Tea Shops and as well as using flip charts. Few orientations were targeted for the retrofit beneficiaries to convince them on the technology and help them plan retrofitting in their partial damaged houses. After the orientation, many retrofit beneficiaries showed their interest and some have finished retrofitting their house.



Dr. Ramesh Guragain, Director of Baliyo Ghar Program orienting the retrofit beneficiaries in Nalang, Dhading

Reconstruction in Sertung: Influence of resilient reconstruction trend to non-beneficiaries

After the devastating Gorkha Earthquake stroke Nepal in 25 April 2015, people living in rural areas of mid-Nepal had to go through miseries, anxiety, and distress directing to low living standard. Hundreds of thousands people went homeless with entire villages flattened across 31 districts of the country. Nothing is more distressful and insecure than losing own house and to witness own house collapsing just in few seconds. One of the far northern village of Dhading, Sertung, ward no. 3 & 4 of Ruby valley Rural Municipality was one of the villages that witnessed the shatter after Gorkha Earthquake. Place like Sertung where there is lack of basic infrastructure i.e. no transportation, no proper health facilities, and no better educational opportunities added troubles to the people after the earthquake. Living in a temporary shelter was never good to feel balminess and secure. Going through all the troubles and half informed about the reconstruction process people were in perplexed situation to erect their houses to resist future earthquakes.

After the Baliyo Ghar program intervened their community it became easy for Sertung dwellers to be informed about the government process

"It's not the grant we are seeking but our safety"

Purnamaya Tamang, 29, living at ward no. 3 (former ward no- 6) Barkhap, Sertung, has not been listed in beneficiary list but has constructed her house following all the guidelines. Her newly constructed house is at roofing level but has already sifted in as she believes nowhere is as resistant and stronger as her house as she was living in temporary shelter previously. "It's not about the government grant we are seeking but it's time for all of us to think about safety to secure our life. Nothing is more important than our life which I have learnt after going through lot of trouble after an earthquake occurred in my village" she said.



On my question do you often call engineers for supervision? Are you using trained masons or not? She replied "yes we are, we have got frequent supervision from engineers and not only one but 3 trained masons are working to construct my house. Through Parma system we have brought sand, aggregate, reinforcement bar, cement etc. to fulfill all the earthquake resistant requirement to construct my house. We are planning to use CGI sheet".

Rejina Tamang, 27, living at ward no.-3 (former ward no-5), Rampot toll, Sertung, had started her house to construct on November 2018. She wanted to construct her house after receiving government grant but things did not happen as planned. "As we have low economic condition, I was expecting to get grant and then construct new house, but we have not been listed in grant list yet. I have applied two times in grievance but we are unknown about the result. We had to construct the house as soon as possible, so knowing about the importance of following NRA Guidelines we started to construct our house." She said. In the question why you think you have not been listed in grant list yet? She replied "We were separated after the earthquake so we did not had separated the land ownership certificate and I have heard that those who were separated after an earthquake are not eligible to get grant, So that may be the reason."

for reconstruction, receive grant and rebuild earthquake safe homes as per the NRA guidelines. Awareness activities like orientations, help desk, discussion programs, focused group discussion and mason trainings to local masons and frequent door to door technical support were the significant factors that enabled to construct earthquake resilient houses. As a result, Sertung is turning to be quake safe Sertung these days. Constructing resilient house following all the set guidelines is not only the perception and priority factors of the reconstruction beneficiaries but also for non-beneficiaries and regular builders. Those households who have not been listed in NRA beneficiary list citing the technical errors during inspection, family separation after an earthquake, partially damaged house etc. have proceeded in grievance system but not sure about the positive result. Though they have already started constructing their house according to NRA guidelines. The practice of building the resilient houses with earthquake resistant technology is now a trend in quake hit district and of course in Sertung. The trend has been spread not only to all the beneficiaries but also to non-beneficiaries.



She mentioned that those who have constructed new house in her village have followed NRA guidelines so knowing the importance of earthquake resistant house and life safety she decided to construct earthquake resistant house no matter what with using trained mason and through proper supervision of engineers.

Chanduman Tamang, 24, resident at ward no:-4 (former ward no:-3), Awai, Sertung, is one of the trained masons of Baliyo Ghar program. "Being a trained mason it gives huge responsibility to make resilient community. It does not matter whether I get government grant or not but I felt I must construct following NRA guidelines which I have learnt from 7 days mason training organized by Baliyo Ghar". Said Chanduman. He added "We had to suffer a lot because of earthquake destruction, so after receiving 7 days training and being participated in orientations and also 50 days on the job training conducted in this village gave so much knowledge and guided us to construct earthquake resistant house."



"Not only us, we are thinking of our generation"



Fetasi Tamang is 60 years old living at ward no:- 3 (former ward no. 5) Schooltoll-Sertung. His son Mr. Eman Tamang, 38, is taking full responsibility to construct his house. He started to construct his house from 12th of march 2019 and the construction stage is upto DPC level now. The house owner has not been listed in beneficiary list but has constructed his house based on NRA guidelines. "if earthquake occurs

will definately reach to everyone, so its so much important to prepare ourselves and must construct earthquake resistant house." Said Eman. He further added. "not only for us but we are also thinking about our upcoming generation . I believe that cement band is much better than wooden band , it is more sustainable , that's the reason why I chose to use cement band. I want to complete construction as soon as possible so seven masons are working to construct my house and they are all trained masons by Baliyo Ghar program."

22 number of non-beneficiary have already started constructing house, among them 3 have already completed and remaining are under construction. 6 non beneficiaries are living in former ward no:- 2, 1 in 3, 3 in 4, 6 in 5, 3 in 6 and 3 are in former ward no. 3 are constructing. (Source:-BG mobile team). Out of 806 beneficiaries (Source:-NRA) who are enlisted for reconstruction, 688 Households have reconstructed their houses in Sertung, among which 591 have already completed their house, 61 houses are above plinth, and 36 houses are in below plinth (Source:- Marpak LRTC update). As we are approaching to the end of national reconstruction campaign and concerned people are curious about the reconstruction scenario whether reconstruction is grant based or really an earthquake resistant based. In this situation this kind of reconstruction practice gives sight of sustainability.



Sertung of Dhading resumes to its normal life after nearly completion of reconstruction

Baliyo Ghar activities in KATHMANDU

Baliyo Ghar program conducts its program activities in Kathmandu in the direct supervision of Baliyo Ghar head office. Baliyo Ghar head office team functions as the National Reconstruction Technology Center (NRTC) through which national level program activities are carried out. Training to the government engineers, talks and discussion with government authorities in regard to policy, program implementation and other aspects of reconstruction process are being held at Kathmandu. Likewise, Baliyo Ghar is providing direct technical assistance to one of the municipalities of Kathmandu i.e. Kageshwori Manohara Municipality in the north-east of Kathmandu through a mobile team. It's one of the most-quake-hit area in Kathmandu Valley where 3216 households collapsed during Gorkha Earthquake.

In the year IV, Baliyo Ghar Team Kageshwori has accomplished 2 mason trainings producing 47 trained masons. Likewise, 48 more community orientation programs have been conducted in 3 wards of municipality where 921 beneficiaries have been benefited directly. Also 1 retrofit training was conducted in one of the retrofit beneficiaries, Mr. Ram Kumar Thapa in Kageshwori Manohara Municipality-01.

Mason Trainings at Kageshwori Manohara



As the reconstruction campaign is about to be over, capacity building trainings to the local masons is being reduced as per the demand. In the Year IV, Baliyo Ghar organized 2 mason trainings in Kageshwori Manohara Municipality. In one of the trainings, Mayor of the municipality Mr. Krishna Hari Thapa was present to handover the certificate of completion. On the occasion, Mr. Thapa urged the participants to utilize the gained knowledge and skills at optimum.

Training on Seismic Retrofit Design of Masonry Buildings for Engineers

In a bid to escalate the process of retrofitting of partially damaged masonry buildings in the earthquake affected areas around the country, an Engineer's Training on Seismic Retrofit Design of Masonry Buildings was conducted in Kathmandu. The training was jointly organized by the National Reconstruction Authority, Central Level Project Implementation Unit (Building) and NSET under its Baliyo Ghar Program. The participant engineers are at the forefront for disseminating information and providing technical assistance to earthquake affected beneficiaries. The training is seen as a major effort towards enhancing the capacities of technical personnel, especially structural engineers and designers to undertake the design of retrofitting of masonry buildings abundant in rural Nepal. To achieve this, the training covers a wide range of theoretical and practical sessions

involving vulnerability and damage assessments of existing buildings, case studies of retrofitting in masonry buildings and manual and SAP based modelling, analysis and design of retrofitting. During the training, experiences of retrofitting in masonry buildings before and after the 2015 Gorkha earthquake currently being implemented by NSET and other organizations was also shared. 4 such trainings were conducted in Kathmandu during 4th year implementation of Baliyo Ghar Program.



Training to Representatives of Kageshwori

With the approach of building capacity and enhance knowledge on disaster risk mitigation measures and build common understanding about the reconstruction process, retrofit and building code implementation to the elected authorities, NSET- Baliyo Ghar program organized Training to Local Authorities in Kageshwori Municipality too. The prime focus of the training was to impart the knowledge about role, responsibility and liability of local authority on reconstruction, promote retrofit and effective implementation of Building Code in the municipality. One training was organized for the ward level representatives, community people, house owner and people involved in social activities of the ward 1, 2 and 3 of municipality.

During the closing ceremony of the training, Rampyari Nagarkoti, female ward member of municipality admired the training package and stressed that if the concept of the retrofitting had come earlier (immediate after the earthquake), then many old houses would have been retrofitted instead of demolishing. Mr. Raj Kumar Thapa, one of the retrofit beneficiaries shared his feelings towards retrofitting of his house which was completed with the support from Baliyo Ghar program. Moreover, many participants committed to contribute their best to ensure safer reconstruction and implementing building code in the local level. They also affirmed their significant role in ensuring safer construction practice even after the reconstruction campaign is over.



Photos of Reconstruction Exhibited at NSET; CEO of NRA concluded the exhibition



The 4th Anniversary of the 2015 Gorkha Earthquake was marked in April 25-30, 2019 at NSET premises with a photo exhibition portraying the efforts and outcomes of Baliyo Ghar Program in post-earthquake reconstruction in four districts. The exhibition was effective in showcasing modality, essence and impact of technical assistance in post-earthquake reconstruction, especially through Baliyo Ghar Program.

Chief Executive Officer of National Reconstruction Authority (NRA), Mr. Sushil Gyewali, veteran artist, Mr. Kiran Manandhar, senior litterateur Mr. Santa Daas Manandhar, USAID representatives, Journalists and NSET professionals among others made their presence in a formal program to conclude the exhibition. The exhibition was launched with informal sharing among NSETians. Addressing the closing ceremony, Mr. 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 50%

more of the reconstruction which I swear will be accelerated in the year forth," Mr. Gyewali stated.

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. Speaking on the occasion, Mr. Kiran Manandhar and Mr. Santa Daas Manandhar shared their pleasing to get informed about the activities and progress made in reconstruction. They thanked NSET for providing the opportunity to get them with the insights of reconstruction. Likewise, Mr. Andrew Golda from USAID emphasized on the support that USAID is providing for Nepal's reconstruction to achieve Build Back Better and Safer goal. On the occasion, Mr. Surya Narayan Shrestha, Executive Director of NSET highlighted the experiences of reconstruction that NSET has collected and emphasized on the objectives of organizing photo exhibition.

More than 100 photos collected from Baliyo Ghar Program areas were displayed during the 6-days exhibition.



Promoting Safer Reconstruction and Seismic Resilience through Mass Media Campaign

In 2011, 50.82% of households in Nepal owned and listened to a radio while 36.45% households owned a television (Census, CBS). Similarly, a 2018 study conducted by Sharecast Initiative Nepal depicted that the major source of information for a Nepali household is television, making up 38.4% of the demographic, followed by Radio at 36.6%.

With the lucid understanding that mass media are the most effective means to reach wider population in order to propagate the desired message and raise awareness through disseminating information, knowledge and ideas, Baliyo Ghar program has been collaborating with mass media, both radio and television to promote safer reconstruction.

Baliyo Ghar TV Programs



Weekly Half-an-hour TV Magazine Program “Baliyo Ghar” turned to be a great platform for learning, sharing and advocating for safer reconstruction. During the collaboration period, Baliyo Ghar TV Program covered diverse issues of reconstruction policy instruments to technology to local practices and various phases and aspects of reconstruction processes. With the aim of reaching most of the earthquake-affected districts through different TV channels, Baliyo Ghar collaborated with All 3 Media Ghar, a production agency and broadcasted Baliyo Ghar TV program through five different channels namely Nepal Television, Kantipur Television, Image TV, News24 Television and Avenues Television. **Altogether 156 Episodes** were produced and broadcasted during the three and a half year period from May 2016 to August 2019.

34 unique episodes of TV program have been produced and aired twice a week (i.e. 68) through 2 TV channels (Nepal Television and Kantipur Television) during this year IV period.

Baliyo Ghar TV Program covered diversified issues of reconstruction including policy aspects, efforts made for safer reconstruction, and process related issues, grassroots stories and issues related to earthquake resistant technology. The program primarily focused on simplifying the technical complexities of building earthquake resistant houses and getting them broadcasted through national channels and filling the gap of information among the policy makers and beneficiaries. Similarly, the program was also helpful in setting the agenda for safer and better reconstruction, passing the updated information through public service announcements and covering the diversified issues of reconstruction from the field. The program also highlighted the good and bad practices, seeking the answers from concerned stakeholders regarding the problems of earthquake affected people and hindrances of reconstruction process.

Baliyo Ghar Radio Programs



In developing countries like Nepal where access to the internet is limited and illiteracy rates are high, local radio stations play a vital role in sharing information and raising awareness. Local radio have proven very imperative in disseminating ideas, generating perceptions and convincing on some specific agendas. Particularly, local radios are connected with local communities and they serve better during emergency announcements and communication during disasters. They

provide an outlet for normal community messaging and play a vital role in convincing the listeners and help in decision-making.

To promote safer reconstruction, advocate on the earthquake technology and make the voices of local community heard, Baliyo Ghar Program collaborated with 13 local community radio stations to produce Baliyo Ghar Radio Magazine in the program areas. **Altogether 1696 radio programs were produced and broadcasted twice from 14 radio stations during three and half years of contractual period.** In the Year IV only, 166 unique episodes of Radio program have been produced and get broadcasted twice a week (i.e. 332) through 4 Radio stations.

The individual regular weekly radio programs were 30-minute magazine format and were aired twice a week from each station. Each radio aired the messages (PSAs) on safer reconstruction practices and processes 10 times daily. The community based and local radio stations covered 70 percent of local stories (stories of beneficiaries, success, problems and challenges of reconstruction) and 30 percent of program content focuses on policy and processes.

TV and Radio Program focused on Retrofit Issues



As Baliyo Ghar TV and Radio Programs have turned to be effective means to propagate the messages and reconstruction issues among the stakeholders and at grassroots level, the issues of Retrofit have been broadcasted through TV and Radio time and again. The program have been produced on the themes like; concept of retrofit, its scientific significance, feasibility and affordability with evidence, technicalities, process and success stories of retrofit. The talk shows and discussions with policy makers, local authorities and house-owners regarding the implementation of retrofit in TV and Radios have definitely paved a way in scaling up the retrofit in quake-hit areas. Show casing the success stories of Retrofit through TV and Radio have encouraged other beneficiaries to get in the same page.

Baliyo Ghar TV program has solely produced 12 more episodes on the retrofit issues and broadcasted through 2 TV Channels namely; Nepal Television and Kantipur Television. Likewise, 56 more episodes focused on retrofit issues have been produced and broadcasted through 4 radio channels. These are the examples of Baliyo Ghar partnered TV Program and Radio Program.

Awaking people through Information Desks and IEC Materials



To provide guidance to house owners involved in building permit system about the Municipal System and Service and to provide common people with basic IEC Materials focusing on earthquake safer building construction Baliyo Ghar program team have been establishing information desks and providing IEC materials for the earthquake beneficiaries in the program areas. IEC materials have been very effective means of communication and information transfer in the quake hit areas. Baliyo Ghar has been producing and disseminating different IEC materials that carry the message of safer reconstruction and earthquake safety including preparedness.

Likewise, Help Desks were established in appropriate locations as a resource intended to provide the customer with information and support related to institution's products or service. The purpose of a help desk was usually to troubleshoot problems or provide guidance about the service that the institution is providing.

Apart from providing service to beneficiaries about building permit process, building code and reconstruction procedure, local people were also oriented about the process. Separate orientation programs were planned if the number of beneficiaries who come to help desk is significant. After completion of building permit task of that day, local beneficiaries were gathered and oriented about the overall procedure of building permit system, earthquake and its preparedness, building code and its importance and major 10 key points for new reconstruction.

In the year IV, Baliyo Ghar program disseminated more than 7000 copies of different IEC materials in the quake-hit areas of program districts to aware beneficiaries about the techniques of safer building construction. Primarily in this year Posters and booklets carrying the techniques of Retrofitting were disseminated.





1. The two storey house with two stories

The Gorkha Earthquake took approximately 9000 lives, injured more than 22000 and collapsed and damaged houses and historical monuments. 3 years has passed since people have been trying to go back to the lifestyle they had before the earthquake. After almost 70% of reconstruction in 3 years, some strings are yet to be attached to get back to the same routine. The cultural heritage and monuments are yet to be preserved and like these monuments, the houses of traditional architecture are waiting to be preserved as well. Apart from these buildings, most of the houses standing even after the great earthquake are waiting to be repaired and retrofitted. So to strengthen and complete the reconstruction process, NSET Baliyo Ghar started 25 days mason training for retrofitting of masonry houses producing 6 trained masons at a time.



Suresh Shrestha's house was one of the houses listed for retrofitting by the Government of Nepal. His house was a newly constructed Stone Mud Mortar house completed on 2071 BS. The owner had not fully settled in the house when the Great Earthquake hit. Not much damage could be seen on the 12th of Baisakh but when the earthquake hit Sunkhani, gable wall of the house collapsed and small hairline cracks were generated near the openings and the aftershocks worsened the condition. Since the house was two storey with an attic, constructed with mud mortar, Suresh Shrestha and family was terrified to enter the house even after the shaking had stopped. So he constructed a single roomed CGI sheet house where the 5 of them lived for next 2 years. The condition at temporary living center was no good. Harsh weather brought much difficulties. The family had to go to sleep in fear during windy nights and the night seemed to be even longer when wind was accompanied by rain. Due to degrading health of his 5 years old daughter, he decided to move back in to the house after demolishing the attic portion. Even after moving back in, he was in constant fear that the house would collapse if another big quake were to come. The fear made him decide that he would transfer from retrofitting beneficiary into reconstruction beneficiary, construct a 2 roomed – 1 storey house near the still standing building to reside in and plaster and use the old house as shed and for storage purpose.

But after NSET Baliyo Ghar approached him and informed him about retrofitting, its benefits and importance, he agreed to retrofit his house. The designs were prepared and retrofit was started on 21st of Falgun 2075. The house was larger in size and needed more works to be done than other houses retrofitted by Baliyo Ghar previously. Having larger size it took more than 25 days making the owner anxious.



The problems started when neighbors and passer-by started questioning about the technology used in retrofitting and the no of days remaining for work. Concerned Suresh Shrestha had started regretting his decision of retrofitting saying, "I should have constructed a 2 roomed house and should have just plastered this one and converted it into shed and store." But he was convinced that he had taken the right decision when he realized that the cost of wire mesh used in retrofitting was covered by cost of masons to plaster the house as per his previous plan and he was rewarded with a much stronger and earthquake resistant 2 storey-8 roomed house unlike the 1 storey-2 roomed house that he had planned to construct. The 2 storey house once planned to be converted into a shed was now revived and the owner was rejoiced to have been proven wrong. Now when the passerby try to dishearten him that he could have transferred his name into reconstruction beneficiary and could have construct a "new" house, he happily says, "even though the retrofit process took longer period than the promised time, the house is more stronger and is more spacious than the 1 storey house I had planned to construct."



2. A reluctant man turns to be a retrofit promoter in Nalang, Dhading

As it was quite comfortable and he could see surroundings easily, Mr. Ram Prasad Naharki, a resident of Nalang Dhading, always preferred to sleep in the balcony of his house. According to Mr. Naharki, verandah (balcony) in the first floor of his house was like an air-conditioned room where he has spent every night of more than 20 years. After the Gorkha Earthquake that hit in April 25, 2015, Mr. Naharki was numbed at all. He didn't lost his house as others did, though it was not damaged completely but one could see minor cracks which forced Naharki family to stay outside the house. From that day, Mr. Naharki went on missing the verandah vehemently every night. As he asserts, he lost his sound sleep by then. After the 4 years of Gorkha Earthquake, with pleasant mood he has got back to the same verandah in the same bed and same pillow for what he calls the sound sleep.



Mr. Naharki, dweller of Siddhalekh Rural Municipality-02, Naharki Gaoun, Nalang Dhading is a local teacher. He and his wife Mrs. Parbati Naharki have struggled a lot to feed, nurture and bring up 6 daughters and one son. Mrs. Naharki has unconditionally supported Mr. Naharki for 35 years more. The house with beautiful verandah and attic was their sacred temple where not only their physical body but soul too resides. Their only shelter was partially damaged by Gorkha Earthquake. Since then to June 2019, Naharki family got distressed to be in a temporary shelter where they cooked, kept all their household stuffs and slept in the one and only room. Soon after the earthquake, the engineers deployed to assess the structural damage advised Naharki family to retrofit their house and enlisted them in the retrofit beneficiaries. But Mr. Naharki was reluctant to retrofit his house as he believed stone masonry buildings could not be retrofitted. He thought to increase the savings to build a RCC structured house for which he had to wait for some years. His family members too were reluctant to retrofit the partial damaged house. Later when the villagers urged him and government provision to get retrofit beneficiaries transformed in reconstruction full beneficiaries was enforced, Mr. Naharki thought to do so. "In fact I was about to transform myself to the reconstruction beneficiary where I could receive the grant amount worth 3 hundred thousand rupees but I knew I had to add 5 hundred thousand more to get just two-roomed house. I was in deep dilemma", Mr. Naharki said.

Mindset changed to save the traditional architecture

Actually, Mr. Naharki was in great impasse, whether to get transformed in reconstruction beneficiary, demolish the house and build a new one or to retrofit it. In the meantime, Baliyo Ghar Program was implementing retrofit in Dhading including Nalang, village of Mr. Naharki with the aim to produce skilled manpower so that they could contribute in retrofitting the partial damaged houses. During the course, mobile team of NSET-Baliyo Ghar visited Naharki family twice to make aware and request them to retrofit the house. Indeed, retrofit had two tangible benefits for Naharki family, one they could save the traditional architecture and the other the requirements of family could be best served by their old house. If they were to rebuild a new one, probably it won't best fit them as their family was too big. Mr. Naharki participated the orientation of Baliyo Ghar program twice and discussed with engineer and social mobilizer in series. "I was keenly gathering knowledge about retrofit technology and was eager to know about the cost and time to retrofit my house which later was provided by Baliyo Ghar team. And then I went changing my mindset," Mr. Naharki informed.

"Retrofit beneficiaries like Mr. Naharki are reluctant to retrofit their stone masonry buildings only because they are completely unaware about the technology primarily the cost to retrofit," Mr. Hariram Pathak, Dhading District Coordinator to Baliyo Ghar program said, "It took 2 weeks to convince Mr. Naharki family. Basically the eldest daughter of Naharki family played a vital role in deciding to start retrofit in their house."

Baliyo Ghar Program is conducting retrofit trainings in 3 districts; Dolakha, Dhading and Nuwakot, the program districts. "Baliyo Ghar bears the cost of masons and provides nominal in-kind support to implement retrofit as part of program. But the aim is to develop a model house in village and produce skilled human force," Mr. Ranjan Dhungel, Program Manager to Baliyo Ghar says, "It's a capacity enhancement training of the program where we conduct 25 days training in a way the selected house also gets retrofitted and at least 6 masons get their knowledge and skills enhanced."

Mrs. Naharki says in the initial days of retrofit she was saddened to see the house being hammered and plasters being uncovered as she thought the house would lose its strength, structure and identity. "But when it reached 25 days of training, I could see the house being more attractive and safe for sure than before," she said. The neighbors too were suspecting about the retrofit technology and keenly watching its implementation in Naharki's family. According to Mrs. Naharki, at least 2/3 persons used to visit the house every day to see the development and masons working, in fact they were building self-confidence on them.

Retrofit in Naharki's house began in April 2019 and ended up within 25 days. And spending 20 days more, Naharki family completed the house doing aesthetic works and other arrangements to get in ready to use. During the course, Mr. Naharki and his wife worked together with the 6 masons helping them arranging necessary equipment, supplying water and other stuffs and of course preparing them 'Khaja', the day tiffin. With a long breath as if they have completed a tough task, Naharki family entered the house organizing a ritual function "Puja" in first week of June 2019. "The house now looks attractive than before, by doing retrofit we not only have increased the seismic strength of the house but also saved the traditional structure and appearance. The rooms are surplus for our family," Mrs. Naharki said.

"Negligible economic burden"

Baliyo Ghar program had frequently coordinated with Mr. Kamal Bahadur Gurung, Ward Chair of Siddhalekh Rural Municipality-02 to implement retrofit in Nalang along with other representatives. Mr. Gurung is also one of the earthquake beneficiaries who has rebuilt his house with the expense of 13 hundred thousand. "Had my house been partially damaged, I would have now retrofitted it. I came to know that retrofitted house not only increases the seismic strength but also its cost effective too. I spent 13 lakhs more to rebuild a two-roomed house, but as far as I know, Naharki's two-storey house has been retrofitted within 5 lakhs. I urge all the retrofit beneficiaries to retrofit their house," Mr. Gurung said.

Mr. Naharki now a retrofit promoter in Nalang



Mr. Sushil Gyewali, CEO of NRA handing over the retrofitted house to Naharki family

Retrofitted house of Naharki family is now a model house in Nalang. Mr. Naharki proclaims himself a lucky man. When he began retrofitting his house, more than 100 people have already visited his house, talked with him and enquired about the technology. Mr. Sushil Gyewali, Chief Executive Officer of National Reconstruction Authority (NRA) along with other policy makers and district authorities also visited his house and interacted with him. "I never imagined of such flow of high official's visit to my house, retrofit was the cause, I am lucky enough," he shared with amusing smile.

As he has served his society being a teacher for a long, Mr. Naharki is also a social influential person. After completing the retrofit in his house, he started promoting retrofit for seismic safety of his village. There are 18 houses to be retrofitted in Naharki Gaoun solely. As part of the Baliyo Ghar's training, 3 houses have been retrofitted in the

village. The 18 skilled masons produced through those 3 trainings are expected to contribute in retrofit the rest houses and in other houses in Nalang. Now Mr. Naharki goes to every retrofit beneficiary to share his experience and encourage them to retrofit house for their family's sake. "Government provides grant amount worth Rs. 3 lakhs to the reconstruction beneficiaries and Rs. 1 lakh for retrofit beneficiaries. I have heard some retrofit beneficiaries are lobbying to get transformed in reconstruction beneficiary, I think it's due to the lack of knowledge about the benefits of retrofit. I personally have been sharing the benefits of doing retrofit. It's not only the case of Naharki Village, beneficiaries all around the quake hit districts should implement retrofit in case their houses have been partially damaged or not damaged at all," Mr. Naharki stressed.



Mr. Ram Prasad Naharki and his wife Mrs. Parbati Naharki in front of their retrofitted house



Montage of Naharki House (Before, during and after Retrofit)

3. A family who got transformed from reconstruction beneficiary to retrofit beneficiary

The tremor that shook the ground and physical structures in mid-Nepal in April 2015 also quivered the heart of Mr. Manilal Shrestha's family, inhabitants of Kakani Rural Municipality-8, Thansing Nuwakot. Though he witnessed the collapsed houses in the neighbors, Mr. Manilal turned lucky as his house had partial damage but his family was unable to stay inside. They had to leave the house constructed in 40 years ago and compelled to remain in temporary shelter. The engineers who came for survey enlisted Shrestha family to reconstruction beneficiary though their house was standing still. Soon after the survey he was not able to reconstruct his house due to socio-economic reasons and for 3 years he couldn't. In fact, Mr. Manilal was distressed to demolish the partial damage and rebuilt new one. As he had to lose the traditional house with plenty of rooms and enough area to accommodate his agricultural products, he was in perplexed condition. His vehement love towards his house and the attachment he had with every walls and rooms delayed in demolishing it. Though he could find no other options than to demolish 2 and half storeyed house and rebuilt two-roomed house which he knew would hinder his family in fulfilling the daily requirements. In due course of time, after 1 year of stay in temporary shelter, Shrestha family shifted to the same house where one could witness cracks and damages. They used to shiver when they thought of earthquake.

house resist earthquakes? Retrofit won't work for such mud mortared house even it will be concrete plastered, Mr. Manilal is digging his grave himself." But Mr. Manilal used to smile in hearing such converses, as he was firm enough about the understanding he made in frequent discussions with Baliyo Ghar team. The scientific tests about the stone masonry buildings, examples of other districts that he happened to see were convincing evidences for him in solidifying his perception.



House of Mr. Manilal before retrofit

Mr. Manilal and his family were quite pleased to welcome almost all the representatives of Kakani Rural Municipality who visited his under-retrofitted house. All the representatives who were participating the Local Authority Training in Kakani organized under Baliyo Ghar Program had visited his house and appreciated Manilal's family for setting an example in the locality. Indeed, retrofitted house of Mr. Manilal has been a model house in Thansing-Putali Chautara.

"Every day 4/5 people come to see my retrofitted house, I am quite pleased to inform them about the technology implemented in my house, and some of the visitors have shown interest in implementing retrofit in their house too" Mr. Manilal says. As much Mr. Manilal is happy to have an earthquake safe house after retrofitting, he and his family seem to be happy to continue their big house with ancestral identity.

There are several houses in Thansing and nearby areas which were partially damaged by the Gorkha Earthquake and the families are residing under the vulnerability. Mr. Manilal urges them to retrofit their house as soon as possible. When he walks around his house and nearby village, he cannot stop himself without briefing about the benefits of retrofitting house and the process to go with.



Retrofitted house of Shrestha Family



Retrofitting undergoing in Manilal's house

In Feb 2019, when he encountered the mobile team of NSET-Baliyo Ghar Program and learned about the retrofitting in stone masonry building, Mr. Manilal sighed a long breath. As happy he was to learn about the retrofit he was more than happy to listen that his partial damaged stone-masonry house could also be retrofitted. When the mobile team of Baliyo Ghar assessed his house and calculated the cost to retrofit Mr. Manilal began the process to transform himself from reconstruction beneficiary to retrofit beneficiary. In doing such, he was to receive 1 lakh grant from government and technical support from NSET-Baliyo Ghar. In consultation with his wife, Mr. Manilal decided to retrofit his house. He says, "I was not aware about the feasibility of retrofitting in masonry buildings which later Baliyo Ghar oriented me. Neighbors and relatives were giving pressure to demolish and reconstruct new one which I never wanted. It was indeed a right decision that we decided to retrofit our house."

1 month later, Baliyo Ghar provided the drawings and design of his house to retrofit including cost calculations. As part of program, 25 days training of retrofit began in his house in June 2019 with 6 masons getting engaged. During the 25 days, the masons enhanced their knowledge and skills regarding retrofit in stone masonry building. During the retrofit process, Mr. Manilal heard some negative comments from neighbors and others. Some of the rumors uttered by his relatives and neighbors were, "It would have been better to receive 3 lakh grant than 1 lakh grant by rebuilding the house, how can the stone masonry

Female Masons in Reconstruction



Mrs. Dambar Maya Thami, a leading female mason

Dambar Maya Thami-48, the resident of Alampu, ward no. 4, Thulogaun was involved in agriculture and dependent upon income of her husband. She was living a normal life, working as a housewife. Her life became stressful after the Gorkha Earthquake in 2015. The additional responsibility of building their house was added, having the responsibility of their children. So, she decided to get involved in work outside of her house.

Dambar Maya, who started working as a labor heard about the Mason training which was planned to be organized in Alampu under Baliyo Ghar Program. She participated in the very first training organized in Alampu. She said to have learned lots of skills from the training. She says, "The bands were not used previously while building a house. But, now after training I have learned the importance of bands and other technical skills. The construction quality also depends upon the quality of construction materials." She was surprised after she heard; Cement also has its expiry date just like food products.

She has been actively involved in ongoing reconstruction process after training. Sharmila (Dambar Maya's Daughter) says, "My Mother never stays free, without work. She is always busy with something. She works as a mason as much as possible, if not, she even works as a labor." She assumed- "These days, my mother earns more than my father."

Dambar Maya has already involved in building more than 50 earthquake resilient houses. While meeting her in Alampu, she is found working somewhere, building somebody's seismic safe dream house and directly or indirectly contributing the all over process of reconstruction. She could be called a woman champion of reconstruction and became an exemplary person. Now, after saving some money; she is planning to build her own dream house.



"My commitment toward Reconstruction"



Fulmaya Shrestha

"Our ancestors had said, skill and knowledge could neither be theft nor, be looted. I had also participated 7 days urban mason training to learn new skills and knowledge. It was said that, women cannot work like men does. But, I believe; it's possible if, we have skills and determination to do it. And, being a trained mason it is my commitment to contribute the recent ongoing reconstruction process."

Increased association of women in Reconstruction

Women in Dampha Tole, Babare (located 50 K.M. north from headquarter of Dolakha District) are involved in reconstruction process; identical to that of men. They are working as a mason. It's the first time in the history of Babare, women had presented an example; they can work as much as men can do. However, they affirm on being inspired by the male mason to do so.

Ram Maya's husband Madhukar Thami residing in Dampha is a trained mason. He was trained through 7 Days Mason Training organized by Baliyo Ghar Program, who later on coached her wife with masonry skills. Since then, the couple is working together. Similarly, Babita Thami is another woman, who has been constructing seismic safe houses in her community. She is a high school student who said to have learned masonry from the trained masons in the community. Her father too is a trained mason. Rum Maya Thami said "More than 5 seismic safe houses have been reconstructed in the involvement of women masons."



Cheerful women mason said, "Nothing is impossible if we start doing it. Previously, only men used to work as a mason. But, it is now understood that women can work as a mason. Trained mason Shankar Thami said, "We shouldn't limit the knowledge we have on us. As, I have learned from the mason training women could and/or should contribute to reconstruction of Nepal; I have also coached them. And, now they are self-dependent and are able to work with us."



Rum Maya Thami Chiseling Stones

95 years old house owner Krishna Maya Thami also shared her happiness while chiseling stone, "Women these days also involve in masonry works. I only have few years to live. But, I can now shelter safely in this house till my last breath."

Life of a woman changed by OJT



Nirmala Tamang during On the Job Training

The devastating Gorkha earthquake occurred on 25th April and 12th May has affected Bhimeshwar and other parts of the country. NSET-Nepal initiated BaliyoGhar program has also made Bhimeshwar as its working area while people here had already started working on earthquake preparedness and resilient reconstruction. On the Job Training is one of the major activities conducted by BaliyoGhar program. A houseowner from Bhimeshwar-10 Takanagi was selected for OJT to be conducted. Nirmala Tamang is one of the active trained masons trained through 50 days On the Job Training.

There are still lots of people who say women cannot work outside of their houses. In that case, Nirmala Tamang is full of determination, and a motivational example to lots of other women. She is working as much as men do. She says, "I have already built 4-5 houses after the training. It is also economically supporting me. Previously, we were dependent upon my husband's income for household expenses. However, now, I save NRS.15-20 thousand every month, looking after my son's educational expenses." Resident of Bhimeshwar-10, 27 years old Nirmala Tamang is a mother of one child. She says that the reason behind her getting involved in the OJT is because she has the full support from her family and wanted to become self-dependent in life.

After getting trained and certified, she is now actively working and contributing in the ongoing reconstruction process. She had cleared her high school from a local nearby school. She says, "People had also criticized me being educated and working as a labor mason. But, people who encourage me are outnumbered that those who criticize me." She verifies agriculture to be her major occupation but, she also said would continue masonry as an occupation. She gets to know about resilient reconstruction and the technology, Risk reduction and Preparedness after participating OJT conducted by BaliyoGhar Program. She is now able to transfer and express the knowledge and skills she had learned. Although, she is not satisfied with the low wages she gets, just because she is a woman, she feels happy while she gets an opportunity to share the skills and knowledge she mastered and, to advocate about women empowerment.

Laxmi Thakuri in Reconstruction of Laduk

Laxmi Thakuri-35, resides in Bigu Rural Municipality-4, Laduk (Erstwhile Laduk VDC). Her family is economically instable. Both, she and her husband are literate with basic education. Both are working as a labor for living. "It is not the big deal, to work for living. Earlier, we used to earn NRS.500 per person, per Labor Day, working as a labor", informs Laxmi, "1304 houses are to be reconstructed in Laduk after the devastating Gorkha Earthquake. Me, and my husband are working for resilient construction in various (previous) wards of Laduk. We often met the mobile team mobilized by Baliyo Ghar Program. Once, we found out, NSET conducts an Orientation Programs, mason trainings, on the job trainings, information/help desks, etc. Then, we started getting involved in orientation programs and made an inquiry based on our curiosity. After sometime, we got involved in 7 Days Rural Mason Training and enhanced our technical skills."



To contribute the national program of reconstruction, as learned for the training, Laxmi started working as a trained women mason. Her family had also helped and encouraged her to be the part of ongoing reconstruction. She has involved herself in constructing more than 30 resilient houses. "I used to get NRS.500 while working as an untrained mason. Now, I get NRS.1000 per day. After working in 30 houses, I have saved NRS.4,50,000/-. At present, we are living the improved life and I am also contentiously involved in reconstruction process," she shared with pleasing smile.



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